GDCM

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13.347 gdcmJPEG8Codec.h File Reference . . . 1948

13.348 gdcmJPEG8Codec.h . . . 1948
13.349 gdcmJPEGCodec.h File Reference . . . 1949
13.350 gdcmJPEGCodec.h . . . 1950
13.351 gdcmJPEGLSCodec.h File Reference . . . 1952
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13.353 gdcmJSON.h File Reference . . . 1953
13.354 gdcmJSON.h . . . 1954
13.355 gdcmKAKADUCodec.h File Reference . . . 1955
13.356 gdcmKAKADUCodec.h . . . 1956
13.357 gdcmLookupTable.h File Reference . . . 1956
13.358 gdcmLookupTable.h . . . 1957
13.359 gdcmMEC_MR3.h File Reference . . . 1959
13.360 gdcmMEC_MR3.h . . . 1960
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13.369 gdcmPersonName.h File Reference . . . 1968
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13.371 gdcmPGXCodec.h File Reference . . . 1970
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13.377 gdcmPixmap.h File Reference . . . 1977
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13.380 gdcmPixmapReader.h . . . 1981
13.381 gdcmPixmapToPixmapFilter.h File Reference . . . 1982
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13.386 gdcmPNMCodec.h . . . 1986

13.387 gdcmPrinter.h File Reference . . . 1986
13.388 gdcmPrinter.h . . . 1988
13.389 gdcmPVRGCodec.h File Reference . . . 1989
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Chapter 1

GDCM Documentation

This is the developers documentation.

A PDF version of this doxygen documentation can be found here:

`http://gdcm.sourceforge.net/3.0/gdcm-3.0.24.pdf`

A tarball version of this HTML doxygen documentation can be found here:

`http://gdcm.sourceforge.net/3.0/gdcm-3.0.24-doc.tar.gz`

Author

Mathieu Malaterre

Chapter 2

Todo List

Class gdcm::CSAHeader

MrEvaProtocol in 29,1020 contains ^M that would be nice to get rid of on UNIX system...

Class gdcm::network::ApplicationContext

Looks like Application Context can only be 64 bytes at max (see Figure 9-1 / PS 3.8 - 2009)

Class gdcm::Overlay

Is there actually any way to recognize an overlay ? On images with multiple overlay I do not see any way to differentiate them (other than the group tag).

Class gdcm::SequenceOfFragments

I do not enforce that Sequence of Fragments ends with a SQ end del

Class gdcm::TransferSyntax

: The implementation is completely retarded -> see gdcm::UIDs for a replacement We need: IsSupported We need preprocess of raw/xml file We need GetFullName()

Member gdcm::UIDGenerator::IsValid (const char *uid)

: Move that in DataStructureAndEncoding (see FileMetaInformation::CheckFileMetaInformation)

Chapter 3

Deprecated List

Member gdcm::CompositeNetworkFunctions::ConstructQuery (ERootType inRootType, EQueryLevel inQueryLevel, const KeyValuePairArrayType &keys, EQueryType queryType=eFind)

Member gdcm::FileSet::AddFile (File const &)

. Does nothing

Member gdcm::TransferSyntax::GetSwapCode () const

Return the SwapCode associated with the Transfer Syntax. Be careful with the special GE private syntax the DataSet is written in little endian but the Pixel Data is in Big Endian.

Chapter 4

Bug List

Class gdcm::DICOMDIRGenerator

: There is a current limitation of not handling Referenced SOP Class UID / Referenced SOP Instance UID simply because the Scanner does not allow us See PS 3.11 / Table D.3-2 STD-GEN Additional DICOMDIR Keys

Member gdcm::FileStreamer::StartGroupDataElement (const PrivateTag &pt, size_t maxsizede=0, uint8_t startoffset=0)

maxsizede should be a value lower than the actual total size of the buffer to be copied

Class gdcm::IPPSorter

There are currently a couple of bugs in this implementation:

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Directory Hierarchy

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Chapter 8

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Chapter 10

Directory Documentation

10.1 Common Directory Reference

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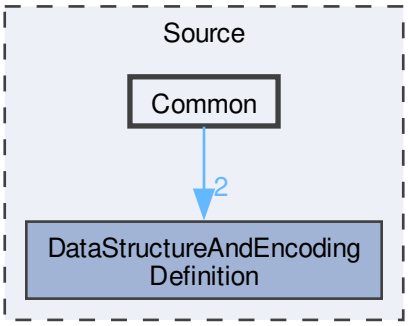

Files

- file gdcmASN1.h
- file gdcmBase64.h
- file gdcmBoxRegion.h
- file gdcmByteSwap.h
- file gdcmCAPICryptoFactory.h
- file gdcmCAPICryptographicMessageSyntax.h
- file gdcmCommand.h
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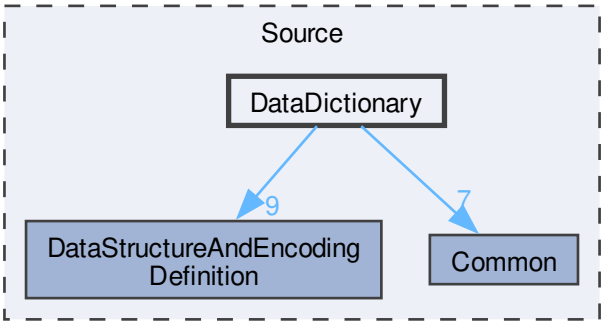
- file gdcmOpenSSLCryptographicMessageSyntax.h
- file gdcmOpenSSLP7CryptoFactory.h
- file gdcmOpenSSLP7CryptographicMessageSyntax.h
- file gdcmProgressEvent.h
- file gdcmRegion.h
- file gdcmSHA1.h
- file gdcmSmartPointer.h
- file gdcmStaticAssert.h
- file gdcmString.h
- file gdcmSubject.h
- file gdcmSwapCode.h
- file gdcmSwapper.h
- file gdcmSystem.h
- file gdcmTerminal.h
- file gdcmTestDriver.h
- file gdcmTesting.h
- file gdcmTrace.h
- file gdcmTypes.h
- file gdcmUnpacker12Bits.h
- file gdcmVersion.h
- file gdcmWin32.h

10.2 DataDictionary Directory Reference

Directory dependency graph for DataDictionary:

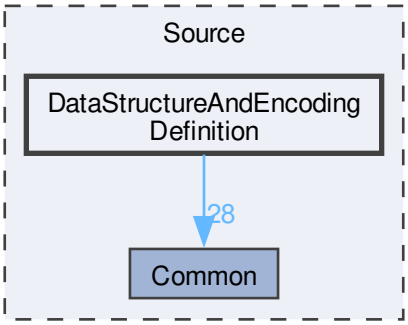


Files

- file gdcmCSAHeaderDict.h
- file gdcmCSAHeaderDictEntry.h
- file gdcmDict.h
- file gdcmDictConverter.h
- file gdcmDictEntry.h
- file gdcmDicts.h
- file gdcmGlobal.h
- file gdcmGroupDict.h
- file gdcmSOPClassUIDToIOD.h
- file gdcmUIDs.h

10.3 DataStructureAndEncodingDefinition Directory Reference

Directory dependency graph for DataStructureAndEncodingDefinition:



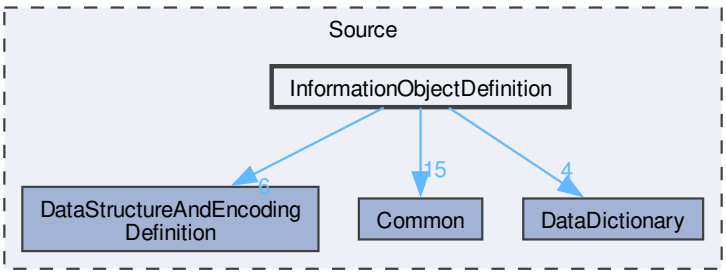
Files

- file gdcmAttribute.h
- file gdcmBasicOffsetTable.h
- file gdcmByteBuffer.h
- file gdcmByteSwapFilter.h
- file gdcmByteValue.h
- file gdcmCodeString.h
- file gdcmCP246ExplicitDataElement.h
- file gdcmCSAElement.h
- file gdcmCSAHeader.h
- file gdcmDataElement.h
- file gdcmDataSet.h
- file gdcmDataSetEvent.h
- file gdcmElement.h
- file gdcmExplicitDataElement.h
- file gdcmExplicitImplicitDataElement.h
- file gdcmFile.h
- file gdcmFileMetaInformation.h
- file gdcmFileSet.h
- file gdcmFragment.h
- file gdcmImplicitDataElement.h
- file gdcmItem.h
- file gdcmLO.h
- file gdcmMediaStorage.h
- file gdcmMrProtocol.h

- file gdcmParseException.h
- file gdcmParser.h
- file gdcmPDBElement.h
- file gdcmPDBHeader.h
- file gdcmPreamble.h
- file gdcmPrivateTag.h
- file gdcmReader.h
- file gdcmSequenceOfFragments.h
- file gdcmSequenceOfItems.h
- file gdcmTag.h
- file gdcmTagToVR.h
- file gdcmTransferSyntax.h
- file gdcmUNExplicitDataElement.h
- file gdcmUNExplicitImplicitDataElement.h
- file gdcmValue.h
- file gdcmValueIO.h
- file gdcmVL.h
- file gdcmVM.h
- file gdcmVR.h
- file gdcmVR16ExplicitDataElement.h
- file gdcmWriter.h

10.4 InformationObjectDefinition Directory Reference

Directory dependency graph for InformationObjectDefinition:



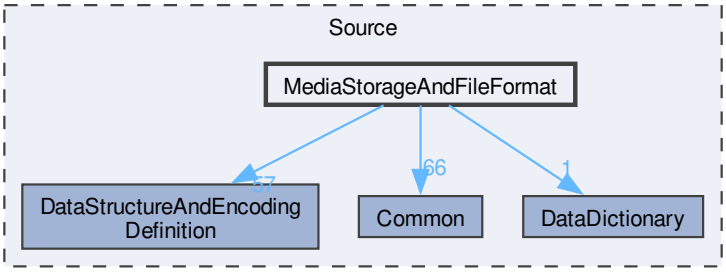
Files

- file gdcmDefinedTerms.h
- file gdcmDefs.h
- file gdcmEnumeratedValues.h
- file gdcmIOD.h

- file gdcmIODEntry.h
- file gdcmIODs.h
- file gdcmMacro.h
- file gdcmMacroEntry.h
- file gdcmMacros.h
- file gdcmModule.h
- file gdcmModuleEntry.h
- file gdcmModules.h
- file gdcmNestedModuleEntries.h
- file gdcmPatient.h
- file gdcmSeries.h
- file gdcmStudy.h
- file gdcmTable.h
- file gdcmTableEntry.h
- file gdcmTableReader.h
- file gdcmType.h
- file gdcmUsage.h
- file gdcmXMLDictReader.h
- file gdcmXMLPrivateDictReader.h

10.5 MediaStorageAndFileFormat Directory Reference

Directory dependency graph for MediaStorageAndFileFormat:



Files

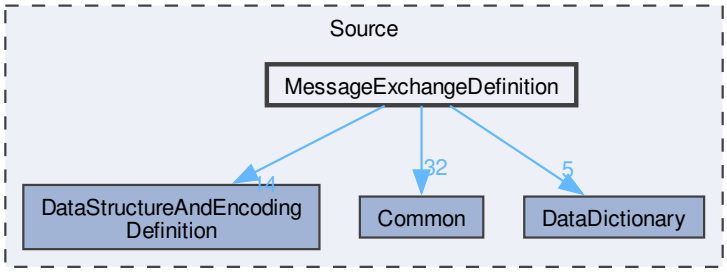
- file gdcmAnonymizeEvent.h
- file gdcmAnonymizer.h
- file gdcmApplicationEntity.h
- file gdcmAudioCodec.h
- file gdcmBitmap.h
- file gdcmBitmapToBitmapFilter.h

- file gdcmCleaner.h
- file gdcmCodec.h
- file gdcmCoder.h
- file gdcmConstCharWrapper.h
- file gdcmCurve.h
- file gdcmDataSetHelper.h
- file gdcmDecoder.h
- file gdcmDeltaEncodingCodec.h
- file gdcmDICOMDIR.h
- file gdcmDICOMDIRGenerator.h
- file gdcmDictPrinter.h
- file gdcmDirectionCosines.h
- file gdcmDirectoryHelper.h
- file gdcmDPath.h
- file gdcmDumper.h
- file gdcmEmptyMaskGenerator.h
- file gdcmEncapsulatedDocument.h
- file gdcmEquipmentManufacturer.h
- file gdcmFiducials.h
- file gdcmFileAnonymizer.h
- file gdcmFileChangeTransferSyntax.h
- file gdcmFileDecompressLookupTable.h
- file gdcmFileDerivation.h
- file gdcmFileExplicitFilter.h
- file gdcmFileStreamer.h
- file gdcmIconImage.h
- file gdcmIconImageFilter.h
- file gdcmIconImageGenerator.h
- file gdcmImage.h
- file gdcmImageApplyLookupTable.h
- file gdcmImageChangePhotometricInterpretation.h
- file gdcmImageChangePlanarConfiguration.h
- file gdcmImageChangeTransferSyntax.h
- file gdcmImageCodec.h
- file gdcmImageConverter.h
- file gdcmImageFragmentSplitter.h
- file gdcmImageHelper.h
- file gdcmImageReader.h
- file gdcmImageRegionReader.h
- file gdcmImageToImageFilter.h
- file gdcmImageWriter.h
- file gdcmIPPSorter.h
- file gdcmJPEG12Codec.h
- file gdcmJPEG16Codec.h
- file gdcmJPEG2000Codec.h
- file gdcmJPEG8Codec.h
- file gdcmJPEGCodec.h
- file gdcmJPEGLSCodec.h
- file gdcmJSON.h
- file gdcmKAKADUCodec.h
- file gdcmLookupTable.h

- file gdcmMEC_MR3.h
- file gdcmMeshPrimitive.h
- file gdcmOrientation.h
- file gdcmOverlay.h
- file gdcmPDFCodec.h
- file gdcmPersonName.h
- file gdcmPGXCodec.h
- file gdcmPhotometricInterpretation.h
- file gdcmPixelFormat.h
- file gdcmPixmap.h
- file gdcmPixmapReader.h
- file gdcmPixmapToPixmapFilter.h
- file gdcmPixmapWriter.h
- file gdcmPNMCodec.h
- file gdcmPrinter.h
- file gdcmPVRGCodec.h
- file gdcmRAWCodec.h
- file gdcmRescaler.h
- file gdcmRLECodec.h
- file gdcmScanner.h
- file gdcmScanner2.h
- file gdcmSegment.h
- file gdcmSegmentedPaletteColorLookupTable.h
- file gdcmSegmentHelper.h
- file gdcmSegmentReader.h
- file gdcmSegmentWriter.h
- file gdcmSerieHelper.h
- file gdcmSimpleSubjectWatcher.h
- file gdcmSorter.h
- file gdcmSpacing.h
- file gdcmSpectroscopy.h
- file gdcmSplitMosaicFilter.h
- file gdcmStreamImageReader.h
- file gdcmStreamImageWriter.h
- file gdcmStrictScanner.h
- file gdcmStrictScanner2.h
- file gdcmStringFilter.h
- file gdcmSurface.h
- file gdcmSurfaceHelper.h
- file gdcmSurfaceReader.h
- file gdcmSurfaceWriter.h
- file gdcmTagPath.h
- file gdcmUIDGenerator.h
- file gdcmUUIDGenerator.h
- file gdcmValidate.h
- file gdcmWaveform.h
- file gdcmXMLPrinter.h

10.6 MessageExchangeDefinition Directory Reference

Directory dependency graph for MessageExchangeDefinition:



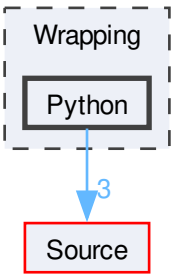
Files

- file gdcmAAbortPDU.h
- file gdcmAAssociateACPDU.h
- file gdcmAAssociateRJPDU.h
- file gdcmAAssociateRQPDU.h
- file gdcmAbstractSyntax.h
- file gdcmApplicationContext.h
- file gdcmAReleaseRPPDU.h
- file gdcmAReleaseRQPDU.h
- file gdcmARTIMTimer.h
- file gdcmAsynchronousOperationsWindowSub.h
- file gdcmBaseCompositeMessage.h
- file gdcmBaseNormalizedMessage.h
- file gdcmBasePDU.h
- file gdcmBaseQuery.h
- file gdcmBaseRootQuery.h
- file gdcmCEchoMessages.h
- file gdcmCFindMessages.h
- file gdcmCMoveMessages.h
- file gdcmCommandDataSet.h
- file gdcmCompositeMessageFactory.h
- file gdcmCompositeNetworkFunctions.h
- file gdcmCStoreMessages.h
- file gdcmDIMSE.h
- file gdcmFindPatientRootQuery.h
- file gdcmFindStudyRootQuery.h
- file gdcmImplementationClassUIDSub.h
- file gdcmImplementationUIDSub.h

- file gdcmImplementationVersionNameSub.h
- file gdcmMaximumLengthSub.h
- file gdcmModalityPerformedProcedureStepCreateQuery.h
- file gdcmModalityPerformedProcedureStepSetQuery.h
- file gdcmMovePatientRootQuery.h
- file gdcmMoveStudyRootQuery.h
- file gdcmNActionMessages.h
- file gdcmNCreateMessages.h
- file gdcmNDeleteMessages.h
- file gdcmNetworkEvents.h
- file gdcmNetworkStateID.h
- file gdcmNEventReportMessages.h
- file gdcmNGetMessages.h
- file gdcmNormalizedMessageFactory.h
- file gdcmNormalizedNetworkFunctions.h
- file gdcmNSetMessages.h
- file gdcmPDataTFPDU.h
- file gdcmPDUFactory.h
- file gdcmPresentationContext.h
- file gdcmPresentationContextAC.h
- file gdcmPresentationContextGenerator.h
- file gdcmPresentationContextRQ.h
- file gdcmPresentationDataValue.h
- file gdcmQueryBase.h
- file gdcmQueryFactory.h
- file gdcmQueryImage.h
- file gdcmQueryPatient.h
- file gdcmQuerySeries.h
- file gdcmQueryStudy.h
- file gdcmRoleSelectionSub.h
- file gdcmServiceClassApplicationInformation.h
- file gdcmServiceClassUser.h
- file gdcmSOPClassExtendedNegociationSub.h
- file gdcmTransferSyntaxSub.h
- file gdcmULAction.h
- file gdcmULActionAA.h
- file gdcmULActionAE.h
- file gdcmULActionAR.h
- file gdcmULActionDT.h
- file gdcmULBasicCallback.h
- file gdcmULConnection.h
- file gdcmULConnectionCallback.h
- file gdcmULConnectionInfo.h
- file gdcmULConnectionManager.h
- file gdcmULEvent.h
- file gdcmULTransitionTable.h
- file gdcmULWritingCallback.h
- file gdcmUserInformation.h
- file gdcmWLMFindQuery.h

10.7 Python Directory Reference

Directory dependency graph for Python:

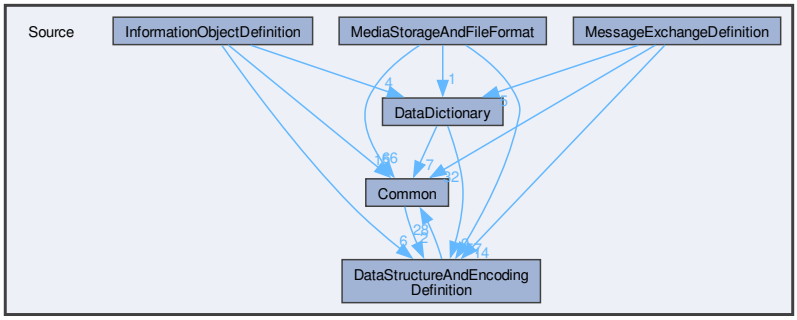


Files

- file gdcmPythonFilter.h

10.8 Source Directory Reference

Directory dependency graph for Source:



Directories

- directory Common
- directory DataDictionary
- directory DataStructureAndEncodingDefinition
- directory InformationObjectDefinition
- directory MediaStorageAndFileFormat
- directory MessageExchangeDefinition

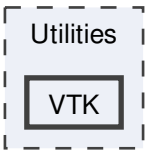
10.9 Utilities Directory Reference

Directories

- directory VTK

10.10 VTK Directory Reference

Directory dependency graph for VTK:

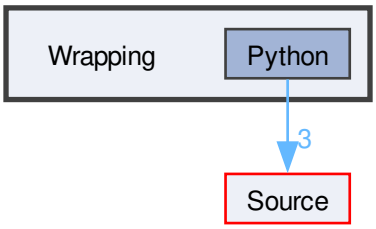


Files

- file vtkGDCMImageReader.h
- file vtkGDCMImageReader2.h
- file vtkGDCMImageWriter.h
- file vtkGDCMMedicalImageProperties.h
- file vtkGDCMPolyDataReader.h
- file vtkGDCMPolyDataWriter.h
- file vtkGDCMTesting.h
- file vtkGDCMThreadedImageReader.h
- file vtkGDCMThreadedImageReader2.h
- file vtkImageColorViewer.h
- file vtkImageMapToColors16.h
- file vtkImageMapToWindowLevelColors2.h
- file vtkImagePlanarComponentsToComponents.h
- file vtkImageRGBToYBR.h
- file vtkImageYBRToRGB.h
- file vtkLookupTable16.h
- file vtkRTStructSetProperties.h

10.11 Wrapping Directory Reference

Directory dependency graph for Wrapping:



Directories

- directory Python

Chapter 11

Namespace Documentation

11.1 gdcm Namespace Reference

Namespaces

- namespace network
- namespace SegmentHelper
- namespace terminal

  Class for Terminal.

Classes

- class AbortEvent
- class AnonymizeEvent

  AnonymizeEvent.
- class Anonymizer

  Anonymizer.
- class AnyEvent
- class ApplicationEntity

  ApplicationEntity.
- class ASN1

  Class for ASN1.
- class Attribute

  Attribute class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary.
- class Attribute< Group, Element, TVR, VM::VM1 >
- class Attribute< Group, Element, TVR, VM::VM1_3 >
- class Attribute< Group, Element, TVR, VM::VM1_8 >
- class Attribute< Group, Element, TVR, VM::VM1_n >
- class Attribute< Group, Element, TVR, VM::VM2_2n >
- class Attribute< Group, Element, TVR, VM::VM2_n >
- class Attribute< Group, Element, TVR, VM::VM3_3n >
- class Attribute< Group, Element, TVR, VM::VM3_n >

- class AudioCodec

  AudioCodec.
- class Base64

  Class for Base64.
- class BaseQuery

  BaseQuery.
- class BaseRootQuery

  BaseRootQuery.
- class BasicOffsetTable

  Class to represent a BasicOffsetTable.
- class Bitmap

  Bitmap class.
- class BitmapToBitmapFilter

  BitmapToBitmapFilter class.
- class BoxRegion

  Class for manipulation box region.
- class ByteBuffer

  ByteBuffer.
- class ByteSwap

  ByteSwap.
- class ByteSwapFilter

  ByteSwapFilter.
- class ByteValue

  Class to represent binary value (array of bytes).
- class CAPICryptoFactory
- class CAPICryptographicMessageSyntax
- class Cleaner

  Cleaner.
- class Codec

  Codec class.
- class Coder

  Coder.
- class CodeString

  CodeString.
- class Command

  Command superclass for callback/observer methods.
- class CommandDataSet

  Class to represent a Command DataSet.
- class CompositeNetworkFunctions

  Composite Network Functions.
- class ConstCharWrapper

  Do not use me.
- class CP246ExplicitDataElement

  Class to read/write a DataElement as CP246Explicit Data Element.
- class CryptoFactory

  Class to do handle the crypto factory.
- class CryptographicMessageSyntax

- class CSAElement

  Class to represent a CSA Element.
- class CSAHeader

  Class for CSAHeader.
- class CSAHeaderDict

  Class to represent a map of CSAHeaderDictEntry.
- class CSAHeaderDictEntry

  Class to represent an Entry in the Dict.
- class CSAHeaderDictException
- class Curve

  Curve class to handle element 50xx,3000 Curve Data.
- class DataElement

  Class to represent a Data Element either Implicit or Explicit.
- class DataElementException
- class DataEvent

  DataEvent.
- class DataSet

  Class to represent a Data Set (which contains Data Elements).
- class DataSetEvent

  DataSetEvent.
- class DataSetHelper

  DataSetHelper (internal class, not intended for user level).
- class Decoder

  Decoder.
- class DefinedTerms

  Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data Element with Defined Terms that does not contain a Value equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation Type ID (4008,0210) is an example of a Data Element having Defined Terms. It is defined to have a Value that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data Element has Defined Terms other Interpretation Type IDs may be defined by the implementor.
- class Defs

  FIXME I do not like the name 'Defs'.
- class DeltaEncodingCodec

  DeltaEncodingCodec compression used by some private vendor.
- class DICOMDIR

  DICOMDIR class.
- class DICOMDIRGenerator

  DICOMDIRGenerator class.
- class Dict

  Class to represent a map of DictEntry.
- class DictConverter

  Class to convert a .dic file into something else:
- class DictEntry

  Class to represent an Entry in the Dict.
- class DictPrinter

  DictPrinter class.

- class Dicts

  Class to manipulate the sum of knowledge (all the dict user load).
- class DirectionCosines

  class to handle DirectionCosines
- class Directory

  Class for manipulation directories.
- class DirectoryHelper

  DirectoryHelper.
- class DPath

  class to handle a DICOM path While supp 118 did introduced a notion of XPath for XML Native model this convention is too XML-centric. Instead prefer DCMTK style notation `https://groups.google.com/g/comp.protocols.dicom/c/IyIH0IOBMPA`
- class DummyValueGenerator

  Class for generating dummy value.
- class Dumper

  Codec class.
- class Element

  Element class.
- class Element< TVR, VM::VM1_2 >
- class Element< TVR, VM::VM1_n >
- class Element< TVR, VM::VM2_2n >
- class Element< TVR, VM::VM2_n >
- class Element< TVR, VM::VM3_3n >
- class Element< TVR, VM::VM3_4 >
- class Element< TVR, VM::VM3_n >
- class Element< VR::AS, VM::VM5 >
- class Element< VR::OB, VM::VM1 >
- class Element< VR::OW, VM::VM1 >
- class ElementDisableCombinations

  A class which is used to produce compile errors for an invalid combination of template parameters.
- class ElementDisableCombinations< VR::OB, VM::VM1_n >
- class ElementDisableCombinations< VR::OW, VM::VM1_n >
- class EmptyMaskGenerator

  EmptyMaskGenerator Main class to generate a Empty Mask Series from an input Series. This class takes an input folder and generates a series of DICOM files in the specified output directory. This class handles multiples DICOM Series within the same input directory.
- class EncapsulatedDocument

  EncapsulatedDocument.
- class EncodingImplementation

  EncodingImplementation.
- class EncodingImplementation< VR::VRASCII >
- class EncodingImplementation< VR::VRBINARY >
- class EndEvent
- class EnumeratedValues

  Element. A Data Element with Enumerated Values that does not have a Value equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note:
- class EquipmentManufacturer
- class Event

  superclass for callback/observer methods

- class Exception

  Exception.
- class ExitEvent
- class ExplicitDataElement

  Class to read/write a DataElement as Explicit Data Element.
- class ExplicitImplicitDataElement

  Class to read/write a DataElement as ExplicitImplicit Data Element.
- class Fiducials

  Fiducials.
- class File

  a DICOM File
- class FileAnonymizer

  FileAnonymizer.
- class FileChangeTransferSyntax

  FileChangeTransferSyntax.
- class FileDecompressLookupTable

  FileDecompressLookupTable class.
- class FileDerivation

  FileDerivation class.
- class FileExplicitFilter

  FileExplicitFilter class.
- class FileMetaInformation

  Class to represent a File Meta Information.
- class Filename

  Class to manipulate file name's.
- class FileNameEvent

  FileNameEvent.
- class FilenameGenerator

  FilenameGenerator.
- class FileSet
- class FileStreamer

  FileStreamer.
- class FileWithName

  FileWithName.
- class FindPatientRootQuery

  PatientRootQuery.
- class FindStudyRootQuery

  FindStudyRootQuery.
- class Fragment

  Class to represent a Fragment.
- class Global

  Global.
- class GroupDict

  Class to represent the mapping from group number to its abbreviation and name.
- class IconImageFilter

  IconImageFilter.
- class IconImageGenerator

IconImageGenerator.

- struct ignore_char
- class Image

  Image.
- class ImageApplyLookupTable

  ImageApplyLookupTable class.
- class ImageChangePhotometricInterpretation

  ImageChangePhotometricInterpretation class.
- class ImageChangePlanarConfiguration

  ImageChangePlanarConfiguration class.
- class ImageChangeTransferSyntax

  ImageChangeTransferSyntax class.
- class ImageCodec

  ImageCodec.
- class ImageConverter

  Image Converter.
- class ImageFragmentSplitter

  ImageFragmentSplitter class.
- class ImageHelper

  ImageHelper (internal class, not intended for user level).
- class ImageReader

  ImageReader.
- class ImageRegionReader

  ImageRegionReader.
- class ImageToImageFilter

  ImageToImageFilter class.
- class ImageWriter

  ImageWriter.
- class ImplicitDataElement

  Class to represent an Implicit *VR* Data *Element*.
- class InitializeEvent
- class IOD

  Class for representing a *IOD*.
- class IODEntry

  Class for representing a *IODEntry*.
- class IODs

  Class for representing a *IODs*.
- class IPPSorter

  IPPSorter.
- class Item

  Class to represent an *Item*.
- class IterationEvent
- class JPEG12Codec

  Class to do JPEG 12bits (lossy & lossless).
- class JPEG16Codec

  Class to do JPEG 16bits (lossless).
- class JPEG2000Codec

Class to do JPEG 2000.

- class JPEG8Codec

  Class to do JPEG 8bits (lossy & lossless).
- class JPEGCodec

  JPEG codec.
- class JPEGLSCodec

  JPEG-LS.
- class JSON
- class KAKADUCodec

  KAKADUCodec.
- class LO

  LO.
- class LookupTable

  LookupTable class.
- class Macro

  Class for representing a Macro.
- class Macros

  Class for representing a Modules.
- class MD5

  Class for MD5.
- class MEC_MR3

  Class for MEC_MR3.
- class MediaStorage

  MediaStorage.
- class MemberCommand

  Command subclass that calls a pointer to a member function.
- class MeshPrimitive

  This class defines surface mesh primitives.
- class ModalityPerformedProcedureStepCreateQuery

  ModalityPerformedProcedureStepCreateQuery.
- class ModalityPerformedProcedureStepSetQuery

  ModalityPerformedProcedureStepSetQuery.
- class ModifiedEvent
- class Module

  Class for representing a Module.
- class ModuleEntry

  Class for representing a ModuleEntry.
- class Modules

  Class for representing a Modules.
- class MovePatientRootQuery

  MovePatientRootQuery.
- class MoveStudyRootQuery

  MoveStudyRootQuery.
- class MrProtocol

  Class for MrProtocol.
- class NestedModuleEntries

  Class for representing a NestedModuleEntries.

- class NoEvent
- class NormalizedNetworkFunctions

  Normalized Network Functions.
- class Object

  Object.
- class OpenSSLCryptoFactory
- class OpenSSLCryptographicMessageSyntax
- class OpenSSLP7CryptoFactory
- class OpenSSLP7CryptographicMessageSyntax
- class Orientation

  class to handle Orientation
- class Overlay

  Overlay class.
- class ParseException

  ParseException Standard exception handling object.
- class Parser

  Parser ala XML_Parser from expat (SAX).
- class Patient

  See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54.
- class PDBElement

  Class to represent a PDB Element.
- class PDBHeader

  Class for PDBHeader.
- class PDFCodec

  PDFCodec class.
- class PersonName

  PersonName class.
- class PGXCodec

  Class to do PGX.
- class PhotometricInterpretation

  Class to represent an PhotometricInterpretation.
- class PixelFormat

  PixelFormat.
- class Pixmap

  Pixmap class.
- class PixmapReader

  PixmapReader.
- class PixmapToPixmapFilter

  PixmapToPixmapFilter class.
- class PixmapWriter

  PixmapWriter.
- class PNMCodec

  Class to do PNM.
- class Preamble

  DICOM Preamble (Part 10).
- class PresentationContext

  PresentationContext.

- class PresentationContextGenerator

  PresentationContextGenerator.
- class Printer

  Printer class.
- class PrivateDict

  Private Dict.
- class PrivateTag

  Class to represent a Private DICOM Data Element (Attribute) Tag (Group, Element, Owner).
- class ProgressEvent

  ProgressEvent.
- class PVRGCodec

  PVRGCodec.
- class PythonFilter

  PythonFilter PythonFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language.
- class QueryBase

  QueryBase.
- class QueryFactory

  QueryFactory.h.
- class QueryImage

  QueryImage.
- class QueryPatient

  QueryPatient.
- class QuerySeries

  QuerySeries.
- class QueryStudy

  QueryStudy.h.
- class RAWCodec

  RAWCodec class.
- class Reader

  Reader ala DOM (Document Object Model).
- struct RealWorldValueMappingContent
- class Region

  Class for manipulation region.
- class Rescaler

  Rescale class.
- class RLECodec

  Class to do RLE.
- class Scanner

  Scanner.
- class Scanner2

  Scanner2.
- class Segment

  This class defines a segment.
- class SegmentedPaletteColorLookupTable

  SegmentedPaletteColorLookupTable class.
- class SegmentReader

This class defines a segment reader.

- class SegmentWriter

  This class defines a segment writer.
- class SequenceOfFragments

  Class to represent a Sequence Of Fragments.
- class SequenceOfItems

  Class to represent a Sequence Of Items.
- class SerieHelper

  SerieHelper DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned.
- class Series

  Series.
- class ServiceClassUser

  ServiceClassUser.
- class SHA1

  Class for SHA1.
- class SimpleMemberCommand

  Command subclass that calls a pointer to a member function.
- class SimpleSubjectWatcher

  SimpleSubjectWatcher.
- class SmartPointer

  Class for Smart Pointer.
- class SOPClassUIDToIOD

  Class convert a class SOP Class UID into IOD.
- class Sorter

  Sorter.
- class Spacing

  Class for Spacing.
- class Spectroscopy

  Spectroscopy class.
- class SplitMosaicFilter

  SplitMosaicFilter class.
- class StartEvent
- struct static_assert_test
- struct STATIC_ASSERTION_FAILURE
- struct STATIC_ASSERTION_FAILURE< true >
- class StreamImageReader

  StreamImageReader.
- class StreamImageWriter

  StreamImageReader.
- class StrictScanner

  StrictScanner.
- class StrictScanner2

  StrictScanner2.
- class String

  String.
- class StringFilter

StringFilter.

- class Study

  Study.
- class Subject

  Subject.
- class Surface

  This class defines a SURFACE IE.
- class SurfaceHelper

  SurfaceHelper.
- class SurfaceReader

  This class defines a SURFACE IE reader.
- class SurfaceWriter

  This class defines a SURFACE IE writer.
- class SwapCode

  SwapCode representation.
- class SwapperDoOp
- class SwapperNoOp
- class System

  Class to do system operation.
- class Table

  Table.
- class TableEntry

  TableEntry.
- class TableReader

  Class for representing a TableReader.
- class Tag

  Class to represent a DICOM Data Element (Attribute) Tag (Group, Element).
- class TagPath

  class to handle a path of tag.
- class Testing

  class for testing
- class Trace

  Trace.
- class TransferSyntax

  Class to manipulate Transfer Syntax.
- class Type

  Type.
- struct UI
- class UIDGenerator

  Class for generating unique UID.
- class UIDs

  all known uids
- class UNExplicitDataElement

  Class to read/write a DataElement as UNExplicit Data Element.
- class UNExplicitImplicitDataElement

  Class to read/write a DataElement as ExplicitImplicit Data Element.
- class Unpacker12Bits

Pack/Unpack 12 bits pixel into 16bits.

- class Usage

  Usage.
- class UserEvent
- class UUIDGenerator

  Class for generating unique UUID.
- class Validate

  Validate class.
- class Value

  Class to represent the value of a Data Element.
- class ValueIO

  Class to dispatch template calls.
- class Version

  major/minor and build version
- class VL

  Value Length.
- class VM

  Value Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n.
- struct VMToLength
- class VR

  VR class.
- class VR16ExplicitDataElement

  Class to read/write a DataElement as Explicit Data Element.
- struct VRToEncoding
- struct VRToType
- class VRVLSize
- class VRVLSize< 0 >
- class VRVLSize< 1 >
- class Waveform

  Waveform class.
- class WLMFindQuery

  PatientRootQuery.
- class Writer

  Writer ala DOM (Document Object Model).
- class XMLDictReader

  Class for representing a XMLDictReader.
- class XMLPrinter
- class XMLPrivateDictReader

  Class for representing a XMLPrivateDictReader.

Typedefs

- typedef String<'\\', 16 > AEComp
- typedef String<'\\', 64 > ASComp
- typedef bool(* BOOL_FUNCTION_PFILE_PFILE_POINTER) (File *, File *)
- typedef String<'\\', 16 > CSComp
- typedef String<'\\', 64 > DAComp

- typedef String<'\\', 64 > DTComp
- typedef std::vector< SmartPointer< FileWithName > > FileList
- typedef Bitmap IconImage
- typedef String<'\\', 64 > LOComp
- typedef String<'\\', 64 > LTComp
- typedef ModuleEntry MacroEntry
- typedef NestedModuleEntries NestedMacroEntries
- typedef String<'\\', 64 > PNComp
- typedef String<'\\', 64 > SHComp
- typedef String<'\\', 64 > STComp
- typedef String<'\\', 16 > TMComp
- typedef String<'\\', 4294967294 > UCComp
- typedef String<'\\', 64, 0 > UIComp
- typedef String<'\\', 4294967294 > URComp
- typedef String<'\\', 64 > UTComp

Enumerations

- enum CompOperators {
  GDCM_EQUAL = 0 ,
  GDCM_DIFFERENT ,
  GDCM_GREATER ,
  GDCM_GREATEROREQUAL ,
  GDCM_LESS ,
  GDCM_LESSOREQUAL }
- enum ECharSet {
  eLatin1 = 0 ,
  eLatin2 ,
  eLatin3 ,
  eLatin4 ,
  eCyrillic ,
  eArabic ,
  eGreek ,
  eHebrew ,
  eLatin5 ,
  eJapanese ,
  eThai ,
  eJapaneseKanjiMultibyte ,
  eJapaneseSupplementaryKanjiMultibyte ,
  eKoreanHangulHanjaMultibyte ,
  eUTF8 ,
  eGB18030 }
- enum ENQueryType {
  eCreateMMPS = 0 ,
  eSetMMPS }
- enum EQueryLevel {
  ePatient = 0 ,
  eStudy = 1 ,
  eSeries = 2 ,
  eImage = 3 }

- enum EQueryType {
  eFind = 0 ,
  eMove ,
  eWLMFind }
- enum ERootType {
  ePatientRootType ,
  eStudyRootType }
- enum LodModeType {
  LD_ALL = 0x00000000 ,
  LD_NOSEQ = 0x00000001 ,
  LD_NOSHADOW = 0x00000002 ,
  LD_NOSHADOWSEQ = 0x00000004 }

Functions

- static int add1 (char *buf, int n)
- ignore_char const backslash ('\\')
- template<typename T>
  static T Clamp (int v)
- static void clean (char *mant)
- static int doround (char *buf, unsigned int n)
- VR::VRType GetVRFromTag (Tag const &tag)
- bool operator!= (const CodeString &ref, const CodeString &cs)
- bool operator!= (const DataElement &lhs, const DataElement &rhs)
- std::ostream & operator<< (std::ostream &_os, const GroupDict &_val)
- std::ostream & operator<< (std::ostream &_os, const IOD &_val)
- std::ostream & operator<< (std::ostream &_os, const IODEntry &_val)
- std::ostream & operator<< (std::ostream &_os, const IODs &_val)
- std::ostream & operator<< (std::ostream &_os, const Macro &_val)
- std::ostream & operator<< (std::ostream &_os, const Macros &_val)
- std::ostream & operator<< (std::ostream &_os, const MediaStorage &ms)
- std::ostream & operator<< (std::ostream &_os, const Module &_val)
- std::ostream & operator<< (std::ostream &_os, const ModuleEntry &_val)
- std::ostream & operator<< (std::ostream &_os, const Modules &_val)
- std::ostream & operator<< (std::ostream &_os, const NestedModuleEntries &_val)
- std::ostream & operator<< (std::ostream &_os, const Tag &_val)
- std::ostream & operator<< (std::ostream &_os, const TransferSyntax &ts)
- std::ostream & operator<< (std::ostream &_os, const Type &val)
- std::ostream & operator<< (std::ostream &_os, const UI &_val)
- std::ostream & operator<< (std::ostream &_os, const UIDs &uid)
- std::ostream & operator<< (std::ostream &_os, const Usage &val)
- std::ostream & operator<< (std::ostream &_os, const VM &_val)
- std::ostream & operator<< (std::ostream &_os, const VR &val)
- std::ostream & operator<< (std::ostream &os, const BasicOffsetTable &val)
- std::ostream & operator<< (std::ostream &os, const CodeString &str)
- std::ostream & operator<< (std::ostream &os, const CommandDataSet &val)
- std::ostream & operator<< (std::ostream &os, const CSAElement &val)
- std::ostream & operator<< (std::ostream &os, const CSAHeader &d)
- std::ostream & operator<< (std::ostream &os, const CSAHeaderDict &val)
- std::ostream & operator<< (std::ostream &os, const CSAHeaderDictEntry &val)

- std::ostream & operator<< (std::ostream &os, const DataElement &val)
- std::ostream & operator<< (std::ostream &os, const DataSet &val)
- std::ostream & operator<< (std::ostream &os, const Dict &val)
- std::ostream & operator<< (std::ostream &os, const DictEntry &val)
- std::ostream & operator<< (std::ostream &os, const Dicts &d)
- std::ostream & operator<< (std::ostream &os, const Directory &d)
- std::ostream & operator<< (std::ostream &os, const DPath &val)
- std::ostream & operator<< (std::ostream &os, const Event &e)

  Generic inserter operator for Event and its subclasses.
- std::ostream & operator<< (std::ostream &os, const File &val)
- std::ostream & operator<< (std::ostream &os, const FileMetaInformation &val)
- std::ostream & operator<< (std::ostream &os, const FileSet &f)
- std::ostream & operator<< (std::ostream &os, const Fragment &val)
- std::ostream & operator<< (std::ostream &os, const Global &g)
- std::ostream & operator<< (std::ostream &os, const Item &val)
- std::ostream & operator<< (std::ostream &os, const MrProtocol &d)
- std::ostream & operator<< (std::ostream &os, const Object &obj)
- std::ostream & operator<< (std::ostream &os, const Orientation &o)
- std::ostream & operator<< (std::ostream &os, const PDBElement &val)
- std::ostream & operator<< (std::ostream &os, const PDBHeader &d)
- std::ostream & operator<< (std::ostream &os, const PhotometricInterpretation &val)
- std::ostream & operator<< (std::ostream &os, const PixelFormat &pf)
- std::ostream & operator<< (std::ostream &os, const Preamble &val)
- std::ostream & operator<< (std::ostream &os, const PrivateDict &val)
- std::ostream & operator<< (std::ostream &os, const PrivateTag &val)
- std::ostream & operator<< (std::ostream &os, const Region &r)
- std::ostream & operator<< (std::ostream &os, const Scanner &s)
- std::ostream & operator<< (std::ostream &os, const Scanner2 &s)
- std::ostream & operator<< (std::ostream &os, const Sorter &s)
- std::ostream & operator<< (std::ostream &os, const StrictScanner &s)
- std::ostream & operator<< (std::ostream &os, const StrictScanner2 &s)
- std::ostream & operator<< (std::ostream &os, const SwapCode &sc)
- std::ostream & operator<< (std::ostream &os, const Version &v)
- std::ostream & operator<< (std::ostream &os, const VL &val)
- bool operator== (const CodeString &ref, const CodeString &cs)
- std::istream & operator>> (std::istream &_is, Tag &_val)
- std::istream & operator>> (std::istream &in, ignore_char const &ic)
- template<char TDelimiter, unsigned int TMaxLength, char TPadChar>
  std::istream & operator>> (std::istream &is, String< TDelimiter, TMaxLength, TPadChar > &ms)
- template<typename T>
  static int Round (T x)
- static int roundat (char *buf, size_t bufLen, unsigned int i, int iexp)
- template<typename Float>
  static void x16printf (char *buf, int size, Float f)

Variables

- static Global GlobalInstance

11.1.1 Detailed Description

This header defines the classes for the AA Actions, Association Abort Related Actions (Table 9-9 of ps 3.8-2009).

Since each class is essentially a placeholder for a function pointer, I'm breaking with having each class have its own file for the sake of brevity of the number of files.

This header defines the classes for the AE Actions, Association Establishment Related Actions (Table 9-6 of ps 3.↩ 8-2009).

Since each class is essentially a placeholder for a function pointer, I'm breaking with having each class have its own file for the sake of brevity of the number of files.

This header defines the classes for the AR Actions, Association Release Related Actions (Table 9-8 of ps 3.8-2009).

Since each class is essentially a placeholder for a function pointer, I'm breaking with having each class have its own file for the sake of brevity of the number of files.

This header defines the classes for the DT Actions, Data Transfer Related Actions (Table 9-8 of ps 3.8-2009).

Since each class is essentially a placeholder for a function pointer, I'm breaking with having each class have its own file for the sake of brevity of the number of files.

11.1.2 Typedef Documentation

11.1.2.1 AEComp

```
typedef String<'\\',16> gdcm::AEComp
```

11.1.2.2 ASComp

```
typedef String<'\\',64> gdcm::ASComp
```

11.1.2.3 BOOL_FUNCTION_PFILE_PFILE_POINTER

```
typedef bool(* gdcm::BOOL_FUNCTION_PFILE_PFILE_POINTER) (File *, File *)
```

11.1.2.4 CSComp

```
typedef String<'\\',16> gdcm::CSComp
```

11.1.2.5 DAComp

```
typedef String<'\\',64> gdcm::DAComp
```

Examples

TemplateEmptyImage.cxx.

11.1.2.6 DTComp

```
typedef String<'\\',64> gdcm::DTComp
```

11.1.2.7 FileList

```
typedef std::vector< SmartPointer<FileWithName> > gdcm::FileList
```

11.1.2.8 IconImage

```
typedef Bitmap gdcm::IconImage
```

Examples

ExtractIconFromFile.cxx.

11.1.2.9 LOComp

```
typedef String<'\\',64> gdcm::LOComp
```

11.1.2.10 LTComp

```
typedef String<'\\',64> gdcm::LTComp
```

11.1.2.11 MacroEntry

```
typedef ModuleEntry gdcm::MacroEntry
```

11.1.2.12 NestedMacroEntries

```
typedef NestedModuleEntries gdcm::NestedMacroEntries
```

11.1.2.13 PNComp

```
typedef String<'\\',64> gdcm::PNComp
```

11.1.2.14 SHComp

```
typedef String<'\\',64> gdcm::SHComp
```

11.1.2.15 STComp

```
typedef String<'\\',64> gdcm::STComp
```

11.1.2.16 TMComp

```
typedef String<'\\',16> gdcm::TMComp
```

Examples

TemplateEmptyImage.cxx.

11.1.2.17 UCComp

```
typedef String<'\\',4294967294> gdcm::UCComp
```

11.1.2.18 UIComp

```
typedef String<'\\',64,0> gdcm::UIComp
```

11.1.2.19 URComp

```
typedef String<'\\',4294967294> gdcm::URComp
```

11.1.2.20 UTComp

```
typedef String<'\\',64> gdcm::UTComp
```

11.1.3 Enumeration Type Documentation

11.1.3.1 CompOperators

```
enum gdcm::CompOperators
```

Enumerator

GDCM_EQUAL	
GDCM_DIFFERENT	
GDCM_GREATER	
GDCM_GREATEROREQUAL	
GDCM_LESS	
GDCM_LESSOREQUAL	

11.1.3.2 ECharSet

enum gdcm::ECharSet

The character sets enumerated in PS 3.3 2009 Annex C, section C.12.1.1.2 The resulting character set is stored in 0008,0005 The conversion to the data element is performed by the QueryFactory itself

Enumerator

eLatin1	
eLatin2	
eLatin3	
eLatin4	
eCyrillic	
eArabic	
eGreek	
eHebrew	
eLatin5	
eJapanese	
eThai	
eJapaneseKanjiMultibyte	
eJapaneseSupplementaryKanjiMultibyte	
eKoreanHangulHanjaMultibyte	
eUTF8	
eGB18030	

11.1.3.3 ENQueryType

enum gdcm::ENQueryType

Enumerator

eCreateMMPS	
eSetMMPS	

11.1.3.4 EQueryLevel

enum gdcm::EQueryLevel

Enumerator

ePatient	
eStudy	
eSeries	
eImage	

11.1.3.5 EQueryType

enum gdcm::EQueryType

Enumerator

eFind	
eMove	
eWLMFind	

11.1.3.6 ERootType

enum gdcm::ERootType

Enumerator

ePatientRootType	
eStudyRootType	

11.1.3.7 LodModeType

enum gdcm::LodModeType

Enumerator

LD_ALL	
LD_NOSEQ	
LD_NOSHADOW	
LD_NOSHADOWSEQ	

11.1.4 Function Documentation

11.1.4.1 add1()

```
int gdcm::add1 (
            char * buf,
            int n)  [static]
```

References add1().

Referenced by add1(), and doround().

11.1.4.2 backslash()

```
ignore_char const gdcm::backslash (
            '\\' )
```

References backslash().

Referenced by backslash(), and gdcm::EncodingImplementation< VR::VRASCII >::ReadComputeLength().

11.1.4.3 Clamp()

```
template<typename T>
T gdcm::Clamp (
            int v)  [inline], [static]
```

Referenced by gdcm::ImageChangePhotometricInterpretation::RGB2YBR(), and gdcm::ImageChangePhotometricInterpretation::YBR2RG

11.1.4.4 clean()

```
void gdcm::clean (
            char * mant)  [inline], [static]
```

References clean().

Referenced by clean(), and x16printf().

11.1.4.5 doround()

```
int gdcm::doround (
            char * buf,
            unsigned int n)  [static]
```

References add1(), and doround().

Referenced by doround(), and roundat().

11.1.4.6 GetVRFromTag()

```
VR::VRType gdcm::GetVRFromTag (
            Tag const & tag)
```

11.1.4.7 operator"!=() [1/2]

```
bool gdcm::operator!= (
            const CodeString & ref,
            const CodeString & cs)  [inline]
```

Referenced by operator!=().

11.1.4.8 operator"!=() [2/2]

```
bool gdcm::operator!= (
            const DataElement & lhs,
            const DataElement & rhs)  [inline]
```

References operator!=().

11.1.4.9 operator<<() [1/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const GroupDict & _val)  [inline]
```

11.1.4.10 operator<<() [2/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const IOD & _val)  [inline]
```

11.1.4.11 operator<<() [3/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const IODEntry & _val)  [inline]
```

11.1.4.12 operator<<() [4/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const IODs & _val)  [inline]
```

11.1.4.13 operator<<() [5/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Macro & _val)  [inline]
```

11.1.4.14 operator<<() [6/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Macros & _val)  [inline]
```

11.1.4.15 operator<<() [7/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const MediaStorage & ms)  [inline]
```

11.1.4.16 operator<<() [8/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Module & _val)  [inline]
```

11.1.4.17 operator<<() [9/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const ModuleEntry & _val)  [inline]
```

11.1.4.18 operator<<() [10/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Modules & _val)  [inline]
```

11.1.4.19 operator<<() [11/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const NestedModuleEntries & _val)  [inline]
```

11.1.4.20 operator<<() [12/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Tag & _val)  [inline]
```

11.1.4.21 operator<<() [13/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const TransferSyntax & ts)  [inline]
```

11.1.4.22 operator<<() [14/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Type & val)  [inline]
```

11.1.4.23 operator<<() [15/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const UI & _val)  [inline]
```

11.1.4.24 operator<<() [16/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const UIDs & uid)  [inline]
```

References gdcm::UIDs::GetName(), and gdcm::UIDs::GetString().

11.1.4.25 operator<<() [17/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Usage & val)  [inline]
```

11.1.4.26 operator<<() [18/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const VM & _val)  [inline]
```

11.1.4.27 operator<<() [19/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const VR & val)  [inline]
```

11.1.4.28 operator<<() [20/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const BasicOffsetTable & val)  [inline]
```

11.1.4.29 operator<<() [21/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CodeString & str)  [inline]
```

11.1.4.30 operator<<() [22/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CommandDataSet & val)  [inline]
```

11.1.4.31 operator<<() [23/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CSAElement & val)  [inline]
```

11.1.4.32 operator<<() [24/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CSAHeader & d)  [inline]
```

11.1.4.33 operator<<() [25/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CSAHeaderDict & val)  [inline]
```

11.1.4.34 operator<<() [26/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CSAHeaderDictEntry & val)  [inline]
```

11.1.4.35 operator<<() [27/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const DataElement & val)  [inline]
```

11.1.4.36 operator<<() [28/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const DataSet & val)  [inline]
```

11.1.4.37 operator<<() [29/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Dict & val)  [inline]
```

11.1.4.38 operator<<() [30/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const DictEntry & val)  [inline]
```

11.1.4.39 operator<<() [31/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Dicts & d)  [inline]
```

11.1.4.40 operator<<() [32/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Directory & d)  [inline]
```

11.1.4.41 operator<<() [33/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const DPath & val)  [inline]
```

11.1.4.42 operator<<() [34/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Event & e)  [inline]
```

Generic inserter operator for Event and its subclasses.

References gdcm::Event::Print().

11.1.4.43 operator<<() [35/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const File & val)  [inline]
```

11.1.4.44 operator<<() [36/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const FileMetaInformation & val)  [inline]
```

11.1.4.45 operator<<() [37/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const FileSet & f)  [inline]
```

11.1.4.46 operator<<() [38/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Fragment & val)  [inline]
```

11.1.4.47 operator<<() [39/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Global & g)  [inline]
```

11.1.4.48 operator<<() [40/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Item & val)  [inline]
```

11.1.4.49 operator<<() [41/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const MrProtocol & d)  [inline]
```

11.1.4.50 operator<<() [42/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Object & obj)  [inline]
```

11.1.4.51 operator<<() [43/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Orientation & o)  [inline]
```

11.1.4.52 operator<<() [44/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PDBElement & val)  [inline]
```

11.1.4.53 operator<<() [45/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PDBHeader & d)  [inline]
```

11.1.4.54 operator<<() [46/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PhotometricInterpretation & val)  [inline]
```

11.1.4.55 operator<<() [47/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PixelFormat & pf)  [inline]
```

11.1.4.56 operator<<() [48/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Preamble & val)  [inline]
```

11.1.4.57 operator<<() [49/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PrivateDict & val)  [inline]
```

11.1.4.58 operator<<() [50/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PrivateTag & val)  [inline]
```

11.1.4.59 operator<<() [51/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Region & r)  [inline]
```

References gdcm::Region::Print().

11.1.4.60 operator<<() [52/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Scanner & s)  [inline]
```

11.1.4.61 operator<<() [53/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Scanner2 & s)  [inline]
```

11.1.4.62 operator<<() [54/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Sorter & s)  [inline]
```

11.1.4.63 operator<<() [55/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const StrictScanner & s)  [inline]
```

11.1.4.64 operator<<() [56/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const StrictScanner2 & s)  [inline]
```

11.1.4.65 operator<<() [57/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const SwapCode & sc)  [inline]
```

11.1.4.66 operator<<() [58/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Version & v)  [inline]
```

11.1.4.67 operator<<() [59/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const VL & val)  [inline]
```

11.1.4.68 operator==()

```
bool gdcm::operator== (
            const CodeString & ref,
            const CodeString & cs)  [inline]
```

11.1.4.69 operator>>() [1/3]

```
std::istream & gdcm::operator>> (
            std::istream & _is,
            Tag & _val)  [inline]
```

11.1.4.70 operator>>() [2/3]

```
std::istream & gdcm::operator>> (
            std::istream & in,
            ignore_char const & ic)  [inline]
```

References gdcm::ignore_char::m_char.

11.1.4.71 operator>>() [3/3]

```
template<char TDelimiter, unsigned int TMaxLength, char TPadChar>
std::istream & gdcm::operator>> (
            std::istream & is,
            String< TDelimiter, TMaxLength, TPadChar > & ms)  [inline]
```

11.1.4.72 Round()

```
template<typename T>
int gdcm::Round (
            T x)  [inline], [static]
```

Referenced by gdcm::ImageChangePhotometricInterpretation::RGB2YBR(), and gdcm::ImageChangePhotometricInterpretation::YBR2RG

11.1.4.73 roundat()

```
int gdcm::roundat (
            char * buf,
            size_t bufLen,
            unsigned int i,
            int iexp)  [static]
```

References doround(), and roundat().

Referenced by roundat(), and x16printf().

11.1.4.74 x16printf()

```
template<typename Float>
void gdcm::x16printf (
            char * buf,
            int size,
            Float f)  [static]
```

References clean(), roundat(), and x16printf().

Referenced by gdcm::EncodingImplementation< VR::VRASCII >::Write(), and x16printf().

11.1.5 Variable Documentation

11.1.5.1 GlobalInstance

```
Global gdcm::GlobalInstance  [static]
```

11.2 gdcm::network Namespace Reference

Classes

- class AAbortPDU
  AAbortPDU.
- class AAssociateACPDU
  AAssociateACPDU.
- class AAssociateRJPDU
  AAssociateRJPDU.
- class AAssociateRQPDU
  AAssociateRQPDU.
- class AbstractSyntax
  AbstractSyntax.
- class ApplicationContext

ApplicationContext.

- class AReleaseRPPDU

  AReleaseRPPDU.
- class AReleaseRQPDU

  AReleaseRQPDU.
- class ARTIMTimer

  ARTIMTimer.
- class AsynchronousOperationsWindowSub

  AsynchronousOperationsWindowSub.
- class BaseCompositeMessage

  BaseCompositeMessage.
- class BaseNormalizedMessage

  BaseNormalizedMessage.
- class BasePDU

  BasePDU.
- class CEchoRQ

  CEchoRQ.
- class CEchoRSP

  CEchoRSP this file defines the messages for the cecho action.
- class CFind
- class CFindCancelRQ

  CFindCancelRQ this file defines the messages for the cfind action.
- class CFindRQ

  CFindRQ.
- class CFindRSP

  CFindRSP this file defines the messages for the cfind action.
- class CMoveCancelRq
- class CMoveRQ

  CMoveRQ.
- class CMoveRSP

  CMoveRSP this file defines the messages for the cmove action.
- class CompositeMessageFactory

  CompositeMessageFactory.
- class CStoreRQ

  CStoreRQ.
- class CStoreRSP

  CStoreRSP this file defines the messages for the cecho action.
- class DIMSE

  DIMSE.
- class ImplementationClassUIDSub

  ImplementationClassUIDSub.
- class ImplementationUIDSub

  ImplementationUIDSub.
- class ImplementationVersionNameSub

  ImplementationVersionNameSub.
- class MaximumLengthSub

  MaximumLengthSub.

- class NActionRQ

  NActionRQ.
- class NActionRSP

  NActionRSP this file defines the messages for the NAction action.
- class NCreateRQ

  NCreateRQ.
- class NCreateRSP

  NCreateRSP this file defines the messages for the ncreate action.
- class NDeleteRQ

  NDeleteRQ.
- class NDeleteRSP

  NDeleteRSP this file defines the messages for the ndelete action.
- class NEventReportRQ

  NEventReportRQ.
- class NEventReportRSP

  NEventReportRSP this file defines the messages for the neventreport action.
- class NGetRQ

  NGetRQ.
- class NGetRSP

  NGetRSP this file defines the messages for the nget action.
- class NormalizedMessageFactory
- class NSetRQ

  NSetRQ.
- class NSetRSP

  NSetRSP this file defines the messages for the nset action.
- class PDataTFPDU

  PDataTFPDU.
- class PDUFactory

  PDUFactory basically, given an initial byte, construct the.
- class PresentationContextAC

  PresentationContextAC.
- class PresentationContextRQ

  PresentationContextRQ.
- class PresentationDataValue

  PresentationDataValue.
- class RoleSelectionSub

  RoleSelectionSub.
- class ServiceClassApplicationInformation
- class SOPClassExtendedNegociationSub

  SOPClassExtendedNegociationSub.
- class TableRow
- class TransferSyntaxSub

  TransferSyntaxSub.
- struct Transition
- class ULAction

  ULAction.
- class ULActionAA1

- class ULActionAA2
- class ULActionAA3
- class ULActionAA4
- class ULActionAA5
- class ULActionAA6
- class ULActionAA7
- class ULActionAA8
- class ULActionAE1
- class ULActionAE2
- class ULActionAE3
- class ULActionAE4
- class ULActionAE5
- class ULActionAE6
- class ULActionAE7
- class ULActionAE8
- class ULActionAR1
- class ULActionAR10
- class ULActionAR2
- class ULActionAR3
- class ULActionAR4
- class ULActionAR5
- class ULActionAR6
- class ULActionAR7
- class ULActionAR8
- class ULActionAR9
- class ULActionDT1
- class ULActionDT2
- class ULBasicCallback

  ULBasicCallback.
- class ULConnection

  ULConnection.
- class ULConnectionCallback
- class ULConnectionInfo

  ULConnectionInfo.
- class ULConnectionManager

  ULConnectionManager.
- class ULEvent

  ULEvent.
- class ULTransitionTable

  ULTransitionTable The transition table of all the ULEvents, new ULActions, and ULStates.
- class ULWritingCallback
- class UserInformation

  UserInformation.

Enumerations

- enum EEventID {
  eAASSOCIATERequestLocalUser = 0 ,
  eTransportConnConfirmLocal ,
  eASSOCIATE_ACPDUreceived ,
  eASSOCIATE_RJPDUreceived ,
  eTransportConnIndicLocal ,
  eAASSOCIATE_RQPDUreceived ,
  eAASSOCIATEresponseAccept ,
  eAASSOCIATEresponseReject ,
  ePDATArequest ,
  ePDATATFPDU ,
  eARELEASERequest ,
  eARELEASE_RQPDUReceivedOpen ,
  eARELEASE_RPPDUReceived ,
  eARELEASEResponse ,
  eAABORTRequest ,
  eAABORTPDUReceivedOpen ,
  eTransportConnectionClosed ,
  eARTIMTimerExpired ,
  eUnrecognizedPDUReceived ,
  eEventDoesNotExist }
- enum EStateID {
  eStaDoesNotExist = 0 ,
  eSta1Idle = 1 ,
  eSta2Open = 2 ,
  eSta3WaitLocalAssoc = 4 ,
  eSta4LocalAssocDone = 8 ,
  eSta5WaitRemoteAssoc = 16 ,
  eSta6TransferReady = 32 ,
  eSta7WaitRelease = 64 ,
  eSta8WaitLocalRelease = 128 ,
  eSta9ReleaseCollisionRqLocal = 256 ,
  eSta10ReleaseCollisionAc = 512 ,
  eSta11ReleaseCollisionRq = 1024 ,
  eSta12ReleaseCollisionAcLocal = 2048 ,
  eSta13AwaitingClose = 4096 }

Functions

- int GetStateIndex (EStateID inState)

Variables

- const int cMaxEventID = eEventDoesNotExist
- const int cMaxStateID = 13

11.2.1 Enumeration Type Documentation

11.2.1.1 EEventID

enum gdcm::network::EEventID

Enumerator

eAASSOCIATERequestLocalUser	
eTransportConnConfirmLocal	
eASSOCIATE_ACPDUreceived	
eASSOCIATE_RJPDUreceived	
eTransportConnIndicLocal	
eAASSOCIATE_RQPDUreceived	
eAASSOCIATEresponseAccept	
eAASSOCIATEresponseReject	
ePDATArequest	
ePDATATFPDU	
eARELEASERequest	
eARELEASE_RQPDUReceivedOpen	
eARELEASE_RPPDUReceived	
eARELEASEResponse	
eAABORTRequest	
eAABORTPDUReceivedOpen	
eTransportConnectionClosed	
eARTIMTimerExpired	
eUnrecognizedPDUReceived	
eEventDoesNotExist	

11.2.1.2 EStateID

enum gdcm::network::EStateID

Each network connection will be in a particular state at any given time. Those states have IDs as described in the standard ps3.8-2009, roughly 1-13. This enumeration lists those states. The actual ULState class will contain more information about transitions to other states.

name and date: 16 sept 2010 mmr

Enumerator

eStaDoesNotExist	
eSta1Idle	
eSta2Open	
eSta3WaitLocalAssoc	
eSta4LocalAssocDone	
eSta5WaitRemoteAssoc	
eSta6TransferReady	

eSta7WaitRelease	
eSta8WaitLocalRelease	
eSta9ReleaseCollisionRqLocal	
eSta10ReleaseCollisionAc	
eSta11ReleaseCollisionRq	
eSta12ReleaseCollisionAcLocal	
eSta13AwaitingClose	

11.2.2 Function Documentation

11.2.2.1 GetStateIndex()

```
int gdcm::network::GetStateIndex (
            EStateID inState)  [inline]
```

References eSta10ReleaseCollisionAc, eSta11ReleaseCollisionRq, eSta12ReleaseCollisionAcLocal, eSta13AwaitingClose, eSta1Idle, eSta2Open, eSta3WaitLocalAssoc, eSta4LocalAssocDone, eSta5WaitRemoteAssoc, eSta6TransferReady, eSta7WaitRelease, eSta8WaitLocalRelease, eSta9ReleaseCollisionRqLocal, and eStaDoesNotExist.

11.2.3 Variable Documentation

11.2.3.1 cMaxEventID

```
const int gdcm::network::cMaxEventID = eEventDoesNotExist
```

11.2.3.2 cMaxStateID

```
const int gdcm::network::cMaxStateID = 13
```

Referenced by gdcm::network::TableRow::TableRow(), and gdcm::network::TableRow::~TableRow().

11.3 gdcm::SegmentHelper Namespace Reference

Classes

- struct BasicCodedEntry

  This structure defines a basic coded entry with all of its attributes.

11.4 gdcm::terminal Namespace Reference

Class for Terminal.

Enumerations

- enum Attribute {
  reset = 0 ,
  bright = 1 ,
  dim = 2 ,
  underline = 3 ,
  blink = 5 ,
  reverse = 7 ,
  hidden = 8 }
- enum Color {
  black = 0 ,
  red ,
  green ,
  yellow ,
  blue ,
  magenta ,
  cyan ,
  white }
- enum Mode {
  CONSOLE = 0 ,
  VT100 }

Functions

- GDCM_EXPORT std::string setattribute (Attribute att)
- GDCM_EXPORT std::string setbgcolor (Color c)
- GDCM_EXPORT std::string setfgcolor (Color c)
- GDCM_EXPORT void setmode (Mode m)

11.4.1 Detailed Description

Class for Terminal.

Allow one to print in color in a shell

- support VT100 compatible shell
- win32 console

11.4.2 Enumeration Type Documentation

11.4.2.1 Attribute

```
enum gdcm::terminal::Attribute
```

Enumerator

reset	
bright	
dim	
underline	
blink	
reverse	
hidden	

11.4.2.2 Color

enum gdcm::terminal::Color

Enumerator

black	
red	
green	
yellow	
blue	
magenta	
cyan	
white	

11.4.2.3 Mode

enum gdcm::terminal::Mode

Enumerator

CONSOLE	
VT100	

11.4.3 Function Documentation

11.4.3.1 setattribute()

```
GDCM_EXPORT std::string gdcm::terminal::setattribute (
            Attribute att)
```

References GDCM_EXPORT.

11.4.3.2 setbgcolor()

```
GDCM_EXPORT std::string gdcm::terminal::setbgcolor (
            Color c)
```

References GDCM_EXPORT.

11.4.3.3 setfgcolor()

```
GDCM_EXPORT std::string gdcm::terminal::setfgcolor (
            Color c)
```

References GDCM_EXPORT.

11.4.3.4 setmode()

```
GDCM_EXPORT void gdcm::terminal::setmode (
            Mode m)
```

References GDCM_EXPORT.

Chapter 12

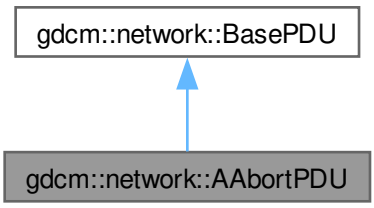
Class Documentation

12.1 gdcm::network::AAbortPDU Class Reference

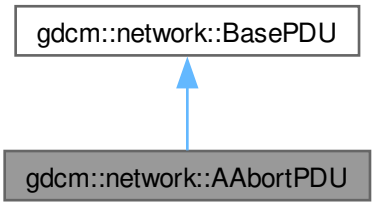
AAbortPDU.

`#include <gdcmAAbortPDU.h>`

Inheritance diagram for gdcm::network::AAbortPDU:



Collaboration diagram for gdcm::network::AAbortPDU:



Public Member Functions

- AAbortPDU ()
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- void SetReason (const uint8_t r)
- void SetSource (const uint8_t s)
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

12.1.1 Detailed Description

AAbortPDU.

Table 9-26 A-ABORT PDU FIELDS

12.1.2 Constructor & Destructor Documentation

12.1.2.1 AAbortPDU()

```
gdcm::network::AAbortPDU::AAbortPDU ()
```

12.1.3 Member Function Documentation

12.1.3.1 IsLastFragment()

```
bool gdcm::network::AAbortPDU::IsLastFragment () const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.1.3.2 Print()

```
void gdcm::network::AAbortPDU::Print (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.1.3.3 Read()

```
std::istream & gdcm::network::AAbortPDU::Read (
            std::istream & is)  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.1.3.4 SetReason()

```
void gdcm::network::AAbortPDU::SetReason (
            const uint8_t r)
```

12.1.3.5 SetSource()

```
void gdcm::network::AAbortPDU::SetSource (
            const uint8_t s)
```

12.1.3.6 Size()

```
size_t gdcm::network::AAbortPDU::Size () const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.1.3.7 Write()

```
const std::ostream & gdcm::network::AAbortPDU::Write (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

The documentation for this class was generated from the following file:

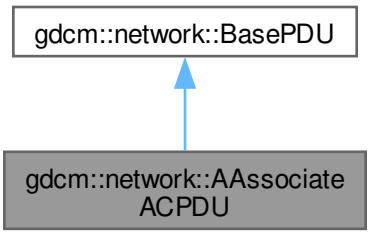
- gdcmAAbortPDU.h

12.2 gdcm::network::AAssociateACPDU Class Reference

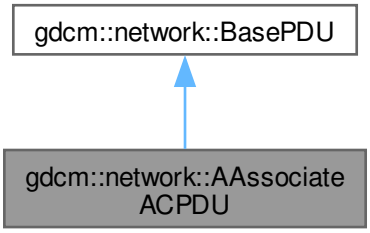
AAssociateACPDU.

`#include <gdcmAAssociateACPDU.h>`

Inheritance diagram for gdcm::network::AAssociateACPDU:



Collaboration diagram for gdcm::network::AAssociateACPDU:



Public Types

- typedef std::vector< PresentationContextAC >::size_type SizeType

Public Member Functions

- AAssociateACPDU ()
- void AddPresentationContextAC (PresentationContextAC const &pcac)
- SizeType GetNumberOfPresentationContextAC () const
- const PresentationContextAC & GetPresentationContextAC (SizeType i)
- const UserInformation & GetUserInformation () const
- void InitFromRQ (AAssociateRQPDU const &rqpdu)
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- SizeType Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

Protected Member Functions

- void SetCalledAETitle (const char calledaetitle[16])
- void SetCallingAETitle (const char callingaetitle[16])

Friends

- class AAssociateRQPDU

12.2.1 Detailed Description

AAssociateACPDU.

Table 9-17 ASSOCIATE-AC PDU fields

12.2.2 Member Typedef Documentation

12.2.2.1 SizeType

```
typedef std::vector<PresentationContextAC>::size_type gdcm::network::AAssociateACPDU::SizeType
```

12.2.3 Constructor & Destructor Documentation

12.2.3.1 AAssociateACPDU()

```
gdcm::network::AAssociateACPDU::AAssociateACPDU ()
```

12.2.4 Member Function Documentation

12.2.4.1 AddPresentationContextAC()

```
void gdcm::network::AAssociateACPDU::AddPresentationContextAC (
            PresentationContextAC const & pcac)
```

12.2.4.2 GetNumberOfPresentationContextAC()

```
SizeType gdcm::network::AAssociateACPDU::GetNumberOfPresentationContextAC () const  [inline]
```

12.2.4.3 GetPresentationContextAC()

```
const PresentationContextAC & gdcm::network::AAssociateACPDU::GetPresentationContextAC (
            SizeType i)  [inline]
```

12.2.4.4 GetUserInformation()

```
const UserInformation & gdcm::network::AAssociateACPDU::GetUserInformation () const  [inline]
```

12.2.4.5 InitFromRQ()

```
void gdcm::network::AAssociateACPDU::InitFromRQ (
            AAssociateRQPDU const & rqpdu)
```

References AAssociateRQPDU.

12.2.4.6 IsLastFragment()

```
bool gdcm::network::AAssociateACPDU::IsLastFragment () const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.2.4.7 Print()

```
void gdcm::network::AAssociateACPDU::Print (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.2.4.8 Read()

```
std::istream & gdcm::network::AAssociateACPDU::Read (
            std::istream & is)  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.2.4.9 SetCalledAETitle()

```
void gdcm::network::AAssociateACPDU::SetCalledAETitle (
            const char calledaetitle[16])  [protected]
```

12.2.4.10 SetCallingAETitle()

```
void gdcm::network::AAssociateACPDU::SetCallingAETitle (
            const char callingaetitle[16])  [protected]
```

References AAssociateRQPDU.

12.2.4.11 Size()

```
SizeType gdcm::network::AAssociateACPDU::Size () const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.2.4.12 Write()

```
const std::ostream & gdcm::network::AAssociateACPDU::Write (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.2.5 Friends And Related Symbol Documentation

12.2.5.1 AAssociateRQPDU

```
friend class AAssociateRQPDU  [friend]
```

References AAssociateRQPDU.

Referenced by AAssociateRQPDU, InitFromRQ(), and SetCallingAETitle().

The documentation for this class was generated from the following file:

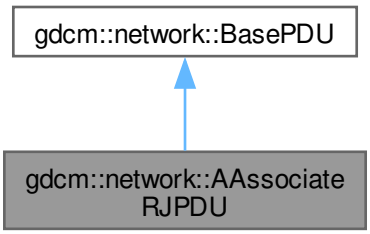
- gdcmAAssociateACPDU.h

12.3 gdcm::network::AAssociateRJPDU Class Reference

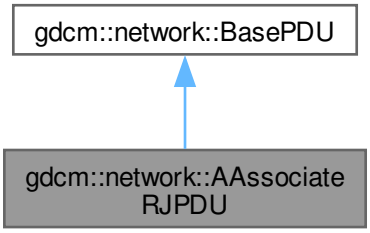
AAssociateRJPDU.

`#include <gdcmAAssociateRJPDU.h>`

Inheritance diagram for gdcm::network::AAssociateRJPDU:



Collaboration diagram for gdcm::network::AAssociateRJPDU:



Public Member Functions

- AAssociateRJPDU ()
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

12.3.1 Detailed Description

AAssociateRJPDU.

Table 9-21 ASSOCIATE-RJ PDU FIELDS

12.3.2 Constructor & Destructor Documentation

12.3.2.1 AAssociateRJPDU()

```
gdcm::network::AAssociateRJPDU::AAssociateRJPDU ()
```

12.3.3 Member Function Documentation

12.3.3.1 IsLastFragment()

```
bool gdcm::network::AAssociateRJPDU::IsLastFragment () const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.3.3.2 Print()

```
void gdcm::network::AAssociateRJPDU::Print (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.3.3.3 Read()

```
std::istream & gdcm::network::AAssociateRJPDU::Read (
            std::istream & is)  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.3.3.4 Size()

```
size_t gdcm::network::AAssociateRJPDU::Size () const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.3.3.5 Write()

```
const std::ostream & gdcm::network::AAssociateRJPDU::Write (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

The documentation for this class was generated from the following file:

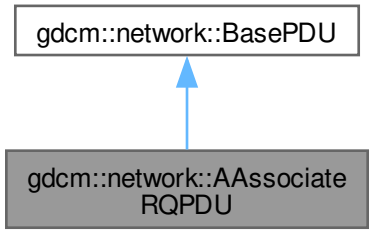
- gdcmAAssociateRJPDU.h

12.4 gdcm::network::AAssociateRQPDU Class Reference

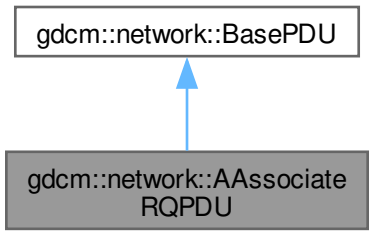
AAssociateRQPDU.

```
#include <gdcmAAssociateRQPDU.h>
```

Inheritance diagram for gdcm::network::AAssociateRQPDU:



Collaboration diagram for gdcm::network::AAssociateRQPDU:



Public Types

- typedef std::vector< PresentationContextRQ > PresentationContextArrayType
- typedef std::vector< PresentationContextRQ >::size_type SizeType

Public Member Functions

- AAssociateRQPDU ()
- AAssociateRQPDU (const AAssociateRQPDU &pdu)
- void AddPresentationContext (PresentationContextRQ const &pc)
- std::string GetCalledAETitle () const
- std::string GetCallingAETitle () const
- SizeType GetNumberOfPresentationContext () const
- PresentationContextRQ const & GetPresentationContext (SizeType i) const
- const PresentationContextRQ * GetPresentationContextByAbstractSyntax (AbstractSyntax const &absyn) const
- const PresentationContextRQ * GetPresentationContextByID (uint8_t i) const
- PresentationContextArrayType const & GetPresentationContexts ()
- const UserInformation & GetUserInformation () const
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- void SetCalledAETitle (const char calledaetitle[16])

  Set the Called AE Title.
- void SetCallingAETitle (const char callingaetitle[16])

  Set the Calling AE Title.
- void SetUserInformation (UserInformation const &ui)
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

Static Public Member Functions

- static bool IsAETitleValid (const char title[16])

  Check whether or not the.

Protected Member Functions

- std::string GetReserved43_74 () const

Friends

- class AAssociateACPDU

12.4.1 Detailed Description

AAssociateRQPDU.

Table 9-11 ASSOCIATE-RQ PDU fields

12.4.2 Member Typedef Documentation

12.4.2.1 PresentationContextArrayType

```
typedef std::vector<PresentationContextRQ> gdcm::network::AAssociateRQPDU::PresentationContextArrayType
```

12.4.2.2 SizeType

```
typedef std::vector<PresentationContextRQ>::size_type gdcm::network::AAssociateRQPDU::SizeType
```

12.4.3 Constructor & Destructor Documentation

12.4.3.1 AAssociateRQPDU() [1/2]

```
gdcm::network::AAssociateRQPDU::AAssociateRQPDU ()
```

Referenced by AAssociateRQPDU().

12.4.3.2 AAssociateRQPDU() [2/2]

```
gdcm::network::AAssociateRQPDU::AAssociateRQPDU (
            const AAssociateRQPDU & pdu)  [inline]
```

References AAssociateRQPDU().

12.4.4 Member Function Documentation

12.4.4.1 AddPresentationContext()

```
void gdcm::network::AAssociateRQPDU::AddPresentationContext (
            PresentationContextRQ const & pc)
```

12.4.4.2 GetCalledAETitle()

```
std::string gdcm::network::AAssociateRQPDU::GetCalledAETitle () const  [inline]
```

12.4.4.3 GetCallingAETitle()

```
std::string gdcm::network::AAssociateRQPDU::GetCallingAETitle () const  [inline]
```

12.4.4.4 GetNumberOfPresentationContext()

```
SizeType gdcm::network::AAssociateRQPDU::GetNumberOfPresentationContext () const  [inline]
```

12.4.4.5 GetPresentationContext()

```
PresentationContextRQ const & gdcm::network::AAssociateRQPDU::GetPresentationContext (
            SizeType i) const  [inline]
```

12.4.4.6 GetPresentationContextByAbstractSyntax()

```
const PresentationContextRQ * gdcm::network::AAssociateRQPDU::GetPresentationContextByAbstract↩
Syntax (
            AbstractSyntax const & absyn) const
```

12.4.4.7 GetPresentationContextByID()

```
const PresentationContextRQ * gdcm::network::AAssociateRQPDU::GetPresentationContextByID (
            uint8_t i) const
```

12.4.4.8 GetPresentationContexts()

```
PresentationContextArrayType const & gdcm::network::AAssociateRQPDU::GetPresentationContexts ()
[inline]
```

12.4.4.9 GetReserved43_74()

```
std::string gdcm::network::AAssociateRQPDU::GetReserved43_74 () const  [protected]
```

12.4.4.10 GetUserInformation()

```
const UserInformation & gdcm::network::AAssociateRQPDU::GetUserInformation () const  [inline]
```

12.4.4.11 IsAETitleValid()

```
bool gdcm::network::AAssociateRQPDU::IsAETitleValid (
            const char title[16])  [static]
```

Check whether or not the.

Parameters

title	is a valid AE title

12.4.4.12 IsLastFragment()

```
bool gdcm::network::AAssociateRQPDU::IsLastFragment () const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.4.4.13 Print()

```
void gdcm::network::AAssociateRQPDU::Print (
            std::ostream & os) const  [override], [virtual]
```

This function will initialize an AAssociateACPDU from the fields in the AAssociateRQPDU structure

Implements gdcm::network::BasePDU.

12.4.4.14 Read()

```
std::istream & gdcm::network::AAssociateRQPDU::Read (
            std::istream & is)  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.4.4.15 SetCalledAETitle()

```
void gdcm::network::AAssociateRQPDU::SetCalledAETitle (
            const char calledaetitle[16])
```

Set the Called AE Title.

12.4.4.16 SetCallingAETitle()

```
void gdcm::network::AAssociateRQPDU::SetCallingAETitle (
            const char callingaetitle[16])
```

Set the Calling AE Title.

12.4.4.17 SetUserInformation()

```
void gdcm::network::AAssociateRQPDU::SetUserInformation (
            UserInformation const & ui)
```

12.4.4.18 Size()

```
size_t gdcm::network::AAssociateRQPDU::Size () const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.4.4.19 Write()

```
const std::ostream & gdcm::network::AAssociateRQPDU::Write (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.4.5 Friends And Related Symbol Documentation

12.4.5.1 AAssociateACPDU

```
friend class AAssociateACPDU  [friend]
```

References AAssociateACPDU.

Referenced by AAssociateACPDU.

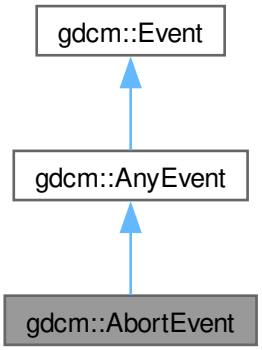
The documentation for this class was generated from the following file:

- gdcmAAssociateRQPDU.h

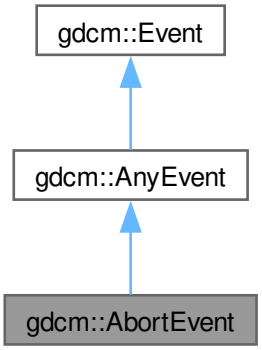
12.5 gdcm::AbortEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::AbortEvent:



Collaboration diagram for gdcm::AbortEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

12.6 gdcm::network::AbstractSyntax Class Reference

AbstractSyntax.

```
#include <gdcmAbstractSyntax.h>
```

Public Member Functions

- AbstractSyntax ()
- DataElement GetAsDataElement () const
- const char * GetName () const
- bool operator== (const AbstractSyntax &as) const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetName (const char *name)
- void SetNameFromUID (UIDs::TSName tsname)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.6.1 Detailed Description

AbstractSyntax.

Table 9-14 ABSTRACT SYNTAX SUB-ITEM FIELDS

12.6.2 Constructor & Destructor Documentation

12.6.2.1 AbstractSyntax()

```
gdcm::network::AbstractSyntax::AbstractSyntax ()
```

Referenced by operator==().

12.6.3 Member Function Documentation

12.6.3.1 GetAsDataElement()

```
DataElement gdcm::network::AbstractSyntax::GetAsDataElement () const
```

12.6.3.2 GetName()

```
const char * gdcm::network::AbstractSyntax::GetName () const  [inline]
```

12.6.3.3 operator==()

```
bool gdcm::network::AbstractSyntax::operator== (
            const AbstractSyntax & as) const  [inline]
```

References AbstractSyntax().

12.6.3.4 Print()

```
void gdcm::network::AbstractSyntax::Print (
            std::ostream & os) const
```

12.6.3.5 Read()

```
std::istream & gdcm::network::AbstractSyntax::Read (
            std::istream & is)
```

12.6.3.6 SetName()

```
void gdcm::network::AbstractSyntax::SetName (
            const char * name)  [inline]
```

12.6.3.7 SetNameFromUID()

```
void gdcm::network::AbstractSyntax::SetNameFromUID (
            UIDs::TSName tsname)
```

12.6.3.8 Size()

```
size_t gdcm::network::AbstractSyntax::Size () const
```

12.6.3.9 Write()

```
const std::ostream & gdcm::network::AbstractSyntax::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

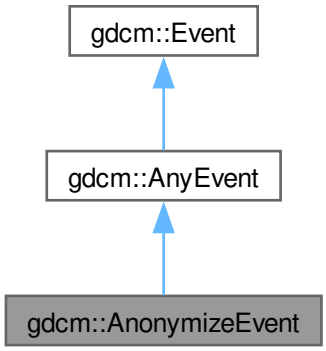
- gdcmAbstractSyntax.h

12.7 gdcm::AnonymizeEvent Class Reference

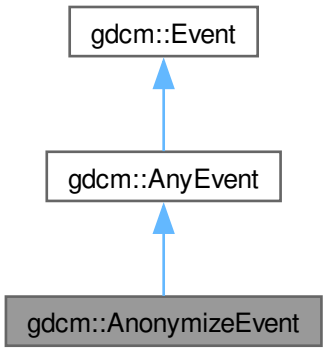
AnonymizeEvent.

`#include <gdcmAnonymizeEvent.h>`

Inheritance diagram for gdcm::AnonymizeEvent:



Collaboration diagram for gdcm::AnonymizeEvent:



Public Types

- typedef AnonymizeEvent Self
- typedef AnyEvent Superclass

Public Member Functions

- AnonymizeEvent (const Self &s)
- AnonymizeEvent (Tag const &tag=0)
- ~AnonymizeEvent () override=default
- bool CheckEvent (const ::gdcm::Event *e) const override
- const char * GetEventName () const override
- Tag const & GetTag () const
- ::gdcm::Event * MakeObject () const override
- void operator= (const Self &)=delete
- void SetTag (const Tag &t)

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

12.7.1 Detailed Description

AnonymizeEvent.

Special type of event triggered during the Anonymization process

See also

Anonymizer

Examples

BasicAnonymizer.cs, Cleaner.cs, and ClinicalTrialIdentificationWorkflow.cs.

12.7.2 Member Typedef Documentation

12.7.2.1 Self

```
typedef AnonymizeEvent gdcm::AnonymizeEvent::Self
```

12.7.2.2 Superclass

```
typedef AnyEvent gdcm::AnonymizeEvent::Superclass
```

12.7.3 Constructor & Destructor Documentation

12.7.3.1 AnonymizeEvent() [1/2]

```
gdcm::AnonymizeEvent::AnonymizeEvent (
            Tag const & tag = 0)  [inline]
```

12.7.3.2 ~AnonymizeEvent()

```
gdcm::AnonymizeEvent::~AnonymizeEvent ()  [override], [default]
```

12.7.3.3 AnonymizeEvent() [2/2]

```
gdcm::AnonymizeEvent::AnonymizeEvent (
            const Self & s)  [inline]
```

12.7.4 Member Function Documentation

12.7.4.1 CheckEvent()

```
bool gdcm::AnonymizeEvent::CheckEvent (
            const ::gdcm::Event * e) const  [inline], [override]
```

12.7.4.2 GetEventName()

```
const char * gdcm::AnonymizeEvent::GetEventName () const  [inline], [override], [virtual]
```

Return the StringName associated with the event.

Implements gdcm::Event.

12.7.4.3 GetTag()

```
Tag const & gdcm::AnonymizeEvent::GetTag () const  [inline]
```

Examples

BasicAnonymizer.cs, Cleaner.cs, and ClinicalTrialIdentificationWorkflow.cs.

12.7.4.4 MakeObject()

```
::gdcm::Event * gdcm::AnonymizeEvent::MakeObject () const  [inline], [override], [virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implements gdcm::Event.

12.7.4.5 operator=()

```
void gdcm::AnonymizeEvent::operator= (
            const Self & )  [delete]
```

12.7.4.6 SetTag()

```
void gdcm::AnonymizeEvent::SetTag (
            const Tag & t)  [inline]
```

The documentation for this class was generated from the following file:

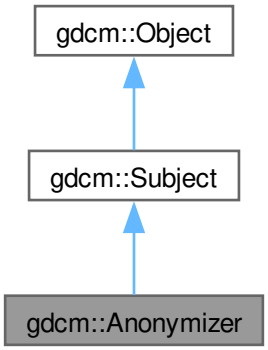
- gdcmAnonymizeEvent.h

12.8 gdcm::Anonymizer Class Reference

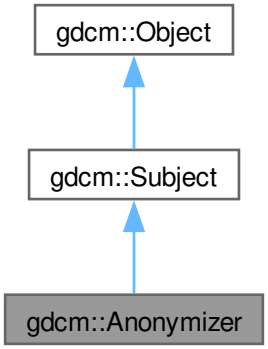
Anonymizer.

```
#include <gdcmAnonymizer.h>
```

Inheritance diagram for gdcm::Anonymizer:



Collaboration diagram for gdcm::Anonymizer:



Public Member Functions

- Anonymizer ()
- ~Anonymizer () override
- bool BasicApplicationLevelConfidentialityProfile (bool deidentify=true)
- bool Clear (PrivateTag const &pt)
- bool Clear (Tag const &t)

  Identical to 'Empty' except no action is done when tag is not present.
- bool Empty (PrivateTag const &pt)
- bool Empty (Tag const &t)

  Make Tag t empty (if not found tag will be created).
- const CryptographicMessageSyntax * GetCryptographicMessageSyntax () const
- File & GetFile ()
- bool Remove (PrivateTag const &pt)
- bool Remove (Tag const &t)

  remove a tag (even a SQ can be removed)
- bool RemoveGroupLength ()

  Main function that loop over all elements and remove group length.
- bool RemovePrivateTags ()

  Main function that loop over all elements and remove private tags.
- bool RemoveRetired ()

  Main function that loop over all elements and remove retired element.
- bool Replace (PrivateTag const &t, const char *value)
- bool Replace (PrivateTag const &t, const char *value, VL const &vl)
- bool Replace (Tag const &t, const char *value)
- bool Replace (Tag const &t, const char *value, VL const &vl)
- void SetCryptographicMessageSyntax (CryptographicMessageSyntax *cms)

  Set/Get CMS key that will be used to encrypt the dataset within BasicApplicationLevelConfidentialityProfile.
- void SetFile (const File &f)

  Set/Get File.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static void ClearInternalUIDs ()
- static std::vector< Tag > GetBasicApplicationLevelConfidentialityProfileAttributes ()

  Return the list of Tag that will be considered when anonymizing a DICOM file.
- static SmartPointer< Anonymizer > New ()

  for wrapped language: instantiate a reference counted object

Protected Member Functions

- bool BALCPProtect (DataSet &ds, Tag const &tag, const IOD &iod)
- bool CanEmptyTag (Tag const &tag, const IOD &iod) const
- void RecurseDataSet (DataSet &ds)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.8.1 Detailed Description

Anonymizer.

This class is a multi purpose anonymizer. It can work in 2 mode:

- Full (irreversible) anonymizer (aka dumb mode)
- reversible de-identifier/re-identifier (aka smart mode). This implements the Basic Application Level Confidentiality Profile, DICOM PS 3.15-2009

1. dumb mode This is a dumb anonymizer implementation. All it allows user is simple operation such as:

Tag based functions:

- complete removal of DICOM attribute (Remove)
- make a tag empty, ie make it's length 0 (Empty)
- replace with another string-based value (Replace)

DataSet based functions:

- Remove all group length attribute from a DICOM dataset (Group Length element are deprecated, DICOM 2008)
- Remove all private attributes
- Remove all retired attributes

All function calls actually execute the user specified request. Previous implementation were calling a general Anonymize function but traversing a std::set is O(n) operation, while a simple user specified request is O(log(n)) operation. So 'm' user interaction is O($m*\log(n)$) which is $<$ O(n) complexity.

1. smart mode this mode implements the Basic Application Level Confidentiality Profile (DICOM PS 3.15-2008) In this case, it is extremely important to use the same Anonymizer class when anonymizing a FileSet. Once the Anonymizer is destroyed its memory of known (already processed) UIDs will be lost. which will make the anonymizer behaves incorrectly for attributes such as Series UID Study UID where user want some consistency. When attribute is Type 1 / Type 1C, a dummy generator will take in the existing value and produce a dummy value (a sha1 representation). sha1 algorithm is considered to be cryptographically strong (compared to md5sum) so that we meet the following two conditions:
   - Produce the same dummy value for the same input value
   - do not provide an easy way to retrieve the original value from the sha1 generated value

This class implement the Subject/Observer pattern trigger the following event:

- AnonymizeEvent
- IterationEvent
- StartEvent
- EndEvent

See also

CryptographicMessageSyntax

Examples

ClinicalTrialAnnotate.cxx, CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, ManipulateFile.cs, and MpegVideoInfo.cs.

12.8.2 Constructor & Destructor Documentation

12.8.2.1 Anonymizer()

```
gdcm::Anonymizer::Anonymizer ()  [inline]
```

Referenced by New().

12.8.2.2 ~Anonymizer()

```
gdcm::Anonymizer::~Anonymizer ()  [override]
```

12.8.3 Member Function Documentation

12.8.3.1 BALCPProtect()

```
bool gdcm::Anonymizer::BALCPProtect (
            DataSet & ds,
            Tag const & tag,
            const IOD & iod)  [protected]
```

12.8.3.2 BasicApplicationLevelConfidentialityProfile()

```
bool gdcm::Anonymizer::BasicApplicationLevelConfidentialityProfile (
            bool deidentify = true)
```

PS 3.15 / E.1.1 De-Identifier An Application may claim conformance to the Basic Application Level Confidentiality Profile as a deidentifier if it protects all Attributes that might be used by unauthorized entities to identify the patient. NOT THREAD SAFE

Examples

BasicAnonymizer.cs.

12.8.3.3 CanEmptyTag()

```
bool gdcm::Anonymizer::CanEmptyTag (
            Tag const & tag,
            const IOD & iod) const  [protected]
```

12.8.3.4 Clear() [1/2]

```
bool gdcm::Anonymizer::Clear (
            PrivateTag const & pt)
```

12.8.3.5 Clear() [2/2]

```
bool gdcm::Anonymizer::Clear (
            Tag const & t)
```

Identical to 'Empty' except no action is done when tag is not present.

12.8.3.6 ClearInternalUIDs()

```
void gdcm::Anonymizer::ClearInternalUIDs ()  [static]
```

Clear the internal mapping of real UIDs to generated UIDs

Warning

the mapping is definitely lost

12.8.3.7 Empty() [1/2]

```
bool gdcm::Anonymizer::Empty (
            PrivateTag const & pt)
```

Make PrivateTag pt empty (if not found tag will be created) Pay special attention that this code must be done before any call to Empty/Remove of the associated Private Creator, but before any call to Replace.

12.8.3.8 Empty() [2/2]

```
bool gdcm::Anonymizer::Empty (
            Tag const & t)
```

Make Tag t empty (if not found tag will be created).

Examples

CreateJPIPDataSet.cxx.

12.8.3.9 GetBasicApplicationLevelConfidentialityProfileAttributes()

```
std::vector< Tag > gdcm::Anonymizer::GetBasicApplicationLevelConfidentialityProfileAttributes ()
[static]
```

Return the list of Tag that will be considered when anonymizing a DICOM file.

Examples

GenFakeIdentifyFile.cxx, and TraverseModules.cxx.

12.8.3.10 GetCryptographicMessageSyntax()

```
const CryptographicMessageSyntax * gdcm::Anonymizer::GetCryptographicMessageSyntax () const
```

12.8.3.11 GetFile()

```
File & gdcm::Anonymizer::GetFile ()  [inline]
```

Examples

BasicAnonymizer.cs, and ManipulateFile.cs.

12.8.3.12 New()

```
SmartPointer< Anonymizer > gdcm::Anonymizer::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

References Anonymizer().

12.8.3.13 RecurseDataSet()

```
void gdcm::Anonymizer::RecurseDataSet (
            DataSet & ds)  [protected]
```

12.8.3.14 Remove() [1/2]

```
bool gdcm::Anonymizer::Remove (
            PrivateTag const & pt)
```

remove a private tag (even a SQ can be removed) Pay special attention that this code must be done before any call to Empty/Remove of the associated Private Creator, but before any call to Replace. When the private reservation becomes empty, no check is done to automatically remove the private creator

12.8.3.15 Remove() [2/2]

```
bool gdcm::Anonymizer::Remove (
            Tag const & t)
```

remove a tag (even a SQ can be removed)

12.8.3.16 RemoveGroupLength()

```
bool gdcm::Anonymizer::RemoveGroupLength ()
```

Main function that loop over all elements and remove group length.

Examples

ClinicalTrialAnnotate.cxx, and ManipulateFile.cs.

12.8.3.17 RemovePrivateTags()

```
bool gdcm::Anonymizer::RemovePrivateTags ()
```

Main function that loop over all elements and remove private tags.

Examples

ClinicalTrialAnnotate.cxx, and ManipulateFile.cs.

12.8.3.18 RemoveRetired()

```
bool gdcm::Anonymizer::RemoveRetired ()
```

Main function that loop over all elements and remove retired element.

12.8.3.19 Replace() [1/4]

```
bool gdcm::Anonymizer::Replace (
            PrivateTag const & t,
            const char * value)
```

12.8.3.20 Replace() [2/4]

```
bool gdcm::Anonymizer::Replace (
            PrivateTag const & t,
            const char * value,
            VL const & vl)
```

12.8.3.21 Replace() [3/4]

```
bool gdcm::Anonymizer::Replace (
            Tag const & t,
            const char * value)
```

Replace tag with another value, if tag is not found it will be created: WARNING: this function can only execute if tag is a VRASCII

Examples

ClinicalTrialAnnotate.cxx, CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, ManipulateFile.cs, and MpegVideoInfo.cs.

12.8.3.22 Replace() [4/4]

```
bool gdcm::Anonymizer::Replace (
            Tag const & t,
            const char * value,
            VL const & vl)
```

when the value contains \0, it is a good idea to specify the length. This function is required when dealing with VRBINARY tag

12.8.3.23 SetCryptographicMessageSyntax()

```
void gdcm::Anonymizer::SetCryptographicMessageSyntax (
            CryptographicMessageSyntax * cms)
```

Set/Get CMS key that will be used to encrypt the dataset within BasicApplicationLevelConfidentialityProfile.

Examples

BasicAnonymizer.cs, and ClinicalTrialIdentificationWorkflow.cs.

12.8.3.24 SetFile()

```
void gdcm::Anonymizer::SetFile (
            const File & f)  [inline]
```

Set/Get File.

Examples

BasicAnonymizer.cs, ClinicalTrialAnnotate.cxx, CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, ManipulateFile.cs, and MpegVideoInfo.cs.

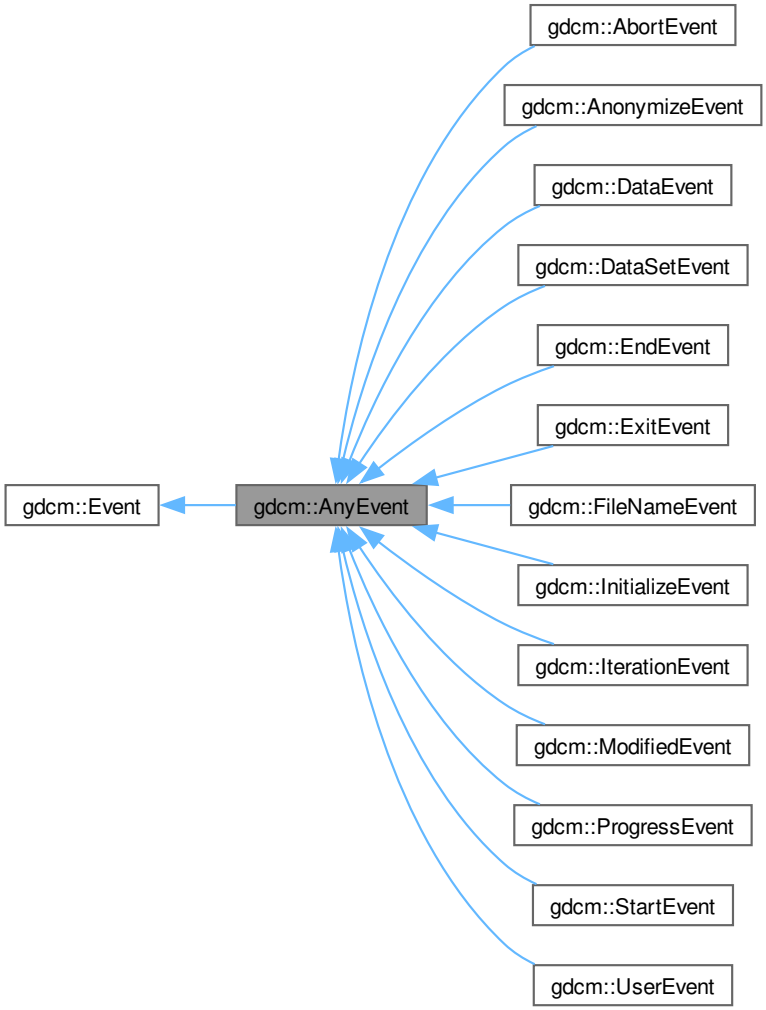
The documentation for this class was generated from the following file:

- gdcmAnonymizer.h

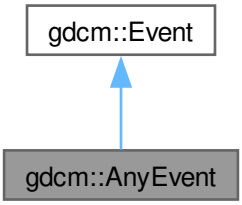
12.9 gdcm::AnyEvent Class Reference

`#include <gdcmEvent.h>`

Inheritance diagram for gdcm::AnyEvent:



Collaboration diagram for gdcm::AnyEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

12.10 gdcm::network::ApplicationContext Class Reference

ApplicationContext.

`#include <gdcmApplicationContext.h>`

Public Member Functions

- ApplicationContext ()
- const char * GetName () const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetName (const char *name)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.10.1 Detailed Description

ApplicationContext.

Table 9-12 APPLICATION CONTEXT ITEM FIELDS

Todo Looks like Application Context can only be 64 bytes at max (see Figure 9-1 / PS 3.8 - 2009)

12.10.2 Constructor & Destructor Documentation

12.10.2.1 ApplicationContext()

```
gdcm::network::ApplicationContext::ApplicationContext ()
```

12.10.3 Member Function Documentation

12.10.3.1 GetName()

```
const char * gdcm::network::ApplicationContext::GetName () const  [inline]
```

12.10.3.2 Print()

```
void gdcm::network::ApplicationContext::Print (
            std::ostream & os) const
```

12.10.3.3 Read()

```
std::istream & gdcm::network::ApplicationContext::Read (
            std::istream & is)
```

12.10.3.4 SetName()

```
void gdcm::network::ApplicationContext::SetName (
            const char * name)  [inline]
```

12.10.3.5 Size()

```
size_t gdcm::network::ApplicationContext::Size () const
```

12.10.3.6 Write()

```
const std::ostream & gdcm::network::ApplicationContext::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

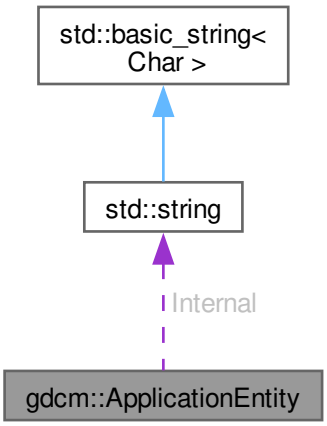
- gdcmApplicationContext.h

12.11 gdcm::ApplicationEntity Class Reference

ApplicationEntity.

```
#include <gdcmApplicationEntity.h>
```

Collaboration diagram for gdcm::ApplicationEntity:



Public Member Functions

- bool IsValid () const
- void Print (std::ostream &os) const
- void SetBlob (const std::vector< char > &v)
- void Squeeze ()

Public Attributes

- std::string Internal

Static Public Attributes

- static const unsigned int MaxLength = 16
- static const unsigned int MaxNumberOfComponents = 1
- static const char Padding = ' '
- static const char Separator = ' '

12.11.1 Detailed Description

ApplicationEntity.

- AE Application Entity
- A string of characters that identifies an Application Entity with leading and trailing spaces (20H) being non-significant. A value consisting solely of spaces shall not be used.
- Default Character Repertoire excluding character code 5CH (the BACKSLASH \ in ISO-IR 6), and control characters LF, FF, CR and ESC.
- 16 bytes maximum

12.11.2 Member Function Documentation

12.11.2.1 IsValid()

```
bool gdcm::ApplicationEntity::IsValid () const  [inline]
```

12.11.2.2 Print()

```
void gdcm::ApplicationEntity::Print (
            std::ostream & os) const  [inline]
```

12.11.2.3 SetBlob()

```
void gdcm::ApplicationEntity::SetBlob (
            const std::vector< char > & v)  [inline]
```

12.11.2.4 Squeeze()

```
void gdcm::ApplicationEntity::Squeeze ()  [inline]
```

12.11.3 Member Data Documentation

12.11.3.1 Internal

```
std::string gdcm::ApplicationEntity::Internal
```

12.11.3.2 MaxLength

```
const unsigned int gdcm::ApplicationEntity::MaxLength = 16  [static]
```

12.11.3.3 MaxNumberOfComponents

```
const unsigned int gdcm::ApplicationEntity::MaxNumberOfComponents = 1  [static]
```

12.11.3.4 Padding

```
const char gdcm::ApplicationEntity::Padding = ' '  [static]
```

12.11.3.5 Separator

```
const char gdcm::ApplicationEntity::Separator = ' '  [static]
```

The documentation for this class was generated from the following file:

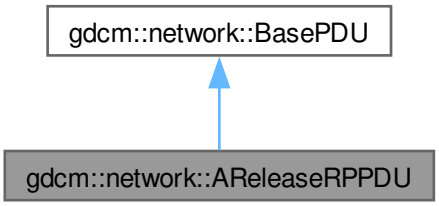
- gdcmApplicationEntity.h

12.12 gdcm::network::AReleaseRPPDU Class Reference

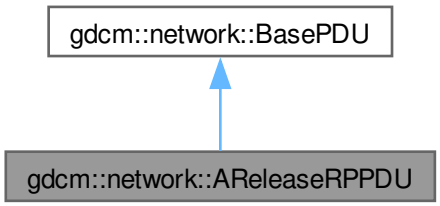
AReleaseRPPDU.

`#include <gdcmAReleaseRPPDU.h>`

Inheritance diagram for gdcm::network::AReleaseRPPDU:



Collaboration diagram for gdcm::network::AReleaseRPPDU:



Public Member Functions

- AReleaseRPPDU ()
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

12.12.1 Detailed Description

AReleaseRPPDU.

Table 9-25 A-RELEASE-RP PDU fields

12.12.2 Constructor & Destructor Documentation

12.12.2.1 AReleaseRPPDU()

```
gdcm::network::AReleaseRPPDU::AReleaseRPPDU ()
```

12.12.3 Member Function Documentation

12.12.3.1 IsLastFragment()

```
bool gdcm::network::AReleaseRPPDU::IsLastFragment () const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.12.3.2 Print()

```
void gdcm::network::AReleaseRPPDU::Print (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.12.3.3 Read()

```
std::istream & gdcm::network::AReleaseRPPDU::Read (
            std::istream & is)  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.12.3.4 Size()

```
size_t gdcm::network::AReleaseRPPDU::Size () const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.12.3.5 Write()

```
const std::ostream & gdcm::network::AReleaseRPPDU::Write (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

The documentation for this class was generated from the following file:

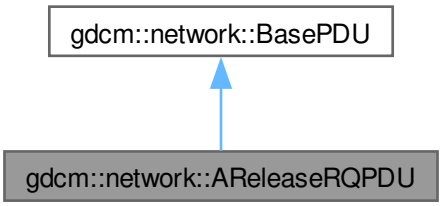
- gdcmAReleaseRPPDU.h

12.13 gdcm::network::AReleaseRQPDU Class Reference

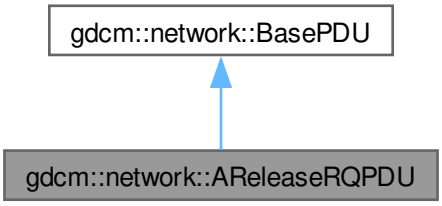
AReleaseRQPDU.

```
#include <gdcmAReleaseRQPDU.h>
```

Inheritance diagram for gdcm::network::AReleaseRQPDU:



Collaboration diagram for gdcm::network::AReleaseRQPDU:



Public Member Functions

- AReleaseRQPDU ()
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

12.13.1 Detailed Description

AReleaseRQPDU.

Table 9-24 A-RELEASE-RQ PDU FIELDS

12.13.2 Constructor & Destructor Documentation

12.13.2.1 AReleaseRQPDU()

```
gdcm::network::AReleaseRQPDU::AReleaseRQPDU ()
```

12.13.3 Member Function Documentation

12.13.3.1 IsLastFragment()

```
bool gdcm::network::AReleaseRQPDU::IsLastFragment () const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.13.3.2 Print()

```
void gdcm::network::AReleaseRQPDU::Print (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.13.3.3 Read()

```
std::istream & gdcm::network::AReleaseRQPDU::Read (
            std::istream & is)  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.13.3.4 Size()

```
size_t gdcm::network::AReleaseRQPDU::Size () const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.13.3.5 Write()

```
const std::ostream & gdcm::network::AReleaseRQPDU::Write (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

The documentation for this class was generated from the following file:

- gdcmAReleaseRQPDU.h

12.14 gdcm::network::ARTIMTimer Class Reference

ARTIMTimer.

```
#include <gdcmARTIMTimer.h>
```

Public Member Functions

- ARTIMTimer ()
- double GetElapsedTime () const
- bool GetHasExpired () const
- double GetTimeout () const
- void SetTimeout (double inTimeout)
- void Start ()
- void Stop ()

12.14.1 Detailed Description

ARTIMTimer.

This file contains the code for the ARTIM timer.

Basically, the ARTIM timer will just get the wall time when it's started, and then can be queried for the current time, and then can be stopped (ie, the start time reset).

Because we're trying to do this without threading, we should be able to 'start' the ARTIM timer by this mechanism, and then when waiting for a particular response, tight loop that with sleep calls and determinations of when the ARTIM timer has reached its peak. As such, this isn't a strict 'timer' in the traditional sense of the word, but more of a time keeper.

There can be only one ARTIM timer per connection.

12.14.2 Constructor & Destructor Documentation

12.14.2.1 ARTIMTimer()

```
gdcm::network::ARTIMTimer::ARTIMTimer ()
```

12.14.3 Member Function Documentation

12.14.3.1 GetElapsedTime()

```
double gdcm::network::ARTIMTimer::GetElapsedTime () const
```

12.14.3.2 GetHasExpired()

```
bool gdcm::network::ARTIMTimer::GetHasExpired () const
```

12.14.3.3 GetTimeout()

```
double gdcm::network::ARTIMTimer::GetTimeout () const
```

12.14.3.4 SetTimeout()

```
void gdcm::network::ARTIMTimer::SetTimeout (
            double inTimeout)
```

12.14.3.5 Start()

```
void gdcm::network::ARTIMTimer::Start ()
```

12.14.3.6 Stop()

```
void gdcm::network::ARTIMTimer::Stop ()
```

The documentation for this class was generated from the following file:

- gdcmARTIMTimer.h

12.15 gdcm::ASN1 Class Reference

Class for ASN1.

```
#include <gdcmASN1.h>
```

Public Member Functions

- ASN1 ()
- ASN1 (const ASN1 &)=delete
- ~ASN1 ()
- void operator= (const ASN1 &)=delete

Static Public Member Functions

- static bool ParseDump (const char *array, size_t length)
- static bool ParseDumpFile (const char *filename)

Protected Member Functions

- int TestPBKDF2 ()

12.15.1 Detailed Description

Class for ASN1.

12.15.2 Constructor & Destructor Documentation

12.15.2.1 ASN1() [1/2]

```
gdcm::ASN1::ASN1 ()
```

Referenced by ASN1(), and operator=().

12.15.2.2 ~ASN1()

```
gdcm::ASN1::~ASN1 ()
```

12.15.2.3 ASN1() [2/2]

```
gdcm::ASN1::ASN1 (
            const ASN1 & )  [delete]
```

References ASN1().

12.15.3 Member Function Documentation

12.15.3.1 operator=()

```
void gdcm::ASN1::operator= (
            const ASN1 & )  [delete]
```

References ASN1().

12.15.3.2 ParseDump()

```
bool gdcm::ASN1::ParseDump (
            const char * array,
            size_t length)  [static]
```

12.15.3.3 ParseDumpFile()

```
bool gdcm::ASN1::ParseDumpFile (
            const char * filename)  [static]
```

12.15.3.4 TestPBKDF2()

```
int gdcm::ASN1::TestPBKDF2 ()  [protected]
```

The documentation for this class was generated from the following file:

- gdcmASN1.h

12.16 gdcm::network::AsynchronousOperationsWindowSub Class Reference

AsynchronousOperationsWindowSub.

```
#include <gdcmAsynchronousOperationsWindowSub.h>
```

Public Member Functions

- AsynchronousOperationsWindowSub ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.16.1 Detailed Description

AsynchronousOperationsWindowSub.

PS 3.7 Table D.3-7 ASYNCHRONOUS OPERATIONS WINDOW SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

12.16.2 Constructor & Destructor Documentation

12.16.2.1 AsynchronousOperationsWindowSub()

```
gdcm::network::AsynchronousOperationsWindowSub::AsynchronousOperationsWindowSub ()
```

12.16.3 Member Function Documentation

12.16.3.1 Print()

```
void gdcm::network::AsynchronousOperationsWindowSub::Print (
            std::ostream & os) const
```

12.16.3.2 Read()

```
std::istream & gdcm::network::AsynchronousOperationsWindowSub::Read (
            std::istream & is)
```

12.16.3.3 Size()

```
size_t gdcm::network::AsynchronousOperationsWindowSub::Size () const
```

12.16.3.4 Write()

```
const std::ostream & gdcm::network::AsynchronousOperationsWindowSub::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

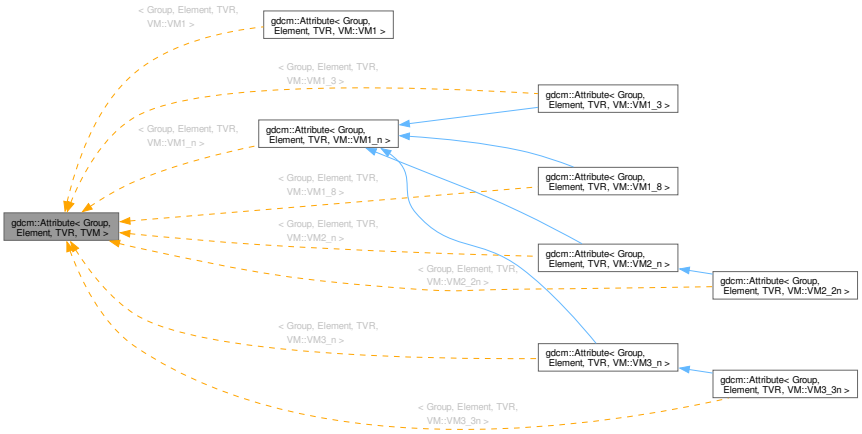
- gdcmAsynchronousOperationsWindowSub.h

12.17 gdcm::Attribute< Group, Element, TVR, TVM > Class Template Reference

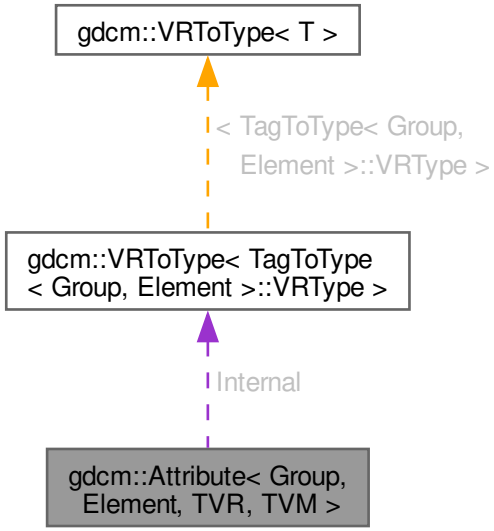
Attribute class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary.

`#include <gdcmAttribute.h>`

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, TVM >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, TVM >:



Public Types

- enum { VMType = VMToLength<TVM>::Length }
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TVM==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VM::VMType) TVM &(VM::VMType)(TagToType< Group, Element >::VMType)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.17.1 Detailed Description

template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType>
class gdcm::Attribute< Group, Element, TVR, TVM >

Attribute class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary.

Typical example that compile is: Attribute<0x0008,0x9007> a = {"ORIGINAL","PRIMARY","T1","NONE"};

Examples that will NOT compile are:

Attribute<0x0018,0x1182, VR::IS, VM::VM1> fd1 = {}; // not enough parameters Attribute<0x0018,0x1182, VR::IS, VM::VM2> fd2 = {0,1,2}; // too many initializers Attribute<0x0018,0x1182, VR::IS, VM::VM3> fd3 = {0,1,2}; // VM3 is not valid Attribute<0x0018,0x1182, VR::UL, VM::VM2> fd3 = {0,1}; // UL is not valid VR

Examples

CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DeriveSeries.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_In FixOrientation.cxx, GenFakeIdentifyFile.cxx, GetSequenceUltrasound.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, PatchFile.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, SortImage.cxx, StreamImageReaderTest.cxx, VolumeSorter.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.17.2 Member Typedef Documentation

12.17.2.1 ArrayType

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, TVM >::ArrayType
```

Examples

ReadAndPrintAttributes.cxx.

12.17.3 Member Enumeration Documentation

12.17.3.1 anonymous enum

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
anonymous enum
```

Enumerator

VMType	

12.17.4 Member Function Documentation

12.17.4.1 GDCM_STATIC_ASSERT() [1/3]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
             ((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TVM==VM::VM1))||!((VR::VRType) TVR
&VR::VR_VM1)) )
```

References gdcm::VM::VM1, and gdcm::VR::VR_VM1.

12.17.4.2 GDCM_STATIC_ASSERT() [2/3]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
             ((VM::VMType) TVM &(VM::VMType)(TagToType< Group, Element >::VMType)) )
```

12.17.4.3 GDCM_STATIC_ASSERT() [3/3]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
             ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.17.4.4 GetAsDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
DataElement gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement () const  [inline]
```

Examples

CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FixOrientation.cxx, GenFakeIdentifyFile.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, PatchFile.cxx, and StreamImageReaderTest.cxx.

References GetNumberOfValues(), GetTag(), GetVR(), gdcm::DataElement::GetVR(), Internal, gdcm::DataElement::SetByteValue(), gdcm::DataElement::SetVR(), gdcm::VR::SQ, gdcm::VR::UI, and gdcm::VR::VRASCII.

12.17.4.5 GetDictVM()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
VM gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVM ()  [inline], [static]
```

12.17.4.6 GetDictVR()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVR ()  [inline], [static]
```

12.17.4.7 GetNumberOfValues()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
unsigned int gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues () const  [inline]
```

Examples

LargeVRDSExplicit.cxx.

Referenced by GetAsDataElement(), GetValue(), GetValue(), operator!=(), operator<(), gdcm::Attribute< Group, Element, TVR, VM::VM1 operator==(), Print(), SetByteValue(), SetByteValueNoSwap(), SetValue(), and SetValues().

12.17.4.8 GetTag()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
Tag gdcm::Attribute< Group, Element, TVR, TVM >::GetTag ()  [inline], [static]
```

Examples

PatchFile.cxx, ReadAndPrintAttributes.cxx, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

Referenced by GetAsDataElement(), and Print().

12.17.4.9 GetValue() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
            unsigned int idx = 0)  [inline]
```

Examples

DeriveSeries.cxx, FixOrientation.cxx, GetSequenceUltrasound.cxx, PatchFile.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

References GetNumberOfValues(), and Internal.

Referenced by operator[ ](), and operator[ ]().

12.17.4.10 GetValue() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
ArrayType const & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

References GetNumberOfValues(), and Internal.

12.17.4.11 GetValues()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
const ArrayType * gdcm::Attribute< Group, Element, TVR, TVM >::GetValues () const  [inline]
```

Examples

FixOrientation.cxx, LargeVRDSExplicit.cxx, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

References Internal.

Referenced by operator!=(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator!=(), operator<(), gdcm::Attribute< Group, Ele
operator==(), and gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator==().

12.17.4.12 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
VM gdcm::Attribute< Group, Element, TVR, TVM >::GetVM ()  [inline], [static]
```

12.17.4.13 GetVR()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetVR ()  [inline], [static]
```

Examples

LargeVRDSExplicit.cxx.

Referenced by GetAsDataElement(), and SetFromDataElement().

12.17.4.14 operator"!=()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator!= (
            const Attribute< Group, Element, TVR, TVM > & att) const  [inline]
```

References GetNumberOfValues(), GetValues(), and Internal.

12.17.4.15 operator<()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator< (
            const Attribute< Group, Element, TVR, TVM > & att) const  [inline]
```

References GetNumberOfValues(), GetValues(), and Internal.

12.17.4.16 operator==()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator== (
            const Attribute< Group, Element, TVR, TVM > & att) const  [inline]
```

References GetNumberOfValues(), GetValues(), and Internal.

12.17.4.17 operator[]() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx)  [inline]
```

References GetValue().

12.17.4.18 operator[]() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
ArrayType const & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

References GetValue().

12.17.4.19 Print()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::Print (
            std::ostream & os) const  [inline]
```

References GetNumberOfValues(), GetTag(), and Internal.

12.17.4.20 Set()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::Set (
            DataSet const & ds)  [inline]
```

Examples

LargeVRDSExplicit.cxx, SortImage.cxx, and VolumeSorter.cxx.

References gdcm::DataSet::GetDataElement(), and SetFromDataElement().

12.17.4.21 SetByteValue()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

References gdcm::ByteValue::GetLength(), GetNumberOfValues(), gdcm::ByteValue::GetPointer(), and Internal.

Referenced by SetFromDataElement().

12.17.4.22 SetByteValueNoSwap()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

References gdcm::ByteValue::GetLength(), GetNumberOfValues(), gdcm::ByteValue::GetPointer(), and Internal.

Referenced by SetFromDataElement().

12.17.4.23 SetFromDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement (
            DataElement const & de)  [inline]
```

Examples

GetSequenceUltrasound.cxx, LargeVRDSExplicit.cxx, PatchFile.cxx, ReadAndDumpDICOMDIR2.cxx, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

References gdcm::DataElement::GetByteValue(), gdcm::DataElement::GetTag(), GetVR(), gdcm::DataElement::GetVR(), gdcm::VR::INVALID, gdcm::DataElement::IsEmpty(), SetByteValue(), SetByteValueNoSwap(), and gdcm::VR::UN.

Referenced by Set(), and SetFromDataSet().

12.17.4.24 SetFromDataSet()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

Examples

DeriveSeries.cxx, FixOrientation.cxx, ReadAndPrintAttributes.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

References gdcm::DataSet::FindDataElement(), gdcm::DataSet::GetDataElement(), and SetFromDataElement().

12.17.4.25 SetValue()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValue (
            ArrayType v,
            unsigned int idx = 0)  [inline]
```

Examples

CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, FixOrientation.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, and PatchFile.cxx.

References GetNumberOfValues(), and Internal.

12.17.4.26 SetValues()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValues (
            const ArrayType * array,
            unsigned int numel = VMType)  [inline]
```

Examples

FixOrientation.cxx, and LargeVRDSExplicit.cxx.

References GetNumberOfValues(), Internal, and VMType.

12.17.5 Member Data Documentation

12.17.5.1 Internal

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
ArrayType gdcm::Attribute< Group, Element, TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

Referenced by GetAsDataElement(), GetValue(), GetValue(), GetValues(), operator!=(), operator<(), operator==(), Print(), SetByteValue(), SetByteValueNoSwap(), SetValue(), and SetValues().

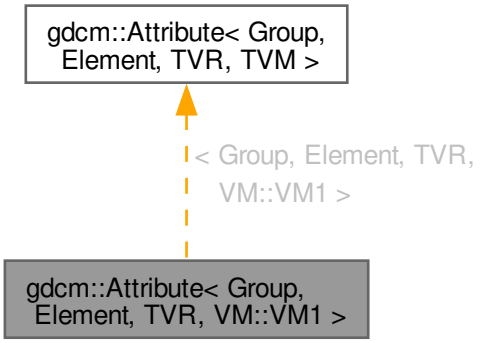
The documentation for this class was generated from the following file:

- gdcmAttribute.h

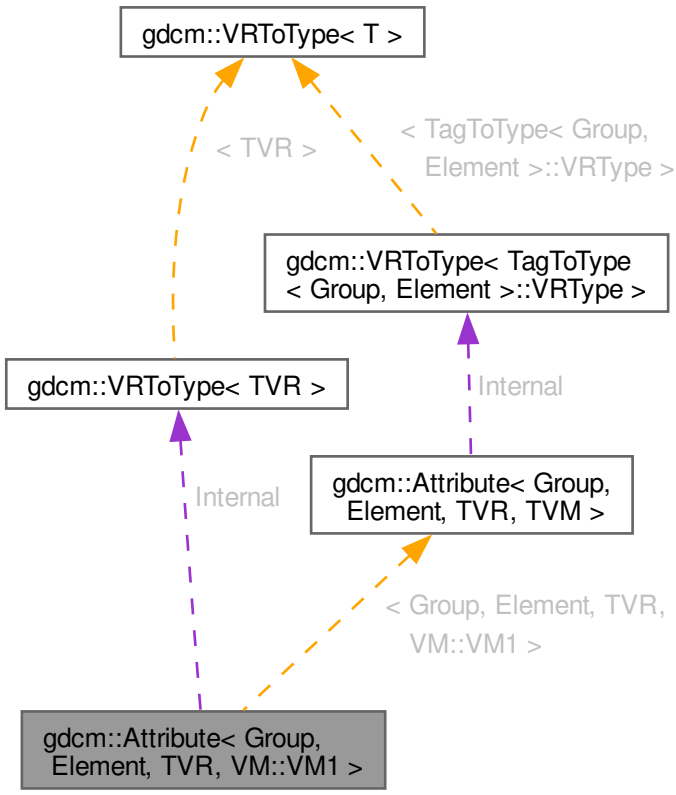
12.18 gdcm::Attribute< Group, Element, TVR, VM::VM1 > Class Template Reference

`#include <gdcmAttribute.h>`

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1 >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1 >:



Public Types

- enum
- enum { VMType = VMToLength<VM::VM1>::Length }
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) VM::VM1==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VM::VMType) VM::VM1 &(VM::VMType)(TagToType< Group, Element >::VMType)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT (VMToLength< VM::VM1 >::Length==1)
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue ()

- ArrayType const & GetValue () const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.18.1 Member Typedef Documentation

12.18.1.1 ArrayType

```
template<uint16_t Group, uint16_t Element, long long TVR>
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, VM::VM1 >::ArrayType
```

12.18.2 Member Enumeration Documentation

12.18.2.1 anonymous enum

```
anonymous enum
```

12.18.2.2 anonymous enum

```
template<uint16_t Group, uint16_t Element, long long TVR>
anonymous enum
```

Enumerator

VMType	

12.18.3 Member Function Documentation

12.18.3.1 GDCM_STATIC_ASSERT() [1/4]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GDCM_STATIC_ASSERT (
             ((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) VM::VM1==VM::VM1))||!((VR::VRType)
TVR &VR::VR_VM1)) )
```

References gdcm::VM::VM1, and gdcm::VR::VR_VM1.

12.18.3.2 GDCM_STATIC_ASSERT() [2/4]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GDCM_STATIC_ASSERT (
             ((VM::VMType) VM::VM1 &(VM::VMType)(TagToType< Group, Element >::VMType)) )
```

References gdcm::VM::VM1.

12.18.3.3 GDCM_STATIC_ASSERT() [3/4]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GDCM_STATIC_ASSERT (
             ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.18.3.4 GDCM_STATIC_ASSERT() [4/4]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GDCM_STATIC_ASSERT (
             VMToLength< VM::VM1 >::Length  = =1)
```

12.18.3.5 GetAsDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR>
DataElement gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetAsDataElement () const  [inline]
```

References GetNumberOfValues(), GetVR(), gdcm::DataElement::GetVR(), Internal, gdcm::DataElement::SetByteValue(), gdcm::DataElement::SetVR(), gdcm::VR::SQ, gdcm::VR::UI, and gdcm::VR::VRASCII.

12.18.3.6 GetDictVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetDictVM ()  [inline], [static]
```

12.18.3.7 GetDictVR()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VR gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetDictVR ()  [inline], [static]
```

12.18.3.8 GetNumberOfValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
unsigned int gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetNumberOfValues () const  [inline]
```

Referenced by GetAsDataElement(), operator!=(), operator<(), operator==(), SetByteValue(), and SetByteValueNoSwap().

12.18.3.9 GetTag()

```
template<uint16_t Group, uint16_t Element, long long TVR>
Tag gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetTag ()  [inline], [static]
```

Referenced by Print().

12.18.3.10 GetValue() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType & gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetValue ()  [inline]
```

References Internal.

12.18.3.11 GetValue() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType const & gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetValue () const  [inline]
```

References Internal.

12.18.3.12 GetValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
const ArrayType * gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetValues () const  [inline]
```

References Internal.

12.18.3.13 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetVM ()  [inline], [static]
```

References gdcm::VM::VM1.

12.18.3.14 GetVR()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VR gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetVR ()  [inline], [static]
```

Referenced by GetAsDataElement(), and SetFromDataElement().

12.18.3.15 operator"!=()

```
template<uint16_t Group, uint16_t Element, long long TVR>
bool gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator!= (
            const Attribute< Group, Element, TVR, VM::VM1 > & att) const  [inline]
```

References GetNumberOfValues(), gdcm::Attribute< Group, Element, TVR, TVM >::GetValues(), and Internal.

12.18.3.16 operator<()

```
template<uint16_t Group, uint16_t Element, long long TVR>
bool gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator< (
            const Attribute< Group, Element, TVR, VM::VM1 > & att) const  [inline]
```

References gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues(), GetNumberOfValues(), gdcm::Attribute< Group, Ele
and Internal.

12.18.3.17 operator==()

```
template<uint16_t Group, uint16_t Element, long long TVR>
bool gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator== (
            const Attribute< Group, Element, TVR, VM::VM1 > & att) const  [inline]
```

References GetNumberOfValues(), gdcm::Attribute< Group, Element, TVR, TVM >::GetValues(), and Internal.

12.18.3.18 operator[]()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx)  [inline]
```

12.18.3.19 Print()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::Print (
            std::ostream & os) const  [inline]
```

References GetTag(), and Internal.

12.18.3.20 Set()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::Set (
            DataSet const & ds)  [inline]
```

References gdcm::DataSet::GetDataElement(), and SetFromDataElement().

12.18.3.21 SetByteValue()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

References gdcm::ByteValue::GetLength(), GetNumberOfValues(), gdcm::ByteValue::GetPointer(), and Internal.

Referenced by SetFromDataElement().

12.18.3.22 SetByteValueNoSwap()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

References gdcm::ByteValue::GetLength(), GetNumberOfValues(), gdcm::ByteValue::GetPointer(), and Internal.

Referenced by SetFromDataElement().

12.18.3.23 SetFromDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement (
            DataElement const & de)  [inline]
```

References gdcm::DataElement::GetByteValue(), gdcm::DataElement::GetTag(), GetVR(), gdcm::DataElement::GetVR(), gdcm::VR::INVALID, gdcm::DataElement::IsEmpty(), SetByteValue(), SetByteValueNoSwap(), and gdcm::VR::UN.

Referenced by Set(), and SetFromDataSet().

12.18.3.24 SetFromDataSet()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

References gdcm::DataSet::FindDataElement(), gdcm::DataSet::GetDataElement(), and SetFromDataElement().

12.18.3.25 SetValue()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetValue (
            ArrayType v)  [inline]
```

References Internal.

12.18.3.26 SetValues()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValues (
            const ArrayType * array,
            unsigned int numel = VMType)  [inline]
```

12.18.4 Member Data Documentation

12.18.4.1 Internal

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType gdcm::Attribute< Group, Element, TVR, VM::VM1 >::Internal
```

Referenced by GetAsDataElement(), GetValue(), GetValue(), GetValues(), operator!=(), operator<(), operator==(), Print(), SetByteValue(), SetByteValueNoSwap(), and SetValue().

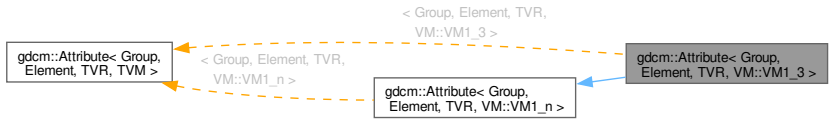
The documentation for this class was generated from the following file:

- gdcmAttribute.h

12.19 gdcm::Attribute< Group, Element, TVR, VM::VM1_3 > Class Template Reference

`#include <gdcmAttribute.h>`

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >:

Public Types

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- const ArrayType * GetValues () const
- VM GetVM () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.19.1 Member Typedef Documentation

12.19.1.1 ArrayType

```
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, TVM >::ArrayType
```

12.19.2 Member Enumeration Documentation

12.19.2.1 anonymous enum

```
anonymous enum
```

12.19.3 Member Function Documentation

12.19.3.1 GDCM_STATIC_ASSERT()

```
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
            ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.19.3.2 GetAsDataElement()

```
DataElement gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement () const  [inline]
```

12.19.3.3 GetDictVM()

```
VM gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVM ()  [inline], [static]
```

12.19.3.4 GetDictVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVR ()  [inline], [static]
```

12.19.3.5 GetNumberOfValues()

```
unsigned int gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues () const  [inline]
```

12.19.3.6 GetTag()

```
Tag gdcm::Attribute< Group, Element, TVR, TVM >::GetTag ()  [inline], [static]
```

12.19.3.7 GetValue()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
            unsigned int idx = 0)  [inline]
```

12.19.3.8 GetValues()

```
const ArrayType * gdcm::Attribute< Group, Element, TVR, TVM >::GetValues () const  [inline]
```

12.19.3.9 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >::GetVM () const  [inline]
```

References gdcm::VM::VM1_3.

12.19.3.10 GetVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetVR ()  [inline], [static]
```

12.19.3.11 operator"!=()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator!= (
            const Attribute< Group, Element, TVR, VM::VM1_3 > & att) const  [inline]
```

12.19.3.12 operator<()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator< (
            const Attribute< Group, Element, TVR, VM::VM1_3 > & att) const  [inline]
```

12.19.3.13 operator==()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator== (
            const Attribute< Group, Element, TVR, VM::VM1_3 > & att) const  [inline]
```

12.19.3.14 operator[]()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx)  [inline]
```

12.19.3.15 Print()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Print (
            std::ostream & os) const  [inline]
```

12.19.3.16 Set()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Set (
            DataSet const & ds)  [inline]
```

12.19.3.17 SetByteValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

12.19.3.18 SetByteValueNoSwap()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

12.19.3.19 SetFromDataElement()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement (
            DataElement const & de)  [inline]
```

12.19.3.20 SetFromDataSet()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

12.19.3.21 SetValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValue (
            ArrayType v,
            unsigned int idx = 0)  [inline]
```

12.19.3.22 SetValues()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValues (
            const ArrayType * array,
            unsigned int numel = VMType)  [inline]
```

12.19.4 Member Data Documentation

12.19.4.1 Internal

```
ArrayType gdcm::Attribute< Group, Element, TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

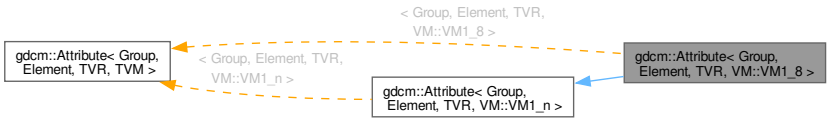
The documentation for this class was generated from the following file:

- gdcmAttribute.h

12.20 gdcm::Attribute< Group, Element, TVR, VM::VM1_8 > Class Template Reference

`#include <gdcmAttribute.h>`

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >:

Public Types

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- const ArrayType * GetValues () const
- VM GetVM () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const

- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.20.1 Member Typedef Documentation

12.20.1.1 ArrayType

```
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, TVM >::ArrayType
```

12.20.2 Member Enumeration Documentation

12.20.2.1 anonymous enum

```
anonymous enum
```

12.20.3 Member Function Documentation

12.20.3.1 GDCM_STATIC_ASSERT()

```
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
            ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.20.3.2 GetAsDataElement()

```
DataElement gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement () const  [inline]
```

12.20.3.3 GetDictVM()

```
VM gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVM ()  [inline], [static]
```

12.20.3.4 GetDictVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVR ()  [inline], [static]
```

12.20.3.5 GetNumberOfValues()

```
unsigned int gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues () const  [inline]
```

12.20.3.6 GetTag()

```
Tag gdcm::Attribute< Group, Element, TVR, TVM >::GetTag ()  [inline], [static]
```

12.20.3.7 GetValue()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
            unsigned int idx = 0)  [inline]
```

12.20.3.8 GetValues()

```
const ArrayType * gdcm::Attribute< Group, Element, TVR, TVM >::GetValues () const  [inline]
```

12.20.3.9 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >::GetVM () const  [inline]
```

References gdcm::VM::VM1_8.

12.20.3.10 GetVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetVR ()  [inline], [static]
```

12.20.3.11 operator"!=()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator!= (
            const Attribute< Group, Element, TVR, VM::VM1_8 > & att) const  [inline]
```

12.20.3.12 operator<()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator< (
            const Attribute< Group, Element, TVR, VM::VM1_8 > & att) const  [inline]
```

12.20.3.13 operator==()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator== (
            const Attribute< Group, Element, TVR, VM::VM1_8 > & att) const  [inline]
```

12.20.3.14 operator[]()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx)  [inline]
```

12.20.3.15 Print()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Print (
            std::ostream & os) const  [inline]
```

12.20.3.16 Set()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Set (
            DataSet const & ds)  [inline]
```

12.20.3.17 SetByteValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

12.20.3.18 SetByteValueNoSwap()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

12.20.3.19 SetFromDataElement()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement (
            DataElement const & de)  [inline]
```

12.20.3.20 SetFromDataSet()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

12.20.3.21 SetValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValue (
            ArrayType v,
            unsigned int idx = 0)  [inline]
```

12.20.3.22 SetValues()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValues (
            const ArrayType * array,
            unsigned int numel = VMType)  [inline]
```

12.20.4 Member Data Documentation

12.20.4.1 Internal

```
ArrayType gdcm::Attribute< Group, Element, TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

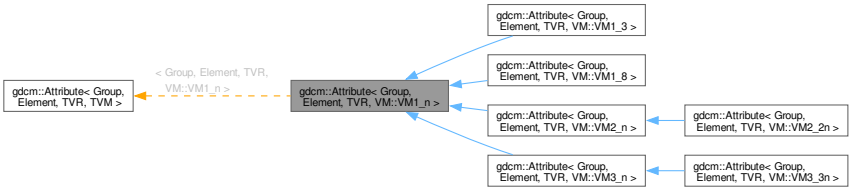
The documentation for this class was generated from the following file:

- gdcmAttribute.h

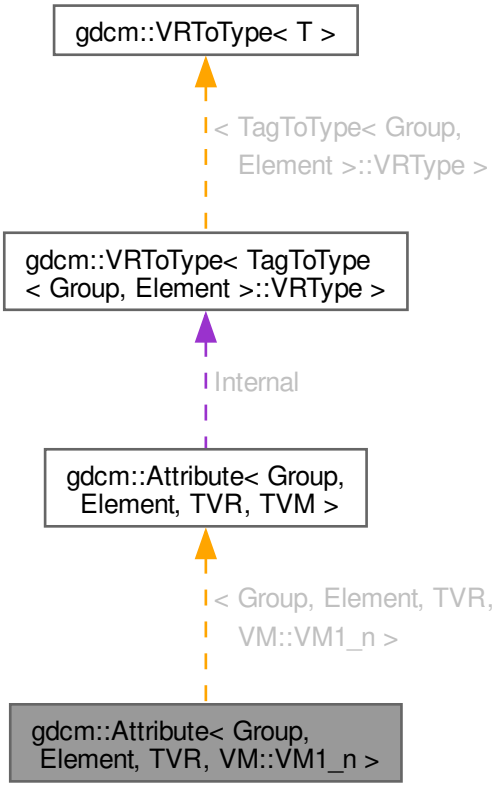
12.21 gdcm::Attribute< Group, Element, TVR, VM::VM1_n > Class Template Reference

```
#include <gdcmAttribute.h>
```

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_n >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_n >:



Public Types

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)

- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.21.1 Member Typedef Documentation

12.21.1.1 ArrayType

```
template<uint16_t Group, uint16_t Element, long long TVR>
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::ArrayType
```

12.21.2 Member Enumeration Documentation

12.21.2.1 anonymous enum

```
anonymous enum
```

12.21.3 Constructor & Destructor Documentation

12.21.3.1 Attribute()

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Attribute ()  [inline], [explicit]
```

12.21.3.2 ~Attribute()

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::~Attribute ()  [inline]
```

12.21.4 Member Function Documentation

12.21.4.1 GDCM_STATIC_ASSERT() [1/3]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GDCM_STATIC_ASSERT (
             ((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((V
TVR &VR::VR_VM1)) )
```

References gdcm::VM::VM1, and gdcm::VR::VR_VM1.

12.21.4.2 GDCM_STATIC_ASSERT() [2/3]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GDCM_STATIC_ASSERT (
             ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.21.4.3 GDCM_STATIC_ASSERT() [3/3]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GDCM_STATIC_ASSERT (
             (VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)) )
```

References gdcm::VM::VM1_n.

12.21.4.4 GetAsDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR>
DataElement gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement () const  [inline]
```

References GetNumberOfValues(), GetTag(), GetVR(), gdcm::DataElement::GetVR(), gdcm::DataElement::SetByteValue(), gdcm::DataElement::SetVR(), gdcm::VR::SQ, gdcm::VR::UI, and gdcm::VR::VRASCII.

12.21.4.5 GetDictVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetDictVM ()  [inline], [static]
```

References GetVM().

12.21.4.6 GetDictVR()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VR gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetDictVR ()  [inline], [static]
```

12.21.4.7 GetNumberOfValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
unsigned int gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetNumberOfValues () const  [inline]
```

Referenced by GetAsDataElement(), GetValue(), GetValue(), Print(), SetValue(), and SetValues().

12.21.4.8 GetTag()

```
template<uint16_t Group, uint16_t Element, long long TVR>
Tag gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetTag ()  [inline], [static]
```

Referenced by GetAsDataElement(), Print(), Set(), SetFromDataElement(), and SetFromDataSet().

12.21.4.9 GetValue() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType & gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetValue (
            unsigned int idx = 0)  [inline]
```

References GetNumberOfValues().

Referenced by operator[ ](), and operator[ ]().

12.21.4.10 GetValue() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType const & gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetValue (
            unsigned int idx = 0) const  [inline]
```

References GetNumberOfValues().

12.21.4.11 GetValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
const ArrayType * gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetValues () const  [inline]
```

12.21.4.12 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetVM ()  [inline], [static]
```

References gdcm::VM::VM1_n.

Referenced by GetDictVM(), and Print().

12.21.4.13 GetVR()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VR gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetVR ()  [inline], [static]
```

Referenced by GetAsDataElement(), Print(), and SetFromDataElement().

12.21.4.14 operator"!=()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator!= (
            const Attribute< Group, Element, TVR, VM::VM1_n > & att) const  [inline]
```

12.21.4.15 operator<()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator< (
            const Attribute< Group, Element, TVR, VM::VM1_n > & att) const  [inline]
```

12.21.4.16 operator==()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator== (
            const Attribute< Group, Element, TVR, VM::VM1_n > & att) const  [inline]
```

12.21.4.17 operator[]() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType & gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::operator[] (
            unsigned int idx)  [inline]
```

References GetValue().

12.21.4.18 operator[]() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType const & gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::operator[] (
            unsigned int idx) const  [inline]
```

References GetValue().

12.21.4.19 Print()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Print (
            std::ostream & os) const  [inline]
```

References GetNumberOfValues(), GetTag(), GetVM(), and GetVR().

12.21.4.20 Set()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Set (
            DataSet const & ds)  [inline]
```

References gdcm::DataSet::GetDataElement(), GetTag(), and SetFromDataElement().

12.21.4.21 SetByteValue()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

References gdcm::ByteValue::GetLength(), gdcm::ByteValue::GetPointer(), and SetValues().

Referenced by SetFromDataElement().

12.21.4.22 SetByteValueNoSwap()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

12.21.4.23 SetFromDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataElement (
            DataElement const & de)  [inline]
```

References gdcm::DataElement::GetByteValue(), GetTag(), gdcm::DataElement::GetTag(), GetVR(), gdcm::DataElement::GetVR(), gdcm::DataElement::IsEmpty(), and SetByteValue().

Referenced by Set(), and SetFromDataSet().

12.21.4.24 SetFromDataSet()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

References gdcm::DataSet::FindDataElement(), gdcm::DataSet::GetDataElement(), GetTag(), and SetFromDataElement().

12.21.4.25 SetNumberOfValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetNumberOfValues (
            unsigned int numel)  [inline]
```

References SetValues().

12.21.4.26 SetValue() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetValue (
            ArrayType v)  [inline]
```

References SetValue().

Referenced by SetValue().

12.21.4.27 SetValue() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetValue (
            unsigned int idx,
            ArrayType v)  [inline]
```

References GetNumberOfValues().

12.21.4.28 SetValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetValues (
            const ArrayType * array,
            unsigned int numel,
            bool own = false)  [inline]
```

References GetNumberOfValues().

Referenced by SetByteValue(), and SetNumberOfValues().

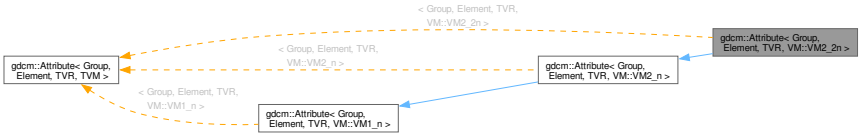
The documentation for this class was generated from the following file:

- gdcmAttribute.h

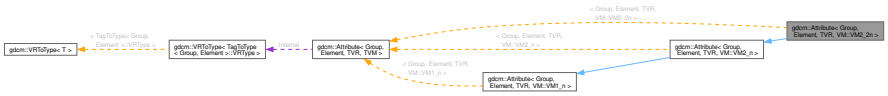
12.22 gdcm::Attribute< Group, Element, TVR, VM::VM2_2n > Class Template Reference

`#include <gdcmAttribute.h>`

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >:



Public Types

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM2_n >

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM2_n >

- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- const ArrayType * GetValues () const
- VM GetVM () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const

- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM2_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal [VMToLength< TVM >::Length]

Public Attributes inherited from gdcm::Attribute< Group, Element, TVR, VM::VM2_n >

- ArrayType Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM2_n >

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.22.1 Member Typedef Documentation

12.22.1.1 ArrayType

```
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, TVM >::ArrayType
```

12.22.2 Member Enumeration Documentation

12.22.2.1 anonymous enum

```
anonymous enum
```

12.22.3 Member Function Documentation

12.22.3.1 GDCM_STATIC_ASSERT()

```
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
             ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.22.3.2 GetAsDataElement()

```
DataElement gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement () const  [inline]
```

12.22.3.3 GetDictVM()

```
VM gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVM ()  [inline], [static]
```

12.22.3.4 GetDictVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVR ()  [inline], [static]
```

12.22.3.5 GetNumberOfValues()

```
unsigned int gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues () const  [inline]
```

12.22.3.6 GetTag()

```
Tag gdcm::Attribute< Group, Element, TVR, TVM >::GetTag ()  [inline], [static]
```

12.22.3.7 GetValue()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
            unsigned int idx = 0)  [inline]
```

12.22.3.8 GetValues()

```
const ArrayType * gdcm::Attribute< Group, Element, TVR, TVM >::GetValues () const  [inline]
```

12.22.3.9 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >::GetVM ()  [inline], [static]
```

References gdcm::VM::VM2_2n.

12.22.3.10 GetVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetVR ()  [inline], [static]
```

12.22.3.11 operator"!=()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator!= (
            const Attribute< Group, Element, TVR, VM::VM2_2n > & att) const  [inline]
```

12.22.3.12 operator<()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator< (
            const Attribute< Group, Element, TVR, VM::VM2_2n > & att) const  [inline]
```

12.22.3.13 operator==()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator== (
            const Attribute< Group, Element, TVR, VM::VM2_2n > & att) const  [inline]
```

12.22.3.14 operator[]()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx)  [inline]
```

12.22.3.15 Print()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Print (
            std::ostream & os) const  [inline]
```

12.22.3.16 Set()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Set (
            DataSet const & ds)  [inline]
```

12.22.3.17 SetByteValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

12.22.3.18 SetByteValueNoSwap()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

12.22.3.19 SetFromDataElement()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement (
            DataElement const & de)  [inline]
```

12.22.3.20 SetFromDataSet()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

12.22.3.21 SetValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValue (
            ArrayType v,
            unsigned int idx = 0)  [inline]
```

12.22.3.22 SetValues()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValues (
            const ArrayType * array,
            unsigned int numel = VMType)  [inline]
```

12.22.4 Member Data Documentation

12.22.4.1 Internal

```
ArrayType gdcm::Attribute< Group, Element, TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

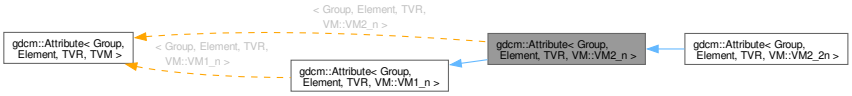
The documentation for this class was generated from the following file:

- gdcmAttribute.h

12.23 gdcm::Attribute< Group, Element, TVR, VM::VM2_n > Class Template Reference

`#include <gdcmAttribute.h>`

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM2_n >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM2_n >:

Public Types

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- const ArrayType * GetValues () const
- VM GetVM () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.23.1 Member Typedef Documentation

12.23.1.1 ArrayType

```
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, TVM >::ArrayType
```

12.23.2 Member Enumeration Documentation

12.23.2.1 anonymous enum

```
anonymous enum
```

12.23.3 Member Function Documentation

12.23.3.1 GDCM_STATIC_ASSERT()

```
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
            ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.23.3.2 GetAsDataElement()

```
DataElement gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement () const  [inline]
```

12.23.3.3 GetDictVM()

```
VM gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVM ()  [inline], [static]
```

12.23.3.4 GetDictVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVR ()  [inline], [static]
```

12.23.3.5 GetNumberOfValues()

```
unsigned int gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues () const  [inline]
```

12.23.3.6 GetTag()

```
Tag gdcm::Attribute< Group, Element, TVR, TVM >::GetTag ()  [inline], [static]
```

12.23.3.7 GetValue()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
            unsigned int idx = 0)  [inline]
```

12.23.3.8 GetValues()

```
const ArrayType * gdcm::Attribute< Group, Element, TVR, TVM >::GetValues () const  [inline]
```

12.23.3.9 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM2_n >::GetVM () const  [inline]
```

References gdcm::VM::VM2_n.

12.23.3.10 GetVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetVR ()  [inline], [static]
```

12.23.3.11 operator"!=()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator!= (
            const Attribute< Group, Element, TVR, VM::VM2_n > & att) const  [inline]
```

12.23.3.12 operator<()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator< (
            const Attribute< Group, Element, TVR, VM::VM2_n > & att) const  [inline]
```

12.23.3.13 operator==()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator== (
            const Attribute< Group, Element, TVR, VM::VM2_n > & att) const  [inline]
```

12.23.3.14 operator[]()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx)  [inline]
```

12.23.3.15 Print()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Print (
            std::ostream & os) const  [inline]
```

12.23.3.16 Set()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Set (
            DataSet const & ds)  [inline]
```

12.23.3.17 SetByteValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

12.23.3.18 SetByteValueNoSwap()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

12.23.3.19 SetFromDataElement()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement (
            DataElement const & de)  [inline]
```

12.23.3.20 SetFromDataSet()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

12.23.3.21 SetValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValue (
            ArrayType v,
            unsigned int idx = 0)  [inline]
```

12.23.3.22 SetValues()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValues (
            const ArrayType * array,
            unsigned int numel = VMType)  [inline]
```

12.23.4 Member Data Documentation

12.23.4.1 Internal

```
ArrayType gdcm::Attribute< Group, Element, TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

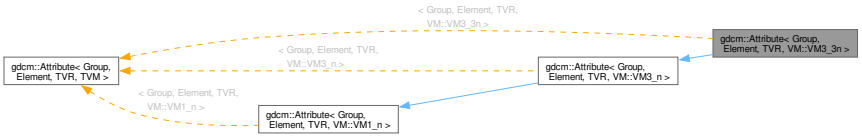
The documentation for this class was generated from the following file:

- gdcmAttribute.h

12.24 gdcm::Attribute< Group, Element, TVR, VM::VM3_3n > Class Template Reference

```
#include <gdcmAttribute.h>
```

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >:

Public Types

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM3_n >

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM3_n >

- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM3_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal [VMToLength< TVM >::Length]

Public Attributes inherited from gdcm::Attribute< Group, Element, TVR, VM::VM3_n >

- ArrayType Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM3_n >

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.24.1 Member Typedef Documentation

12.24.1.1 ArrayType

```
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, TVM >::ArrayType
```

12.24.2 Member Enumeration Documentation

12.24.2.1 anonymous enum

```
anonymous enum
```

12.24.3 Member Function Documentation

12.24.3.1 GDCM_STATIC_ASSERT()

```
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
            ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.24.3.2 GetAsDataElement()

```
DataElement gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement () const  [inline]
```

12.24.3.3 GetDictVM()

```
VM gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVM ()  [inline], [static]
```

12.24.3.4 GetDictVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVR ()  [inline], [static]
```

12.24.3.5 GetNumberOfValues()

```
unsigned int gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues () const  [inline]
```

12.24.3.6 GetTag()

```
Tag gdcm::Attribute< Group, Element, TVR, TVM >::GetTag ()  [inline], [static]
```

12.24.3.7 GetValue()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
            unsigned int idx = 0)  [inline]
```

12.24.3.8 GetValues()

```
const ArrayType * gdcm::Attribute< Group, Element, TVR, TVM >::GetValues () const  [inline]
```

12.24.3.9 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >::GetVM ()  [inline], [static]
```

References gdcm::VM::VM3_3n.

12.24.3.10 GetVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetVR ()  [inline], [static]
```

12.24.3.11 operator"!=()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator!= (
            const Attribute< Group, Element, TVR, VM::VM3_3n > & att) const  [inline]
```

12.24.3.12 operator<()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator< (
            const Attribute< Group, Element, TVR, VM::VM3_3n > & att) const  [inline]
```

12.24.3.13 operator==()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator== (
            const Attribute< Group, Element, TVR, VM::VM3_3n > & att) const  [inline]
```

12.24.3.14 operator[]()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx)  [inline]
```

12.24.3.15 Print()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Print (
            std::ostream & os) const  [inline]
```

12.24.3.16 Set()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Set (
            DataSet const & ds)  [inline]
```

12.24.3.17 SetByteValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

12.24.3.18 SetByteValueNoSwap()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

12.24.3.19 SetFromDataElement()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement (
            DataElement const & de)  [inline]
```

12.24.3.20 SetFromDataSet()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

12.24.3.21 SetValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValue (
            ArrayType v,
            unsigned int idx = 0)  [inline]
```

12.24.3.22 SetValues()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValues (
            const ArrayType * array,
            unsigned int numel = VMType)  [inline]
```

12.24.4 Member Data Documentation

12.24.4.1 Internal

```
ArrayType gdcm::Attribute< Group, Element, TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

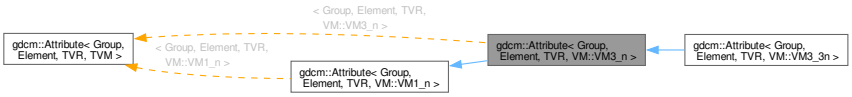
The documentation for this class was generated from the following file:

- gdcmAttribute.h

12.25 gdcm::Attribute< Group, Element, TVR, VM::VM3_n > Class Template Reference

```
#include <gdcmAttribute.h>
```

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM3_n >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM3_n >:

Public Types

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.25.1 Member Typedef Documentation

12.25.1.1 ArrayType

```
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, TVM >::ArrayType
```

12.25.2 Member Enumeration Documentation

12.25.2.1 anonymous enum

```
anonymous enum
```

12.25.3 Member Function Documentation

12.25.3.1 GDCM_STATIC_ASSERT()

```
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
            ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.25.3.2 GetAsDataElement()

```
DataElement gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement () const  [inline]
```

12.25.3.3 GetDictVM()

```
VM gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVM ()  [inline], [static]
```

12.25.3.4 GetDictVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVR ()  [inline], [static]
```

12.25.3.5 GetNumberOfValues()

```
unsigned int gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues () const  [inline]
```

12.25.3.6 GetTag()

```
Tag gdcm::Attribute< Group, Element, TVR, TVM >::GetTag ()  [inline], [static]
```

12.25.3.7 GetValue()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
            unsigned int idx = 0)  [inline]
```

12.25.3.8 GetValues()

```
const ArrayType * gdcm::Attribute< Group, Element, TVR, TVM >::GetValues () const  [inline]
```

12.25.3.9 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM3_n >::GetVM ()  [inline], [static]
```

References gdcm::VM::VM3_n.

12.25.3.10 GetVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetVR ()  [inline], [static]
```

12.25.3.11 operator"!=()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator!= (
            const Attribute< Group, Element, TVR, VM::VM3_n > & att) const  [inline]
```

12.25.3.12 operator<()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator< (
            const Attribute< Group, Element, TVR, VM::VM3_n > & att) const  [inline]
```

12.25.3.13 operator==()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator== (
            const Attribute< Group, Element, TVR, VM::VM3_n > & att) const  [inline]
```

12.25.3.14 operator[]()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx)  [inline]
```

12.25.3.15 Print()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Print (
            std::ostream & os) const  [inline]
```

12.25.3.16 Set()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Set (
            DataSet const & ds)  [inline]
```

12.25.3.17 SetByteValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

12.25.3.18 SetByteValueNoSwap()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

12.25.3.19 SetFromDataElement()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement (
            DataElement const & de)  [inline]
```

12.25.3.20 SetFromDataSet()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

12.25.3.21 SetValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValue (
            ArrayType v,
            unsigned int idx = 0)  [inline]
```

12.25.3.22 SetValues()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValues (
            const ArrayType * array,
            unsigned int numel = VMType)  [inline]
```

12.25.4 Member Data Documentation

12.25.4.1 Internal

```
ArrayType gdcm::Attribute< Group, Element, TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

The documentation for this class was generated from the following file:

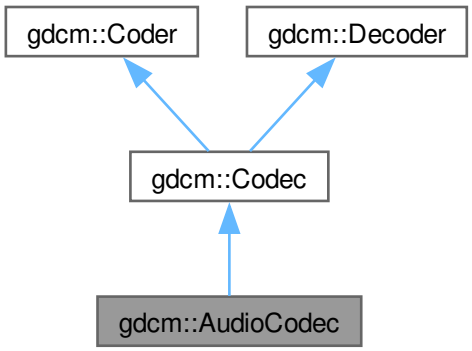
- gdcmAttribute.h

12.26 gdcm::AudioCodec Class Reference

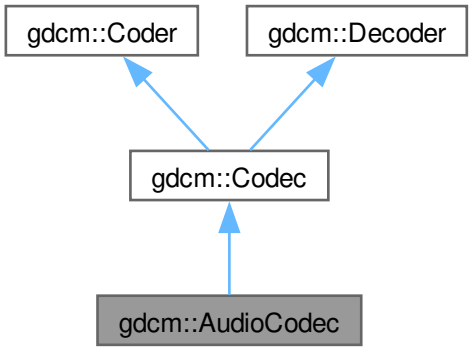
AudioCodec.

`#include <gdcmAudioCodec.h>`

Inheritance diagram for gdcm::AudioCodec:



Collaboration diagram for gdcm::AudioCodec:



Public Member Functions

- AudioCodec ()
- ~AudioCodec () override
- bool CanCode (TransferSyntax const &) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &) const override

  Return whether this decoder support this transfer syntax (can decode it).
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Member Functions inherited from gdcm::Decoder

- virtual bool DecodeByStreams (std::istream &, std::ostream &)

12.26.1 Detailed Description

AudioCodec.

12.26.2 Constructor & Destructor Documentation

12.26.2.1 AudioCodec()

```
gdcm::AudioCodec::AudioCodec ()
```

12.26.2.2 ~AudioCodec()

```
gdcm::AudioCodec::~AudioCodec ()  [override]
```

12.26.3 Member Function Documentation

12.26.3.1 CanCode()

```
bool gdcm::AudioCodec::CanCode (
            TransferSyntax const & ) const  [inline], [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Implements gdcm::Coder.

12.26.3.2 CanDecode()

```
bool gdcm::AudioCodec::CanDecode (
            TransferSyntax const & ) const  [inline], [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Implements gdcm::Decoder.

12.26.3.3 Decode()

```
bool gdcm::AudioCodec::Decode (
            DataElement const & ,
            DataElement & )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::Decoder.

The documentation for this class was generated from the following file:

- gdcmAudioCodec.h

12.27 gdcm::Base64 Class Reference

Class for Base64.

```
#include <gdcmBase64.h>
```

Public Member Functions

- Base64 (const Base64 &)=delete
- void operator= (const Base64 &)=delete

Static Public Member Functions

- static size_t Decode (char *dst, size_t dlen, const char *src, size_t slen)

  Decode a base64-formatted buffer.
- static size_t Encode (char *dst, size_t dlen, const char *src, size_t slen)

  Encode a buffer into base64 format.
- static size_t GetDecodeLength (const char *src, size_t len)
- static size_t GetEncodeLength (const char *src, size_t srclen)

12.27.1 Detailed Description

Class for Base64.

12.27.2 Constructor & Destructor Documentation

12.27.2.1 Base64()

```
gdcm::Base64::Base64 (
            const Base64 & )  [delete]
```

References Base64().

Referenced by Base64(), and operator=().

12.27.3 Member Function Documentation

12.27.3.1 Decode()

```
size_t gdcm::Base64::Decode (
            char * dst,
            size_t dlen,
            const char * src,
            size_t slen)  [static]
```

Decode a base64-formatted buffer.

Parameters

dst	destination buffer
dlen	size of the buffer
src	source buffer
slen	amount of data to be decoded

Returns

0 if not successful, size of decoded otherwise

Examples

DumpExamCard.cxx, and DumpSiemensBase64.cxx.

12.27.3.2 Encode()

```
size_t gdcm::Base64::Encode (
            char * dst,
            size_t dlen,
            const char * src,
            size_t slen)  [static]
```

Encode a buffer into base64 format.

Parameters

dst	destination buffer
dlen	size of the buffer
src	source buffer
slen	amount of data to be encoded

Returns

0 if not successful, size of encoded otherwise

12.27.3.3 GetDecodeLength()

```
size_t gdcm::Base64::GetDecodeLength (
            const char * src,
            size_t len)  [static]
```

Call this function to obtain the required buffer size

Examples

DumpExamCard.cxx, and DumpSiemensBase64.cxx.

12.27.3.4 GetEncodeLength()

```
size_t gdcm::Base64::GetEncodeLength (
            const char * src,
            size_t srclen)  [static]
```

Call this function to obtain the required buffer size

12.27.3.5 operator=()

```
void gdcm::Base64::operator= (
            const Base64 & )  [delete]
```

References Base64().

The documentation for this class was generated from the following file:

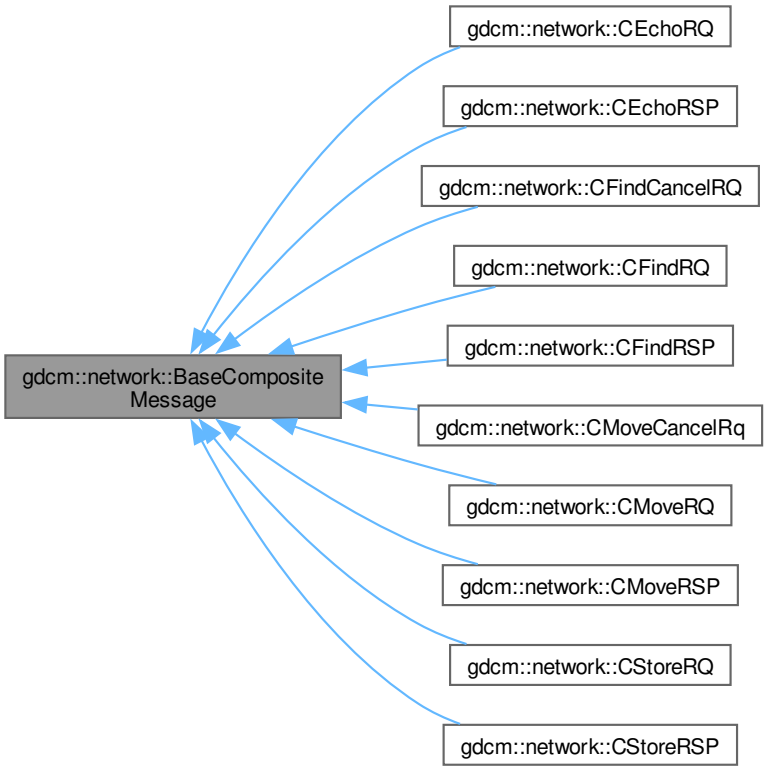
- gdcmBase64.h

12.28 gdcm::network::BaseCompositeMessage Class Reference

BaseCompositeMessage.

```
#include <gdcmBaseCompositeMessage.h>
```

Inheritance diagram for gdcm::network::BaseCompositeMessage:



Public Member Functions

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

12.28.1 Detailed Description

BaseCompositeMessage.

The Composite events described in section 3.7-2009 of the DICOM standard all use their own messages. These messages are constructed using Presentation Data Values, from section 3.8-2009 of the standard, and then fill in appropriate values in their datasets.

So, for the five composites:

- C-ECHO

- C-FIND
- C-MOVE
- C-GET
- C-STORE there are a series of messages. However, all of these messages are obtained as part of a PDataPDU, and all have to be placed there. Therefore, since they all have shared functionality and construction tropes, that will be put into a base class. Further, the base class will be then returned by the factory class, gdcmComposite↩ PDUFactory.

This is an abstract class. It cannot be instantiated on its own.

12.28.2 Constructor & Destructor Documentation

12.28.2.1 ~BaseCompositeMessage()

```
virtual gdcm::network::BaseCompositeMessage::~BaseCompositeMessage ()  [virtual], [default]
```

12.28.3 Member Function Documentation

12.28.3.1 ConstructPDV()

```
virtual std::vector< PresentationDataValue > gdcm::network::BaseCompositeMessage::ConstructPDV (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery)  [pure virtual]
```

Implemented in gdcm::network::CEchoRQ, gdcm::network::CFindRQ, and gdcm::network::CMoveRQ.

The documentation for this class was generated from the following file:

- gdcmBaseCompositeMessage.h

12.29 gdcm::network::BaseNormalizedMessage Class Reference

BaseNormalizedMessage.

```
#include <gdcmBaseNormalizedMessage.h>
```

Inheritance diagram for gdcm::network::BaseNormalizedMessage:

Public Member Functions

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

12.29.1 Detailed Description

BaseNormalizedMessage.

The Normalized events described in section 3.7-2011 of the DICOM standard all use their own messages. These messages are constructed using Presentation Data Values, from section 3.8-2011 of the standard, and then fill in appropriate values in their datasets.

So, for the five normalized:

- N-ACTION
- N-CREATE
- N-DELETE
- N-EVENT
- N-GET
- N-SET there are a series of messages. However, all of these messages are obtained as part of a PData↩ PDU, and all have to be placed there. Therefore, since they all have shared functionality and construction tropes, that will be put into a base class. Further, the base class will be then returned by the factory class, gdcmNormalizedMessageFactory.h.

This is an abstract class. It cannot be instantiated on its own.

12.29.2 Constructor & Destructor Documentation

12.29.2.1 ~BaseNormalizedMessage()

```
virtual gdcm::network::BaseNormalizedMessage::~BaseNormalizedMessage ()  [virtual], [default]
```

12.29.3 Member Function Documentation

12.29.3.1 ConstructPDV()

```
virtual std::vector< PresentationDataValue > gdcm::network::BaseNormalizedMessage::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [pure virtual]
```

Implemented in gdcm::network::NActionRQ, gdcm::network::NCreateRQ, gdcm::network::NDeleteRQ, gdcm::network::NEventReportRQ, gdcm::network::NGetRQ, and gdcm::network::NSetRQ.

The documentation for this class was generated from the following file:

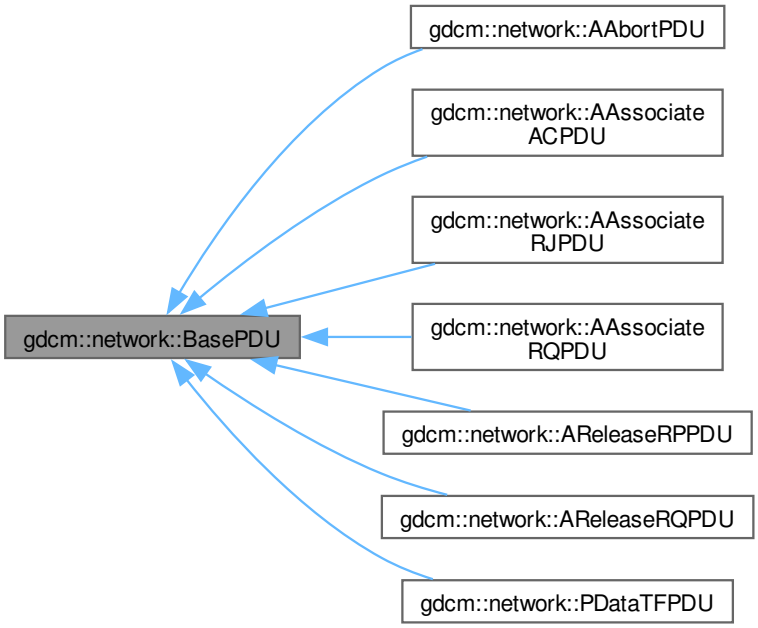
- gdcmBaseNormalizedMessage.h

12.30 gdcm::network::BasePDU Class Reference

BasePDU.

`#include <gdcmBasePDU.h>`

Inheritance diagram for gdcm::network::BasePDU:



Public Member Functions

- virtual ~BasePDU ()=default
- virtual bool IsLastFragment () const =0
- virtual void Print (std::ostream &os) const =0
- virtual std::istream & Read (std::istream &is)=0
- virtual size_t Size () const =0
- virtual const std::ostream & Write (std::ostream &os) const =0

12.30.1 Detailed Description

BasePDU.

base class for PDUs

all PDUs start with the first ten bytes as specified: 01 PDU type 02 reserved 3-6 PDU Length (unsigned) 7-10 variable

on some, 7-10 are split (7-8 as protocol version in Associate-RQ, for instance, while associate-rj splits those four bytes differently).

Also common to all the PDUs is their ability to read and write to a stream.

So, let's just get them all bunched together into one (abstract) class, shall we?

Why? 1) so that the ULEvent can have the PDU stored in it, since the event takes PDUs and not other class structures (other class structures get converted into PDUs) 2) to make reading PDUs in the event loop cleaner

12.30.2 Constructor & Destructor Documentation

12.30.2.1 ~BasePDU()

```
virtual gdcm::network::BasePDU::~BasePDU ()  [virtual], [default]
```

12.30.3 Member Function Documentation

12.30.3.1 IsLastFragment()

```
virtual bool gdcm::network::BasePDU::IsLastFragment () const  [pure virtual]
```

Implemented in gdcm::network::AAbortPDU, gdcm::network::AAssociateACPDU, gdcm::network::AAssociateRJPDU, gdcm::network::AAssociateRQPDU, gdcm::network::AReleaseRPPDU, gdcm::network::AReleaseRQPDU, and gdcm::network::PDataTFPDU.

12.30.3.2 Print()

```
virtual void gdcm::network::BasePDU::Print (
            std::ostream & os) const  [pure virtual]
```

Implemented in gdcm::network::AAbortPDU, gdcm::network::AAssociateACPDU, gdcm::network::AAssociateRJPDU, gdcm::network::AAssociateRQPDU, gdcm::network::AReleaseRPPDU, gdcm::network::AReleaseRQPDU, and gdcm::network::PDataTFPDU.

12.30.3.3 Read()

```
virtual std::istream & gdcm::network::BasePDU::Read (
            std::istream & is)  [pure virtual]
```

Implemented in gdcm::network::AAbortPDU, gdcm::network::AAssociateACPDU, gdcm::network::AAssociateRJPDU, gdcm::network::AAssociateRQPDU, gdcm::network::AReleaseRPPDU, gdcm::network::AReleaseRQPDU, and gdcm::network::PDataTFPDU.

12.30.3.4 Size()

```
virtual size_t gdcm::network::BasePDU::Size () const  [pure virtual]
```

Implemented in gdcm::network::AAbortPDU, gdcm::network::AAssociateACPDU, gdcm::network::AAssociateRJPDU, gdcm::network::AAssociateRQPDU, gdcm::network::AReleaseRPPDU, gdcm::network::AReleaseRQPDU, and gdcm::network::PDataTFPDU.

12.30.3.5 Write()

```
virtual const std::ostream & gdcm::network::BasePDU::Write (
            std::ostream & os) const  [pure virtual]
```

Implemented in gdcm::network::AAbortPDU, gdcm::network::AAssociateACPDU, gdcm::network::AAssociateRJPDU, gdcm::network::AAssociateRQPDU, gdcm::network::AReleaseRPPDU, gdcm::network::AReleaseRQPDU, and gdcm::network::PDataTFPDU.

The documentation for this class was generated from the following file:

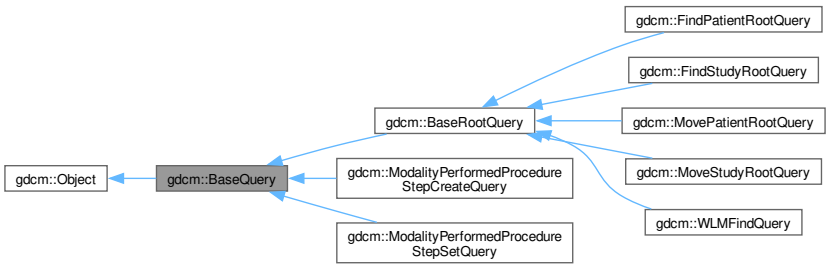
- gdcmBasePDU.h

12.31 gdcm::BaseQuery Class Reference

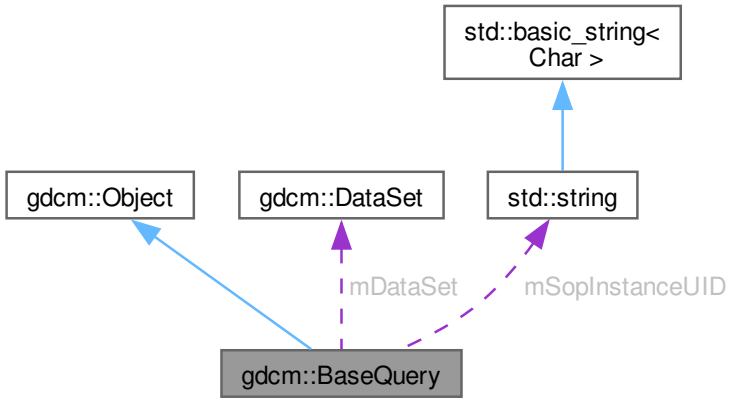
BaseQuery.

```
#include <gdcmBaseQuery.h>
```

Inheritance diagram for gdcm::BaseQuery:



Collaboration diagram for gdcm::BaseQuery:



Public Member Functions

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- virtual UIDs::TSName GetAbstractSyntaxUID () const =0
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- virtual bool ValidateQuery (bool inStrict=true) const =0
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Member Functions

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- DataSet mDataSet
- std::string mSopInstanceUID

Friends

- class QueryFactory

12.31.1 Detailed Description

BaseQuery.

contains: a baseclass which will produce a dataset for all dimse messages

12.31.2 Constructor & Destructor Documentation

12.31.2.1 BaseQuery()

```
gdcm::BaseQuery::BaseQuery ()  [protected]
```

12.31.2.2 ~BaseQuery()

```
gdcm::BaseQuery::~BaseQuery ()  [override]
```

12.31.3 Member Function Documentation

12.31.3.1 AddQueryDataSet()

```
void gdcm::BaseQuery::AddQueryDataSet (
            const DataSet & ds)
```

12.31.3.2 GetAbstractSyntaxUID()

```
virtual UIDs::TSName gdcm::BaseQuery::GetAbstractSyntaxUID () const  [pure virtual]
```

Implemented in gdcm::FindPatientRootQuery, gdcm::FindStudyRootQuery, gdcm::ModalityPerformedProcedureStepCreateQuery, gdcm::ModalityPerformedProcedureStepSetQuery, gdcm::MovePatientRootQuery, gdcm::MoveStudyRootQuery, and gdcm::WLMFindQuery.

12.31.3.3 GetQueryDataSet() [1/2]

```
DataSet & gdcm::BaseQuery::GetQueryDataSet ()
```

12.31.3.4 GetQueryDataSet() [2/2]

```
DataSet const & gdcm::BaseQuery::GetQueryDataSet () const
```

Set/Get the internal representation of the query as a DataSet.

12.31.3.5 GetSOPInstanceUID()

```
std::string gdcm::BaseQuery::GetSOPInstanceUID () const  [inline]
```

References mSopInstanceUID.

12.31.3.6 Print()

```
void gdcm::BaseQuery::Print (
            std::ostream & os) const  [override], [virtual]
```

Reimplemented from gdcm::Object.

12.31.3.7 SetSearchParameter() [1/3]

```
void gdcm::BaseQuery::SetSearchParameter (
            const std::string & inKeyword,
            const std::string & inValue)
```

12.31.3.8 SetSearchParameter() [2/3]

```
void gdcm::BaseQuery::SetSearchParameter (
            const Tag & inTag,
            const DictEntry & inDictEntry,
            const std::string & inValue)  [protected]
```

12.31.3.9 SetSearchParameter() [3/3]

```
void gdcm::BaseQuery::SetSearchParameter (
            const Tag & inTag,
            const std::string & inValue)
```

12.31.3.10 SetSOPInstanceUID()

```
void gdcm::BaseQuery::SetSOPInstanceUID (
            const std::string & iSopInstanceUID)  [inline]
```

References mSopInstanceUID.

12.31.3.11 ValidateQuery()

```
virtual bool gdcm::BaseQuery::ValidateQuery (
            bool inStrict = true) const  [pure virtual]
```

Implemented in gdcm::BaseRootQuery, gdcm::FindPatientRootQuery, gdcm::FindStudyRootQuery, gdcm::ModalityPerformedProcedureS gdcm::ModalityPerformedProcedureStepSetQuery, gdcm::MovePatientRootQuery, gdcm::MoveStudyRootQuery, and gdcm::WLMFindQuery.

12.31.3.12 ValidDataSet()

```
bool gdcm::BaseQuery::ValidDataSet (
            const DataSet & dataSetToValid,
            const DataSet & dataSetReference) const  [protected]
```

12.31.3.13 WriteHelpFile()

```
const std::ostream & gdcm::BaseQuery::WriteHelpFile (
            std::ostream & os)
```

12.31.3.14 WriteQuery()

```
bool gdcm::BaseQuery::WriteQuery (
            const std::string & inFileName)
```

12.31.4 Friends And Related Symbol Documentation

12.31.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

12.31.5 Member Data Documentation

12.31.5.1 mDataSet

```
DataSet gdcm::BaseQuery::mDataSet  [protected]
```

12.31.5.2 mSopInstanceUID

```
std::string gdcm::BaseQuery::mSopInstanceUID  [protected]
```

Referenced by GetSOPInstanceUID(), and SetSOPInstanceUID().

The documentation for this class was generated from the following file:

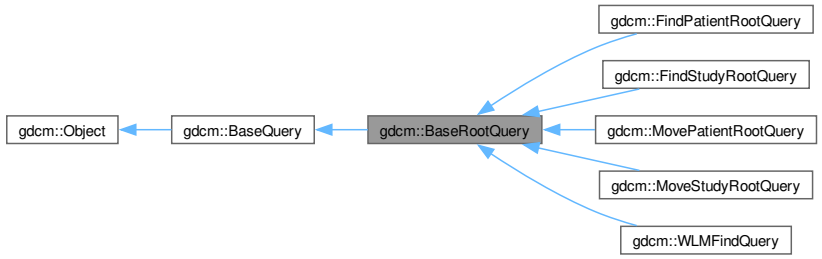
- gdcmBaseQuery.h

12.32 gdcm::BaseRootQuery Class Reference

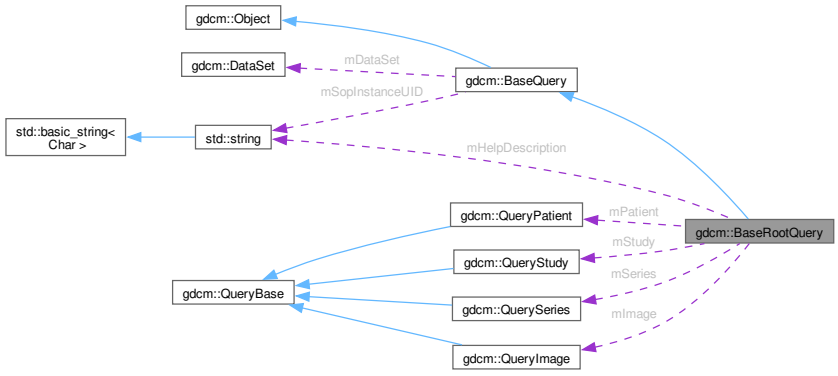
BaseRootQuery.

`#include <gdcmBaseRootQuery.h>`

Inheritance diagram for gdcm::BaseRootQuery:



Collaboration diagram for gdcm::BaseRootQuery:



Public Member Functions

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)
- virtual std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel)=0
- virtual void InitializeDataSet (const EQueryLevel &inQueryLevel)=0
- bool ValidateQuery (bool inStrict=true) const override=0

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- virtual UIDs::TSName GetAbstractSyntaxUID () const =0
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static QueryBase * Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char *str)
- static const char * GetQueryLevelString (EQueryLevel ql)

Protected Member Functions

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

Friends

- class QueryFactory

12.32.1 Detailed Description

BaseRootQuery.

contains: a baseclass which will produce a dataset for c-find and c-move with patient/study root

This class contains the functionality used in patient c-find and c-move queries. PatientRootQuery and StudyRootQuery derive from this class.

Namely: 1) list all tags associated with a particular query type 2) produce a query dataset via tag association

Eventually, it can be used to validate a particular dataset type.

The dataset held by this object (or, really, one of its derivates) should be passed to a c-find or c-move query.

12.32.2 Constructor & Destructor Documentation

12.32.2.1 BaseRootQuery()

```
gdcm::BaseRootQuery::BaseRootQuery ()  [protected]
```

12.32.2.2 ~BaseRootQuery()

```
gdcm::BaseRootQuery::~BaseRootQuery ()  [override], [default]
```

12.32.3 Member Function Documentation

12.32.3.1 Construct()

```
QueryBase * gdcm::BaseRootQuery::Construct (
            ERootType inRootType,
            EQueryLevel qlevel)  [static]
```

12.32.3.2 GetQueryLevelFromQueryRoot()

```
EQueryLevel gdcm::BaseRootQuery::GetQueryLevelFromQueryRoot (
            ERootType roottype)
```

12.32.3.3 GetQueryLevelFromString()

```
int gdcm::BaseRootQuery::GetQueryLevelFromString (
            const char * str)  [static]
```

12.32.3.4 GetQueryLevelString()

```
const char * gdcm::BaseRootQuery::GetQueryLevelString (
            EQueryLevel ql)  [static]
```

12.32.3.5 GetTagListByLevel()

```
virtual std::vector< Tag > gdcm::BaseRootQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel)  [pure virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implemented in gdcm::FindPatientRootQuery, gdcm::FindStudyRootQuery, gdcm::MovePatientRootQuery, gdcm::MoveStudyRootQuery, and gdcm::WLMFindQuery.

12.32.3.6 InitializeDataSet()

```
virtual void gdcm::BaseRootQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel)  [pure virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implemented in gdcm::FindPatientRootQuery, gdcm::FindStudyRootQuery, gdcm::MovePatientRootQuery, gdcm::MoveStudyRootQuery, and gdcm::WLMFindQuery.

12.32.3.7 ValidateQuery()

```
bool gdcm::BaseRootQuery::ValidateQuery (
            bool inStrict = true) const  [override], [pure virtual]
```

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements gdcm::BaseQuery.

Implemented in gdcm::FindPatientRootQuery, gdcm::FindStudyRootQuery, gdcm::MovePatientRootQuery, gdcm::MoveStudyRootQuery, and gdcm::WLMFindQuery.

12.32.4 Friends And Related Symbol Documentation

12.32.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

12.32.5 Member Data Documentation

12.32.5.1 mHelpDescription

```
std::string gdcm::BaseRootQuery::mHelpDescription  [protected]
```

12.32.5.2 mImage

```
QueryImage gdcm::BaseRootQuery::mImage  [protected]
```

12.32.5.3 mPatient

```
QueryPatient gdcm::BaseRootQuery::mPatient  [protected]
```

12.32.5.4 mRootType

```
ERootType gdcm::BaseRootQuery::mRootType  [protected]
```

12.32.5.5 mSeries

```
QuerySeries gdcm::BaseRootQuery::mSeries  [protected]
```

12.32.5.6 mStudy

```
QueryStudy gdcm::BaseRootQuery::mStudy  [protected]
```

The documentation for this class was generated from the following file:

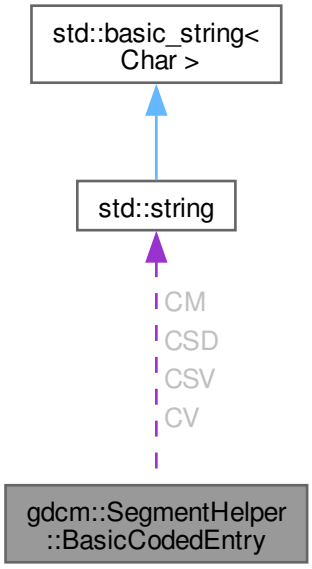
- gdcmBaseRootQuery.h

12.33 gdcm::SegmentHelper::BasicCodedEntry Struct Reference

This structure defines a basic coded entry with all of its attributes.

```
#include <gdcmSegmentHelper.h>
```

Collaboration diagram for gdcm::SegmentHelper::BasicCodedEntry:



Public Member Functions

- BasicCodedEntry ()

  Constructor.
- BasicCodedEntry (const char *a_CV, const char *a_CSD, const char *a_CM)

  constructor which defines type 1 attributes.
- BasicCodedEntry (const char *a_CV, const char *a_CSD, const char *a_CSV, const char *a_CM)

  constructor which defines attributes.
- bool IsEmpty (const bool checkOptionalAttributes=false) const

  Check if each attributes of the basic coded entry is defined.

Public Attributes

- std::string CM

  Coding Scheme Version attribute.
- std::string CSD

  Code Value attribute.
- std::string CSV

  Coding Scheme Designator attribute.
- std::string CV

12.33.1 Detailed Description

This structure defines a basic coded entry with all of its attributes.

See also

PS 3.3 section 8.8.

12.33.2 Constructor & Destructor Documentation

12.33.2.1 BasicCodedEntry() [1/3]

```
gdcm::SegmentHelper::BasicCodedEntry::BasicCodedEntry ()  [inline]
```

Constructor.

References CM, CSD, CSV, and CV.

12.33.2.2 BasicCodedEntry() [2/3]

```
gdcm::SegmentHelper::BasicCodedEntry::BasicCodedEntry (
            const char * a_CV,
            const char * a_CSD,
            const char * a_CM)  [inline]
```

constructor which defines type 1 attributes.

References CM, CSD, CSV, and CV.

12.33.2.3 BasicCodedEntry() [3/3]

```
gdcm::SegmentHelper::BasicCodedEntry::BasicCodedEntry (
            const char * a_CV,
            const char * a_CSD,
            const char * a_CSV,
            const char * a_CM)  [inline]
```

constructor which defines attributes.

References CM, CSD, CSV, and CV.

12.33.3 Member Function Documentation

12.33.3.1 IsEmpty()

```
bool gdcm::SegmentHelper::BasicCodedEntry::IsEmpty (
            const bool checkOptionalAttributes = false) const
```

Check if each attributes of the basic coded entry is defined.

Parameters

checkOptionalAttributes	Check also type 1C attributes.

12.33.4 Member Data Documentation

12.33.4.1 CM

```
std::string gdcm::SegmentHelper::BasicCodedEntry::CM
```

Coding Scheme Version attribute.

Referenced by BasicCodedEntry(), BasicCodedEntry(), and BasicCodedEntry().

12.33.4.2 CSD

```
std::string gdcm::SegmentHelper::BasicCodedEntry::CSD
```

Code Value attribute.

Referenced by BasicCodedEntry(), BasicCodedEntry(), and BasicCodedEntry().

12.33.4.3 CSV

```
std::string gdcm::SegmentHelper::BasicCodedEntry::CSV
```

Coding Scheme Designator attribute.

Referenced by BasicCodedEntry(), BasicCodedEntry(), and BasicCodedEntry().

12.33.4.4 CV

```
std::string gdcm::SegmentHelper::BasicCodedEntry::CV
```

Referenced by BasicCodedEntry(), BasicCodedEntry(), and BasicCodedEntry().

The documentation for this struct was generated from the following file:

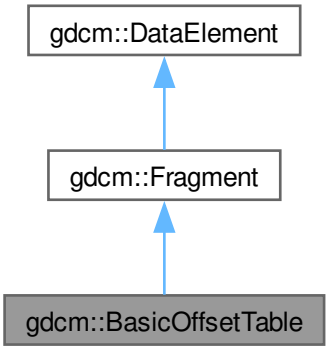
- gdcmSegmentHelper.h

12.34 gdcm::BasicOffsetTable Class Reference

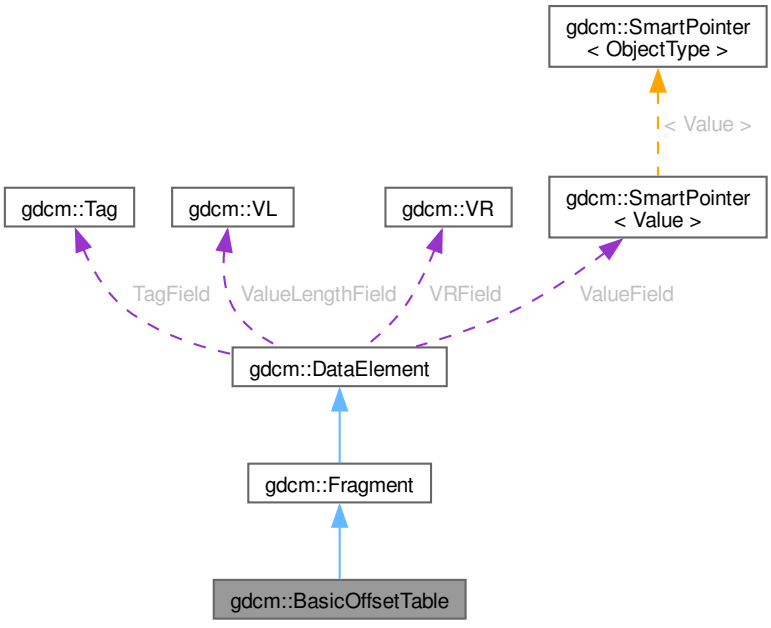
Class to represent a BasicOffsetTable.

`#include <gdcmBasicOffsetTable.h>`

Inheritance diagram for gdcm::BasicOffsetTable:



Collaboration diagram for gdcm::BasicOffsetTable:



Public Member Functions

- BasicOffsetTable ()
- template<typename TSwap>
  std::istream & Read (std::istream &is)

Public Member Functions inherited from gdcm::Fragment

- Fragment ()
- VL ComputeLength () const
- VL GetLength () const
- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadBacktrack (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is)
- template<typename TSwap>
  std::ostream & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.

- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Friends

- std::ostream & operator<< (std::ostream &os, const BasicOffsetTable &val)

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.34.1 Detailed Description

Class to represent a BasicOffsetTable.

12.34.2 Constructor & Destructor Documentation

12.34.2.1 BasicOffsetTable()

```
gdcm::BasicOffsetTable::BasicOffsetTable ()  [inline]
```

References gdcm::Fragment::Fragment().

Referenced by operator<<.

12.34.3 Member Function Documentation

12.34.3.1 Read()

```
template<typename TSwap>
std::istream & gdcm::BasicOffsetTable::Read (
            std::istream & is)  [inline]
```

References gdcmAssertAlwaysMacro, gdcm::ParseException::SetLastElement(), gdcm::DataElement::TagField, gdcm::DataElement::ValueField, and gdcm::DataElement::ValueLengthField.

12.34.4 Friends And Related Symbol Documentation

12.34.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const BasicOffsetTable & val)  [friend]
```

References BasicOffsetTable(), gdcm::DataElement::GetByteValue(), operator<<, gdcm::DataElement::ValueField, and gdcm::DataElement::ValueLengthField.

Referenced by operator<<.

The documentation for this class was generated from the following file:

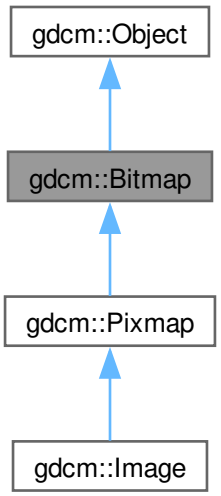
- gdcmBasicOffsetTable.h

12.35 gdcm::Bitmap Class Reference

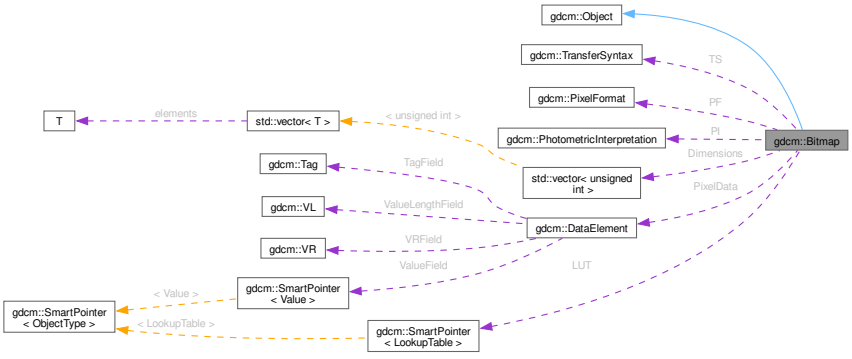
Bitmap class.

`#include <gdcmBitmap.h>`

Inheritance diagram for gdcm::Bitmap:



Collaboration diagram for gdcm::Bitmap:



Public Member Functions

- Bitmap ()
- ~Bitmap () override
- virtual bool AreOverlaysInPixelData () const
- void Clear ()
- bool GetBuffer (char *buffer) const

  Access the raw data.
- unsigned long GetBufferLength () const
- unsigned int GetColumns () const
- DataElement & GetDataElement ()
- const DataElement & GetDataElement () const
- unsigned int GetDimension (unsigned int idx) const
- const unsigned int * GetDimensions () const

  Return the dimension of the pixel data, first dimension (x), then 2nd (y), then 3rd (z)...
- LookupTable & GetLUT ()
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const

  INTERNAL do not use.
- unsigned int GetNumberOfDimensions () const

  Return the number of dimension of the pixel data bytes; for example 2 for a 2D matrices of values.
- const PhotometricInterpretation & GetPhotometricInterpretation () const

  return the photometric interpretation
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const

  Get/Set PixelFormat.
- unsigned int GetPlanarConfiguration () const

  return the planar configuration
- unsigned int GetRows () const
- const TransferSyntax & GetTransferSyntax () const
- bool IsEmpty () const
- bool IsLossy () const

  Return whether or not the image was compressed using a lossy compressor or not.
- bool IsTransferSyntaxCompatible (TransferSyntax const &ts) const
- void Print (std::ostream &) const override
- void SetColumns (unsigned int col)
- void SetDataElement (DataElement const &de)
- void SetDimension (unsigned int idx, unsigned int dim)
- void SetDimensions (const unsigned int dims[3])
- void SetLossyFlag (bool f)

  Specifically set that the image was compressed using a lossy compression mechanism.
- void SetLUT (LookupTable const &lut)

  Set/Get LUT.
- void SetNeedByteSwap (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)
- void SetRows (unsigned int rows)
- void SetTransferSyntax (TransferSyntax const &ts)

  Transfer syntax.
- virtual bool UnusedBitsPresentInPixelData () const

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Types

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions

- bool ComputeLossyFlag ()
- bool GetBuffer2 (std::ostream &os) const
- bool TryJPEG2000Codec (char *buffer, bool &lossyflag) const
- bool TryJPEG2000Codec2 (std::ostream &os) const
- bool TryJPEGCodec (char *buffer, bool &lossyflag) const
- bool TryJPEGCodec2 (std::ostream &os) const
- bool TryJPEGLSCodec (char *buffer, bool &lossyflag) const
- bool TryKAKADUCodec (char *buffer, bool &lossyflag) const
- bool TryPVRGCodec (char *buffer, bool &lossyflag) const
- bool TryRAWCodec (char *buffer, bool &lossyflag) const
- bool TryRLECodec (char *buffer, bool &lossyflag) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- std::vector< unsigned int > Dimensions
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- DataElement PixelData
- unsigned int PlanarConfiguration
- TransferSyntax TS

Friends

- class ImageChangeTransferSyntax
- class PixmapReader

12.35.1 Detailed Description

Bitmap class.

A bitmap based image. Used as parent for both IconImage and the main Pixel Data Image It does not contains any World Space information (IPP, IOP)

12.35.2 Member Typedef Documentation

12.35.2.1 LUTPtr

```
typedef SmartPointer<LookupTable> gdcm::Bitmap::LUTPtr  [protected]
```

12.35.3 Constructor & Destructor Documentation

12.35.3.1 Bitmap()

```
gdcm::Bitmap::Bitmap ()
```

12.35.3.2 ~Bitmap()

```
gdcm::Bitmap::~Bitmap ()  [override]
```

12.35.4 Member Function Documentation

12.35.4.1 AreOverlaysInPixelData()

```
virtual bool gdcm::Bitmap::AreOverlaysInPixelData () const  [inline], [virtual]
```

Reimplemented in gdcm::Pixmap.

12.35.4.2 Clear()

```
void gdcm::Bitmap::Clear ()
```

12.35.4.3 ComputeLossyFlag()

```
bool gdcm::Bitmap::ComputeLossyFlag ()  [protected]
```

12.35.4.4 GetBuffer()

```
bool gdcm::Bitmap::GetBuffer (
            char * buffer) const
```

Access the raw data.

Examples

BasicImageAnonymizer.cs, ConvertToQImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, GetArray.cs, ReadMultiTimesException.cxx, and threadgdcm.cxx.

12.35.4.5 GetBuffer2()

```
bool gdcm::Bitmap::GetBuffer2 (
            std::ostream & os) const  [protected]
```

12.35.4.6 GetBufferLength()

```
unsigned long gdcm::Bitmap::GetBufferLength () const
```

Return the length of the image after decompression WARNING for palette color: It will NOT take into account the Palette Color thus you need to multiply this length by 3 if computing the size of equivalent RGB image

Examples

BasicImageAnonymizer.cs, ConvertToQImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, GetArray.cs, PatchFile.cxx, ReadMultiTimesException.cxx, RescaleImage.cs, and threadgdcm.cxx.

12.35.4.7 GetColumns()

```
unsigned int gdcm::Bitmap::GetColumns () const  [inline]
```

References GetDimension().

12.35.4.8 GetDataElement() [1/2]

```
DataElement & gdcm::Bitmap::GetDataElement ()  [inline]
```

References PixelData.

12.35.4.9 GetDataElement() [2/2]

```
const DataElement & gdcm::Bitmap::GetDataElement () const  [inline]
```

Examples

ExtractIconFromFile.cxx.

References PixelData.

12.35.4.10 GetDimension()

```
unsigned int gdcm::Bitmap::GetDimension (
            unsigned int idx) const
```

Examples

BasicImageAnonymizer.cs, DecompressImage.cs, and GetArray.cs.

Referenced by GetColumns(), and GetRows().

12.35.4.11 GetDimensions()

```
const unsigned int * gdcm::Bitmap::GetDimensions () const
```

Return the dimension of the pixel data, first dimension (x), then 2nd (y), then 3rd (z)...

Examples

ConvertToQImage.cxx, ExtractIconFromFile.cxx, FixJAIBugJPEGLS.cxx, HelloVizWorld.cxx, and threadgdcm.cxx.

12.35.4.12 GetLUT() [1/2]

```
LookupTable & gdcm::Bitmap::GetLUT ()  [inline]
```

References LUT.

12.35.4.13 GetLUT() [2/2]

```
const LookupTable & gdcm::Bitmap::GetLUT () const  [inline]
```

Examples

ExtractIconFromFile.cxx, ExtractImageRegionWithLUT.cs, and PrintLUT.cxx.

References LUT.

12.35.4.14 GetNeedByteSwap()

```
bool gdcm::Bitmap::GetNeedByteSwap () const  [inline]
```

INTERNAL do not use.

References NeedByteSwap.

12.35.4.15 GetNumberOfDimensions()

```
unsigned int gdcm::Bitmap::GetNumberOfDimensions () const
```

Return the number of dimension of the pixel data bytes; for example 2 for a 2D matrices of values.

Examples

DecompressImage.cs, GetArray.cs, HelloVizWorld.cxx, and threadgdcm.cxx.

12.35.4.16 GetPhotometricInterpretation()

```
const PhotometricInterpretation & gdcm::Bitmap::GetPhotometricInterpretation () const
```

return the photometric interpretation

Examples

ConvertToQImage.cxx, DecompressImage.cs, ExtractIconFromFile.cxx, and HelloVizWorld.cxx.

12.35.4.17 GetPixelFormat() [1/2]

```
PixelFormat & gdcm::Bitmap::GetPixelFormat ()  [inline]
```

References PF.

12.35.4.18 GetPixelFormat() [2/2]

```
const PixelFormat & gdcm::Bitmap::GetPixelFormat () const  [inline]
```

Get/Set PixelFormat.

Examples

ConvertToQImage.cxx, DecompressImage.cs, ExtractIconFromFile.cxx, FixJAIBugJPEGLS.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, RescaleImage.cs, TemplateEmptyImage.cxx, and threadgdcm.cxx.

References PF.

12.35.4.19 GetPlanarConfiguration()

```
unsigned int gdcm::Bitmap::GetPlanarConfiguration () const
```

return the planar configuration

12.35.4.20 GetRows()

```
unsigned int gdcm::Bitmap::GetRows () const  [inline]
```

References GetDimension().

12.35.4.21 GetTransferSyntax()

```
const TransferSyntax & gdcm::Bitmap::GetTransferSyntax () const  [inline]
```

Examples

ExtractIconFromFile.cxx.

References TS.

12.35.4.22 IsEmpty()

```
bool gdcm::Bitmap::IsEmpty () const  [inline]
```

References Dimensions.

12.35.4.23 IsLossy()

```
bool gdcm::Bitmap::IsLossy () const
```

Return whether or not the image was compressed using a lossy compressor or not.

12.35.4.24 IsTransferSyntaxCompatible()

```
bool gdcm::Bitmap::IsTransferSyntaxCompatible (
            TransferSyntax const & ts) const
```

12.35.4.25 Print()

```
void gdcm::Bitmap::Print (
            std::ostream & ) const  [override], [virtual]
```

Reimplemented from gdcm::Object.

Reimplemented in gdcm::Image, and gdcm::Pixmap.

Examples

ExtractIconFromFile.cxx.

12.35.4.26 SetColumns()

```
void gdcm::Bitmap::SetColumns (
            unsigned int col)  [inline]
```

References SetDimension().

12.35.4.27 SetDataElement()

```
void gdcm::Bitmap::SetDataElement (
            DataElement const & de)  [inline]
```

Examples

BasicImageAnonymizer.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.c DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

References PixelData.

12.35.4.28 SetDimension()

```
void gdcm::Bitmap::SetDimension (
            unsigned int idx,
            unsigned int dim)
```

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

Referenced by SetColumns(), and SetRows().

12.35.4.29 SetDimensions()

```
void gdcm::Bitmap::SetDimensions (
            const unsigned int dims[3])
```

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, and DecompressImage.cs.

12.35.4.30 SetLossyFlag()

```
void gdcm::Bitmap::SetLossyFlag (
            bool f)  [inline]
```

Specifically set that the image was compressed using a lossy compression mechanism.

References LossyFlag.

12.35.4.31 SetLUT()

```
void gdcm::Bitmap::SetLUT (
            LookupTable const & lut)  [inline]
```

Set/Get LUT.

References LUT, and gdcm::Object::SmartPointer.

12.35.4.32 SetNeedByteSwap()

```
void gdcm::Bitmap::SetNeedByteSwap (
            bool b)  [inline]
```

References NeedByteSwap.

12.35.4.33 SetNumberOfDimensions()

```
void gdcm::Bitmap::SetNumberOfDimensions (
            unsigned int dim)
```

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

12.35.4.34 SetPhotometricInterpretation()

```
void gdcm::Bitmap::SetPhotometricInterpretation (
            PhotometricInterpretation const & pi)
```

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

12.35.4.35 SetPixelFormat()

```
void gdcm::Bitmap::SetPixelFormat (
            PixelFormat const & pf)  [inline]
```

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

References PF.

12.35.4.36 SetPlanarConfiguration()

```
void gdcm::Bitmap::SetPlanarConfiguration (
            unsigned int pc)
```

Warning

you need to call SetPixelFormat first (before SetPlanarConfiguration) for consistency checking

12.35.4.37 SetRows()

```
void gdcm::Bitmap::SetRows (
            unsigned int rows)  [inline]
```

References SetDimension().

12.35.4.38 SetTransferSyntax()

```
void gdcm::Bitmap::SetTransferSyntax (
            TransferSyntax const & ts)  [inline]
```

Transfer syntax.

Examples

BasicImageAnonymizer.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, MergeTwoFiles.cxx, and MpegVideoInfo.cs.

References TS.

12.35.4.39 TryJPEG2000Codec()

```
bool gdcm::Bitmap::TryJPEG2000Codec (
            char * buffer,
            bool & lossyflag) const  [protected]
```

12.35.4.40 TryJPEG2000Codec2()

```
bool gdcm::Bitmap::TryJPEG2000Codec2 (
            std::ostream & os) const  [protected]
```

12.35.4.41 TryJPEGCodec()

```
bool gdcm::Bitmap::TryJPEGCodec (
            char * buffer,
            bool & lossyflag) const  [protected]
```

12.35.4.42 TryJPEGCodec2()

```
bool gdcm::Bitmap::TryJPEGCodec2 (
            std::ostream & os) const  [protected]
```

12.35.4.43 TryJPEGLSCodec()

```
bool gdcm::Bitmap::TryJPEGLSCodec (
            char * buffer,
            bool & lossyflag) const  [protected]
```

12.35.4.44 TryKAKADUCodec()

```
bool gdcm::Bitmap::TryKAKADUCodec (
            char * buffer,
            bool & lossyflag) const  [protected]
```

12.35.4.45 TryPVRGCodec()

```
bool gdcm::Bitmap::TryPVRGCodec (
            char * buffer,
            bool & lossyflag) const  [protected]
```

12.35.4.46 TryRAWCodec()

```
bool gdcm::Bitmap::TryRAWCodec (
            char * buffer,
            bool & lossyflag) const  [protected]
```

12.35.4.47 TryRLECodec()

```
bool gdcm::Bitmap::TryRLECodec (
            char * buffer,
            bool & lossyflag) const  [protected]
```

12.35.4.48 UnusedBitsPresentInPixelData()

```
virtual bool gdcm::Bitmap::UnusedBitsPresentInPixelData () const  [inline], [virtual]
```

Reimplemented in gdcm::Pixmap.

12.35.5 Friends And Related Symbol Documentation

12.35.5.1 ImageChangeTransferSyntax

```
friend class ImageChangeTransferSyntax  [friend]
```

References ImageChangeTransferSyntax.

Referenced by ImageChangeTransferSyntax.

12.35.5.2 PixmapReader

```
friend class PixmapReader  [friend]
```

References PixmapReader.

Referenced by PixmapReader.

12.35.6 Member Data Documentation

12.35.6.1 Dimensions

```
std::vector<unsigned int> gdcm::Bitmap::Dimensions  [protected]
```

Referenced by IsEmpty().

12.35.6.2 LossyFlag

```
bool gdcm::Bitmap::LossyFlag  [protected]
```

Referenced by SetLossyFlag().

12.35.6.3 LUT

```
LUTPtr gdcm::Bitmap::LUT  [protected]
```

Referenced by GetLUT(), GetLUT(), and SetLUT().

12.35.6.4 NeedByteSwap

```
bool gdcm::Bitmap::NeedByteSwap  [protected]
```

Referenced by GetNeedByteSwap(), and SetNeedByteSwap().

12.35.6.5 NumberOfDimensions

```
unsigned int gdcm::Bitmap::NumberOfDimensions  [protected]
```

12.35.6.6 PF

```
PixelFormat gdcm::Bitmap::PF  [protected]
```

Referenced by GetPixelFormat(), GetPixelFormat(), and SetPixelFormat().

12.35.6.7 PI

```
PhotometricInterpretation gdcm::Bitmap::PI  [protected]
```

12.35.6.8 PixelData

```
DataElement gdcm::Bitmap::PixelData  [protected]
```

Referenced by GetDataElement(), GetDataElement(), and SetDataElement().

12.35.6.9 PlanarConfiguration

```
unsigned int gdcm::Bitmap::PlanarConfiguration  [protected]
```

12.35.6.10 TS

```
TransferSyntax gdcm::Bitmap::TS  [protected]
```

Referenced by GetTransferSyntax(), and SetTransferSyntax().

The documentation for this class was generated from the following file:

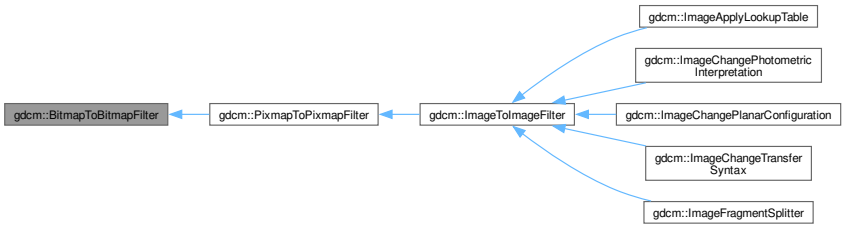
- gdcmBitmap.h

12.36 gdcm::BitmapToBitmapFilter Class Reference

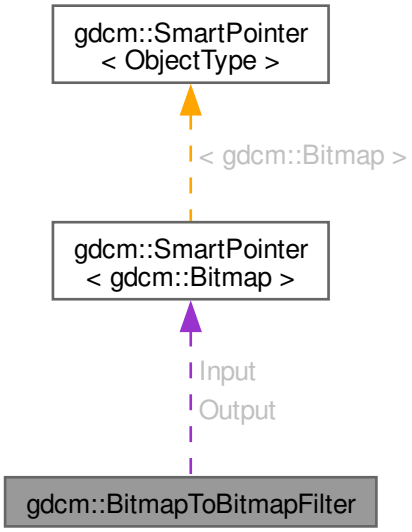
BitmapToBitmapFilter class.

```
#include <gdcmBitmapToBitmapFilter.h>
```

Inheritance diagram for gdcm::BitmapToBitmapFilter:



Collaboration diagram for gdcm::BitmapToBitmapFilter:



Public Member Functions

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Protected Attributes

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

12.36.1 Detailed Description

BitmapToBitmapFilter class.

Super class for all filter taking an image and producing an output image

12.36.2 Constructor & Destructor Documentation

12.36.2.1 BitmapToBitmapFilter()

```
gdcm::BitmapToBitmapFilter::BitmapToBitmapFilter ()
```

12.36.2.2 ~BitmapToBitmapFilter()

```
gdcm::BitmapToBitmapFilter::~BitmapToBitmapFilter ()  [default]
```

12.36.3 Member Function Documentation

12.36.3.1 GetOutput()

```
const Bitmap & gdcm::BitmapToBitmapFilter::GetOutput () const  [inline]
```

Get Output image.

References Output.

12.36.3.2 GetOutputAsBitmap()

```
const Bitmap & gdcm::BitmapToBitmapFilter::GetOutputAsBitmap () const
```

12.36.3.3 SetInput()

```
void gdcm::BitmapToBitmapFilter::SetInput (
            const Bitmap & image)
```

Set input image.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, and StandardizeFiles.cs.

12.36.4 Member Data Documentation

12.36.4.1 Input

```
SmartPointer<Bitmap> gdcm::BitmapToBitmapFilter::Input  [protected]
```

12.36.4.2 Output

```
SmartPointer<Bitmap> gdcm::BitmapToBitmapFilter::Output  [protected]
```

Referenced by GetOutput().

The documentation for this class was generated from the following file:

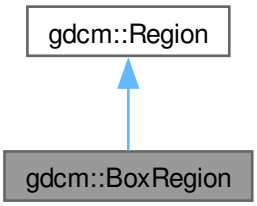
- gdcmBitmapToBitmapFilter.h

12.37 gdcm::BoxRegion Class Reference

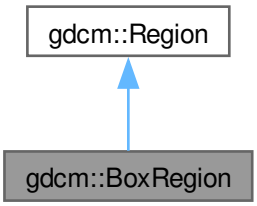
Class for manipulation box region.

```
#include <gdcmBoxRegion.h>
```

Inheritance diagram for gdcm::BoxRegion:



Collaboration diagram for gdcm::BoxRegion:



Public Member Functions

- BoxRegion ()
- BoxRegion (const BoxRegion &)

  copy/cstor and al.
- ~BoxRegion () override
- size_t Area () const override

  compute the area
- Region * Clone () const override
- BoxRegion ComputeBoundingBox () override

  Return the Axis-Aligned minimum bounding box for all regions.
- bool Empty () const override

  return whether this domain is empty:
- unsigned int GetXMax () const
- unsigned int GetXMin () const

  Get domain.
- unsigned int GetYMax () const
- unsigned int GetYMin () const
- unsigned int GetZMax () const
- unsigned int GetZMin () const
- bool IsValid () const override

  return whether this is valid domain
- void operator= (const BoxRegion &)
- void Print (std::ostream &os=std::cout) const override

  Print.
- void SetDomain (unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax)

  Set domain.

Public Member Functions inherited from gdcm::Region

- Region ()
- virtual ~Region ()

Static Public Member Functions

- static BoxRegion BoundingBox (BoxRegion const &b1, BoxRegion const &b2)

  Helper class to compute the bounding box of two BoxRegion.

12.37.1 Detailed Description

Class for manipulation box region.

This is a very simple implementation of the Region class. It only support 3D box type region. It assumes the 3D Box does not have a tilt Origin is as (0,0,0)

Examples

ExtractImageRegion.cs, and ExtractImageRegionWithLUT.cs.

12.37.2 Constructor & Destructor Documentation

12.37.2.1 BoxRegion() [1/2]

```
gdcm::BoxRegion::BoxRegion ()
```

Referenced by BoxRegion(), BoundingBox(), ComputeBoundingBox(), and operator=().

12.37.2.2 ~BoxRegion()

```
gdcm::BoxRegion::~BoxRegion ()  [override]
```

12.37.2.3 BoxRegion() [2/2]

```
gdcm::BoxRegion::BoxRegion (
            const BoxRegion & )
```

copy/cstor and al.

References BoxRegion().

12.37.3 Member Function Documentation

12.37.3.1 Area()

```
size_t gdcm::BoxRegion::Area () const  [override], [virtual]
```

compute the area

Implements gdcm::Region.

12.37.3.2 BoundingBox()

```
BoxRegion gdcm::BoxRegion::BoundingBox (
            BoxRegion const & b1,
            BoxRegion const & b2)  [static]
```

Helper class to compute the bounding box of two BoxRegion.

References BoxRegion().

12.37.3.3 Clone()

```
Region * gdcm::BoxRegion::Clone () const  [override], [virtual]
```

Implements gdcm::Region.

References gdcm::Region::Region().

12.37.3.4 ComputeBoundingBox()

```
BoxRegion gdcm::BoxRegion::ComputeBoundingBox ()  [override], [virtual]
```

Return the Axis-Aligned minimum bounding box for all regions.

Implements gdcm::Region.

References BoxRegion().

12.37.3.5 Empty()

```
bool gdcm::BoxRegion::Empty () const  [override], [virtual]
```

return whether this domain is empty:

Implements gdcm::Region.

12.37.3.6 GetXMax()

```
unsigned int gdcm::BoxRegion::GetXMax () const
```

12.37.3.7 GetXMin()

```
unsigned int gdcm::BoxRegion::GetXMin () const
```

Get domain.

12.37.3.8 GetYMax()

```
unsigned int gdcm::BoxRegion::GetYMax () const
```

12.37.3.9 GetYMin()

```
unsigned int gdcm::BoxRegion::GetYMin () const
```

12.37.3.10 GetZMax()

```
unsigned int gdcm::BoxRegion::GetZMax () const
```

12.37.3.11 GetZMin()

```
unsigned int gdcm::BoxRegion::GetZMin () const
```

12.37.3.12 IsValid()

```
bool gdcm::BoxRegion::IsValid () const  [override], [virtual]
```

return whether this is valid domain

Implements gdcm::Region.

12.37.3.13 operator=()

```
void gdcm::BoxRegion::operator= (
            const BoxRegion & )
```

References BoxRegion().

12.37.3.14 Print()

```
void gdcm::BoxRegion::Print (
            std::ostream & os = std::cout) const  [override], [virtual]
```

Print.

Reimplemented from gdcm::Region.

12.37.3.15 SetDomain()

```
void gdcm::BoxRegion::SetDomain (
            unsigned int xmin,
            unsigned int xmax,
            unsigned int ymin,
            unsigned int ymax,
            unsigned int zmin,
            unsigned int zmax)
```

Set domain.

Examples

ExtractImageRegion.cs, and ExtractImageRegionWithLUT.cs.

The documentation for this class was generated from the following file:

- gdcmBoxRegion.h

12.38 gdcm::ByteBuffer Class Reference

ByteBuffer.

```
#include <gdcmByteBuffer.h>
```

Public Member Functions

- ByteBuffer ()
- char * Get (int len)
- const char * GetStart () const
- void ShiftEnd (int len)
- void UpdatePosition ()

12.38.1 Detailed Description

ByteBuffer.

Detailed description here

Note

looks like a std::streambuf or std::filebuf class with the get and peek pointer

12.38.2 Constructor & Destructor Documentation

12.38.2.1 ByteBuffer()

```
gdcm::ByteBuffer::ByteBuffer ()  [inline]
```

12.38.3 Member Function Documentation

12.38.3.1 Get()

```
char * gdcm::ByteBuffer::Get (
            int len)  [inline]
```

12.38.3.2 GetStart()

```
const char * gdcm::ByteBuffer::GetStart () const  [inline]
```

12.38.3.3 ShiftEnd()

```
void gdcm::ByteBuffer::ShiftEnd (
            int len)  [inline]
```

12.38.3.4 UpdatePosition()

```
void gdcm::ByteBuffer::UpdatePosition ()  [inline]
```

The documentation for this class was generated from the following file:

- gdcmByteBuffer.h

12.39 gdcm::ByteSwap< T > Class Template Reference

ByteSwap.

```
#include <gdcmByteSwap.h>
```

Static Public Member Functions

- static void Swap (T &p)
- static void SwapFromSwapCodeIntoSystem (T &p, SwapCode const &sc)
- static void SwapRange (T *p, unsigned int num)
- static void SwapRangeFromSwapCodeIntoSystem (T *p, SwapCode const &sc, std::streamoff num)
- static bool SystemIsBigEndian ()
- static bool SystemIsLittleEndian ()

12.39.1 Detailed Description

template<class T>
class gdcm::ByteSwap< T >

ByteSwap.

Perform machine dependent byte swapping (Little Endian, Big Endian, Bad Little Endian, Bad Big Endian). TODO: bswap_32 / bswap_64 ...

12.39.2 Member Function Documentation

12.39.2.1 Swap()

```
template<class T>
void gdcm::ByteSwap< T >::Swap (
            T & p)  [static]
```

12.39.2.2 SwapFromSwapCodeIntoSystem()

```
template<class T>
void gdcm::ByteSwap< T >::SwapFromSwapCodeIntoSystem (
            T & p,
            SwapCode const & sc)  [static]
```

Examples

TestByteSwap.cxx.

12.39.2.3 SwapRange()

```
template<class T>
void gdcm::ByteSwap< T >::SwapRange (
            T * p,
            unsigned int num)  [static]
```

12.39.2.4 SwapRangeFromSwapCodeIntoSystem()

```
template<class T>
void gdcm::ByteSwap< T >::SwapRangeFromSwapCodeIntoSystem (
            T * p,
            SwapCode const & sc,
            std::streamoff num)  [static]
```

Examples

TestByteSwap.cxx.

12.39.2.5 SystemIsBigEndian()

```
template<class T>
bool gdcm::ByteSwap< T >::SystemIsBigEndian ()  [static]
```

Query the machine Endian-ness.

Examples

TestByteSwap.cxx.

12.39.2.6 SystemIsLittleEndian()

```
template<class T>
bool gdcm::ByteSwap< T >::SystemIsLittleEndian ()  [static]
```

Examples

TestByteSwap.cxx.

The documentation for this class was generated from the following file:

- gdcmByteSwap.h

12.40 gdcm::ByteSwapFilter Class Reference

ByteSwapFilter.

```
#include <gdcmByteSwapFilter.h>
```

Public Member Functions

- ByteSwapFilter (const ByteSwapFilter &)=delete
- ByteSwapFilter (DataSet &ds)
- ~ByteSwapFilter ()=default
- bool ByteSwap ()
- ByteSwapFilter & operator= (const ByteSwapFilter &)=delete
- void SetByteSwapTag (bool b)

12.40.1 Detailed Description

ByteSwapFilter.

In place byte-swapping of a dataset FIXME: FL status ??

12.40.2 Constructor & Destructor Documentation

12.40.2.1 ByteSwapFilter() [1/2]

```
gdcm::ByteSwapFilter::ByteSwapFilter (
            DataSet & ds)  [inline]
```

Referenced by ByteSwapFilter(), and operator=().

12.40.2.2 ~ByteSwapFilter()

```
gdcm::ByteSwapFilter::~ByteSwapFilter ()  [default]
```

12.40.2.3 ByteSwapFilter() [2/2]

```
gdcm::ByteSwapFilter::ByteSwapFilter (
            const ByteSwapFilter & )  [delete]
```

References ByteSwapFilter().

12.40.3 Member Function Documentation

12.40.3.1 ByteSwap()

```
bool gdcm::ByteSwapFilter::ByteSwap ()
```

Referenced by gdcm::Item::Read().

12.40.3.2 operator=()

```
ByteSwapFilter & gdcm::ByteSwapFilter::operator= (
            const ByteSwapFilter & )  [delete]
```

References ByteSwapFilter().

12.40.3.3 SetByteSwapTag()

```
void gdcm::ByteSwapFilter::SetByteSwapTag (
            bool b)  [inline]
```

Referenced by gdcm::Item::Read().

The documentation for this class was generated from the following file:

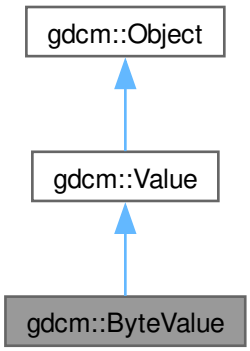
- gdcmByteSwapFilter.h

12.41 gdcm::ByteValue Class Reference

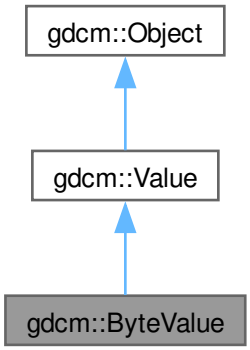
Class to represent binary value (array of bytes).

`#include <gdcmByteValue.h>`

Inheritance diagram for gdcm::ByteValue:



Collaboration diagram for gdcm::ByteValue:



Public Member Functions

- ByteValue (const char *array=nullptr, VL const &vl=0)
- ByteValue (std::vector< char > &v)
- ~ByteValue () override
- void Append (ByteValue const &bv)
- void Clear () override
- VL ComputeLength () const
- void Fill (char c)
- bool GetBuffer (char *buffer, unsigned long length) const
- VL GetLength () const override
- const char * GetPointer () const
- void * GetVoidPointer ()
- const void * GetVoidPointer () const
- bool IsEmpty () const
- bool IsPrintable (VL length) const

  Checks whether a 'ByteValue' is printable or not (in order to avoid corrupting the terminal of invocation when printing) I don't think this function is working since it does not handle UNICODE or character set...
- operator const std::vector< char > & () const
- ByteValue & operator= (const ByteValue &val)
- bool operator== (const ByteValue &val) const
- bool operator== (const Value &val) const override
- void PrintASCII (std::ostream &os, VL maxlength) const
- void PrintASCIIXML (std::ostream &os) const
- void PrintGroupLength (std::ostream &os)
- void PrintHex (std::ostream &os, VL maxlength) const
- void PrintHexXML (std::ostream &os) const
- void PrintPNXML (std::ostream &os) const
- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap, typename TType>
  std::istream & Read (std::istream &is, bool readvalues=true)
- void SetLength (VL vl) override
- template<typename TSwap>
  std::ostream const & Write (std::ostream &os) const
- template<typename TSwap, typename TType>
  std::ostream const & Write (std::ostream &os) const
- bool WriteBuffer (std::ostream &os) const

Public Member Functions inherited from gdcm::Value

- Value ()=default
- ~Value () override=default

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Member Functions

- void Print (std::ostream &os) const override
- void SetLengthOnly (VL vl) override

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.41.1 Detailed Description

Class to represent binary value (array of bytes).

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetSubSequenceData.cxx, MrProtocol.cxx, PatchFile.cxx, ReadExplicitLengthSQIVR.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.41.2 Constructor & Destructor Documentation

12.41.2.1 ByteValue() [1/2]

```
gdcm::ByteValue::ByteValue (
            const char * array = nullptr,
            VL const & vl = 0)  [inline]
```

Referenced by Append(), operator=(), operator==(), and operator==().

12.41.2.2 ByteValue() [2/2]

```
gdcm::ByteValue::ByteValue (
            std::vector< char > & v)  [inline]
```

Warning

casting to uint32_t

12.41.2.3 ~ByteValue()

```
gdcm::ByteValue::~ByteValue ()  [inline], [override]
```

12.41.3 Member Function Documentation

12.41.3.1 Append()

```
void gdcm::ByteValue::Append (
            ByteValue const & bv)
```

References ByteValue().

12.41.3.2 Clear()

```
void gdcm::ByteValue::Clear ()  [inline], [override], [virtual]
```

Implements gdcm::Value.

12.41.3.3 ComputeLength()

```
VL gdcm::ByteValue::ComputeLength () const  [inline]
```

Referenced by gdcm::Fragment::Write().

12.41.3.4 Fill()

```
void gdcm::ByteValue::Fill (
            char c)  [inline]
```

Examples

DuplicatePCDE.cxx.

12.41.3.5 GetBuffer()

```
bool gdcm::ByteValue::GetBuffer (
            char * buffer,
            unsigned long length) const
```

Examples

ExtractEncapsulatedFile.cs, and FixJAIBugJPEGLS.cxx.

12.41.3.6 GetLength()

```
VL gdcm::ByteValue::GetLength () const  [inline], [override], [virtual]
```

Implements gdcm::Value.

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetSubSequenceData.cxx, MrProtocol.cxx, PatchFile.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

Referenced by gdcm::CSAElement::operator<<, gdcm::SequenceOfFragments::ReadValue(), gdcm::Element< TVR, TVM >::Set(), gdcm::Element< TVR, VM::VM1_n >::Set(), gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue(), gdcm::Attribute< Group, E gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetByteValue(), gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueN gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValueNoSwap(), gdcm::Element< TVR, TVM >::SetNoSwap(), gdcm::Element< TVR, VM::VM1_n >::SetNoSwap(), and gdcm::Fragment::Write().

12.41.3.7 GetPointer()

```
const char * gdcm::ByteValue::GetPointer () const  [inline]
```

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, ELSCINT1WaveToText.cxx, ExtractEncryptedContent.cxx ExtractIconFromFile.cxx, GetSubSequenceData.cxx, MrProtocol.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

Referenced by gdcm::CSAElement::operator<<, gdcm::SequenceOfFragments::ReadValue(), gdcm::Element< TVR, TVM >::Set(), gdcm::Element< TVR, VM::VM1_n >::Set(), gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue(), gdcm::Attribute< Group, E gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetByteValue(), gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueN gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValueNoSwap(), gdcm::Element< TVR, TVM >::SetNoSwap(), and gdcm::Element< TVR, VM::VM1_n >::SetNoSwap().

12.41.3.8 GetVoidPointer() [1/2]

```
void * gdcm::ByteValue::GetVoidPointer ()  [inline]
```

12.41.3.9 GetVoidPointer() [2/2]

```
const void * gdcm::ByteValue::GetVoidPointer () const  [inline]
```

Examples

FixBrokenJ2K.cxx.

Referenced by Read(), and gdcm::Element< TVR, VM::VM1_n >::Set().

12.41.3.10 IsEmpty()

```
bool gdcm::ByteValue::IsEmpty () const  [inline]
```

12.41.3.11 IsPrintable()

```
bool gdcm::ByteValue::IsPrintable (
            VL length) const  [inline]
```

Checks whether a 'ByteValue' is printable or not (in order to avoid corrupting the terminal of invocation when printing) I don't think this function is working since it does not handle UNICODE or character set...

Referenced by Print().

12.41.3.12 operator const std::vector< char > &()

```
gdcm::ByteValue::operator const std::vector< char > & () const  [inline]
```

12.41.3.13 operator=()

```
ByteValue & gdcm::ByteValue::operator= (
            const ByteValue & val)  [inline]
```

References ByteValue().

12.41.3.14 operator==() [1/2]

```
bool gdcm::ByteValue::operator== (
            const ByteValue & val) const  [inline]
```

References ByteValue().

12.41.3.15 operator==() [2/2]

```
bool gdcm::ByteValue::operator== (
            const Value & val) const  [inline], [override], [virtual]
```

Implements gdcm::Value.

References ByteValue(), and gdcm::Value::Value().

12.41.3.16 Print()

```
void gdcm::ByteValue::Print (
            std::ostream & os) const  [inline], [override], [protected], [virtual]
```

Reimplemented from gdcm::Object.

References IsPrintable().

12.41.3.17 PrintASCII()

```
void gdcm::ByteValue::PrintASCII (
            std::ostream & os,
            VL maxlength) const
```

12.41.3.18 PrintASCIIXML()

```
void gdcm::ByteValue::PrintASCIIXML (
            std::ostream & os) const
```

12.41.3.19 PrintGroupLength()

```
void gdcm::ByteValue::PrintGroupLength (
            std::ostream & os)  [inline]
```

12.41.3.20 PrintHex()

```
void gdcm::ByteValue::PrintHex (
            std::ostream & os,
            VL maxlength) const
```

12.41.3.21 PrintHexXML()

```
void gdcm::ByteValue::PrintHexXML (
            std::ostream & os) const
```

12.41.3.22 PrintPNXML()

```
void gdcm::ByteValue::PrintPNXML (
            std::ostream & os) const
```

To Print Values in Native DICOM format

12.41.3.23 Read() [1/2]

```
template<typename TSwap>
std::istream & gdcm::ByteValue::Read (
            std::istream & is)  [inline]
```

References Read().

12.41.3.24 Read() [2/2]

```
template<typename TSwap, typename TType>
std::istream & gdcm::ByteValue::Read (
            std::istream & is,
            bool readvalues = true)  [inline]
```

References GetVoidPointer().

Referenced by Read().

12.41.3.25 SetLength()

```
void gdcm::ByteValue::SetLength (
            VL vl)  [override], [virtual]
```

Implements gdcm::Value.

12.41.3.26 SetLengthOnly()

```
void gdcm::ByteValue::SetLengthOnly (
            VL vl)  [inline], [override], [protected], [virtual]
```

Reimplemented from gdcm::Value.

12.41.3.27 Write() [1/2]

```
template<typename TSwap>
std::ostream const & gdcm::ByteValue::Write (
            std::ostream & os) const  [inline]
```

References Write().

12.41.3.28 Write() [2/2]

```
template<typename TSwap, typename TType>
std::ostream const & gdcm::ByteValue::Write (
            std::ostream & os) const  [inline]
```

Referenced by Write(), and gdcm::Fragment::Write().

12.41.3.29 WriteBuffer()

```
bool gdcm::ByteValue::WriteBuffer (
            std::ostream & os) const  [inline]
```

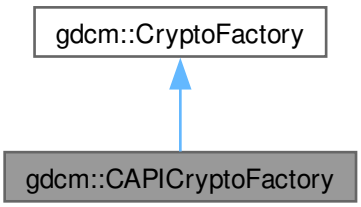
The documentation for this class was generated from the following file:

- gdcmByteValue.h

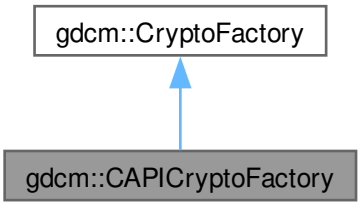
12.42 gdcm::CAPICryptoFactory Class Reference

`#include <gdcmCAPICryptoFactory.h>`

Inheritance diagram for gdcm::CAPICryptoFactory:



Collaboration diagram for gdcm::CAPICryptoFactory:



Public Member Functions

- CAPICryptoFactory (CryptoLib id)
- CryptographicMessageSyntax * CreateCMSProvider ()

Additional Inherited Members

Public Types inherited from gdcm::CryptoFactory

- enum CryptoLib {
  DEFAULT = 0 ,
  OPENSSL = 1 ,
  CAPI = 2 ,
  OPENSSLP7 = 3 }

Static Public Member Functions inherited from gdcm::CryptoFactory

- static CryptoFactory * GetFactoryInstance (CryptoLib id=DEFAULT)

Protected Member Functions inherited from gdcm::CryptoFactory

- CryptoFactory ()=default
- CryptoFactory (CryptoLib id)
- ~CryptoFactory ()=default

12.42.1 Constructor & Destructor Documentation

12.42.1.1 CAPICryptoFactory()

```
gdcm::CAPICryptoFactory::CAPICryptoFactory (
            CryptoLib id)
```

Referenced by CreateCMSProvider().

12.42.2 Member Function Documentation

12.42.2.1 CreateCMSProvider()

```
CryptographicMessageSyntax * gdcm::CAPICryptoFactory::CreateCMSProvider ()  [virtual]
```

Implements gdcm::CryptoFactory.

References CAPICryptoFactory().

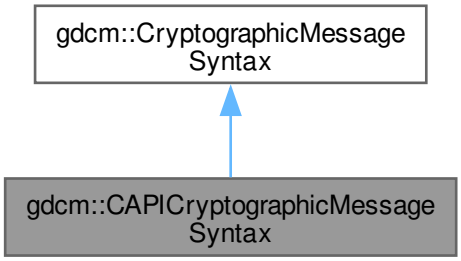
The documentation for this class was generated from the following file:

- gdcmCAPICryptoFactory.h

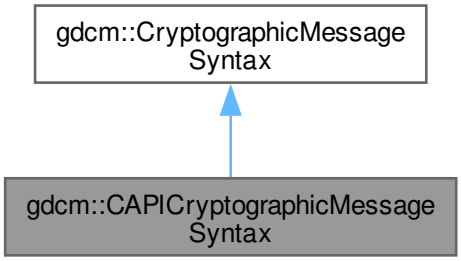
12.43 gdcm::CAPICryptographicMessageSyntax Class Reference

`#include <gdcmCAPICryptographicMessageSyntax.h>`

Inheritance diagram for gdcm::CAPICryptographicMessageSyntax:



Collaboration diagram for gdcm::CAPICryptographicMessageSyntax:



Public Member Functions

- CAPICryptographicMessageSyntax ()
- ~CAPICryptographicMessageSyntax ()
- bool Decrypt (char *output, size_t &outlen, const char *array, size_t len) const

  decrypt content from a CMS envelopedData structure
- bool Encrypt (char *output, size_t &outlen, const char *array, size_t len) const

  create a CMS envelopedData structure
- CipherTypes GetCipherType () const

- bool GetInitialized () const
- bool ParseCertificateFile (const char *filename)
- bool ParseKeyFile (const char *filename)
- void SetCipherType (CipherTypes type)
- bool SetPassword (const char *pass, size_t passLen)

Public Member Functions inherited from gdcm::CryptographicMessageSyntax

- CryptographicMessageSyntax ()=default
- CryptographicMessageSyntax (const CryptographicMessageSyntax &)=delete
- virtual ~CryptographicMessageSyntax ()=default
- void operator= (const CryptographicMessageSyntax &)=delete

Additional Inherited Members

Public Types inherited from gdcm::CryptographicMessageSyntax

- enum CipherTypes {
  DES3_CIPHER ,
  AES128_CIPHER ,
  AES192_CIPHER ,
  AES256_CIPHER }

12.43.1 Constructor & Destructor Documentation

12.43.1.1 CAPICryptographicMessageSyntax()

```
gdcm::CAPICryptographicMessageSyntax::CAPICryptographicMessageSyntax ()
```

12.43.1.2 ~CAPICryptographicMessageSyntax()

```
gdcm::CAPICryptographicMessageSyntax::~CAPICryptographicMessageSyntax ()
```

12.43.2 Member Function Documentation

12.43.2.1 Decrypt()

```
bool gdcm::CAPICryptographicMessageSyntax::Decrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len) const  [virtual]
```

decrypt content from a CMS envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

12.43.2.2 Encrypt()

```
bool gdcm::CAPICryptographicMessageSyntax::Encrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len) const  [virtual]
```

create a CMS envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

12.43.2.3 GetCipherType()

```
CipherTypes gdcm::CAPICryptographicMessageSyntax::GetCipherType () const  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.43.2.4 GetInitialized()

```
bool gdcm::CAPICryptographicMessageSyntax::GetInitialized () const  [inline]
```

12.43.2.5 ParseCertificateFile()

```
bool gdcm::CAPICryptographicMessageSyntax::ParseCertificateFile (
            const char * filename)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.43.2.6 ParseKeyFile()

```
bool gdcm::CAPICryptographicMessageSyntax::ParseKeyFile (
            const char * filename)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.43.2.7 SetCipherType()

```
void gdcm::CAPICryptographicMessageSyntax::SetCipherType (
            CipherTypes type)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.43.2.8 SetPassword()

```
bool gdcm::CAPICryptographicMessageSyntax::SetPassword (
            const char * pass,
            size_t passLen)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

The documentation for this class was generated from the following file:

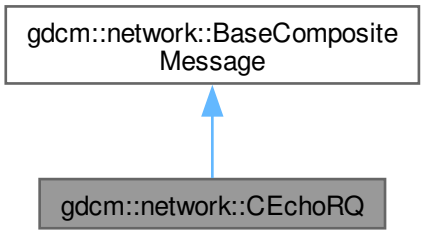
- gdcmCAPICryptographicMessageSyntax.h

12.44 gdcm::network::CEchoRQ Class Reference

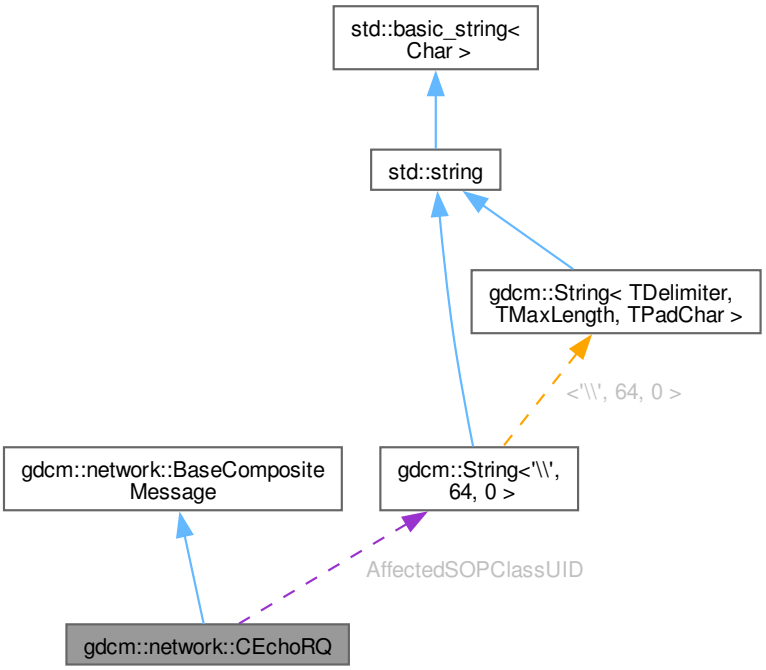
CEchoRQ.

```
#include <gdcmCEchoMessages.h>
```

Inheritance diagram for gdcm::network::CEchoRQ:



Collaboration diagram for gdcm::network::CEchoRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery) override

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default

Public Attributes

- UIComp AffectedSOPClassUID
- uint16_t MessageID

12.44.1 Detailed Description

CEchoRQ.

this file defines the messages for the cecho action

12.44.2 Member Function Documentation

12.44.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::CEchoRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery)  [override], [virtual]
```

Implements gdcm::network::BaseCompositeMessage.

12.44.3 Member Data Documentation

12.44.3.1 AffectedSOPClassUID

```
UIComp gdcm::network::CEchoRQ::AffectedSOPClassUID
```

12.44.3.2 MessageID

```
uint16_t gdcm::network::CEchoRQ::MessageID
```

The documentation for this class was generated from the following files:

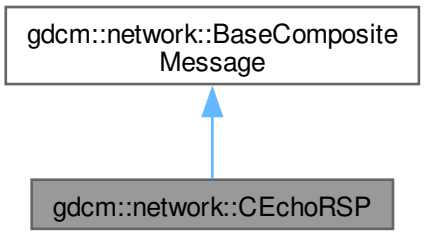
- gdcmCEchoMessages.h
- gdcmDIMSE.h

12.45 gdcm::network::CEchoRSP Class Reference

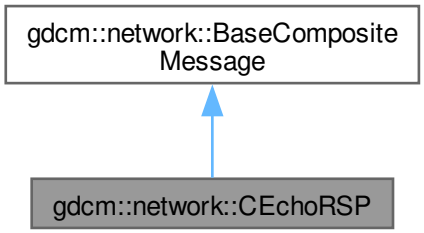
CEchoRSP this file defines the messages for the cecho action.

```
#include <gdcmCEchoMessages.h>
```

Inheritance diagram for gdcm::network::CEchoRSP:



Collaboration diagram for gdcm::network::CEchoRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

12.45.1 Detailed Description

CEchoRSP this file defines the messages for the cecho action.

12.45.2 Member Function Documentation

12.45.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::CEchoRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

- gdcmCEchoMessages.h

12.46 gdcm::network::CFind Class Reference

```
#include <gdcmDIMSE.h>
```

12.46.1 Detailed Description

PS 3.4 - 2009 Table B.2-1 C-STORE STATUS

The documentation for this class was generated from the following file:

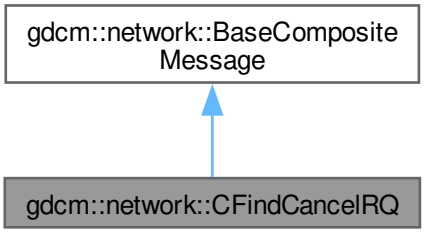
- gdcmDIMSE.h

12.47 gdcm::network::CFindCancelRQ Class Reference

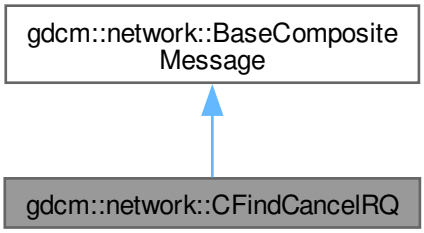
CFindCancelRQ this file defines the messages for the cfind action.

`#include <gdcmCFindMessages.h>`

Inheritance diagram for gdcm::network::CFindCancelRQ:



Collaboration diagram for gdcm::network::CFindCancelRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

12.47.1 Detailed Description

CFindCancelRQ this file defines the messages for the cfind action.

12.47.2 Member Function Documentation

12.47.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::CFindCancelRQ::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

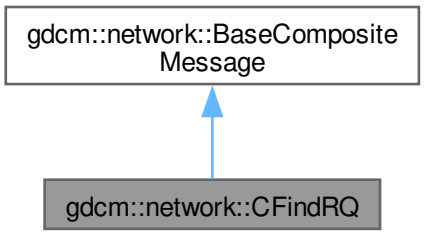
- gdcmCFindMessages.h

12.48 gdcm::network::CFindRQ Class Reference

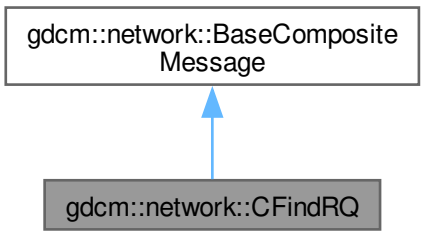
CFindRQ.

```
#include <gdcmCFindMessages.h>
```

Inheritance diagram for gdcm::network::CFindRQ:



Collaboration diagram for gdcm::network::CFindRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery) override

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default

12.48.1 Detailed Description

CFindRQ.

this file defines the messages for the cfind action

12.48.2 Member Function Documentation

12.48.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::CFindRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery)  [override], [virtual]
```

Implements gdcm::network::BaseCompositeMessage.

The documentation for this class was generated from the following file:

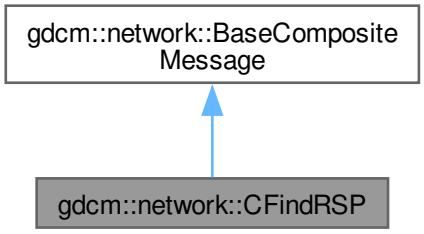
- gdcmCFindMessages.h

12.49 gdcm::network::CFindRSP Class Reference

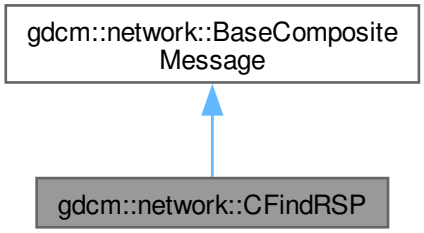
CFindRSP this file defines the messages for the cfind action.

`#include <gdcmCFindMessages.h>`

Inheritance diagram for gdcm::network::CFindRSP:



Collaboration diagram for gdcm::network::CFindRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

12.49.1 Detailed Description

CFindRSP this file defines the messages for the cfind action.

12.49.2 Member Function Documentation

12.49.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::CFindRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

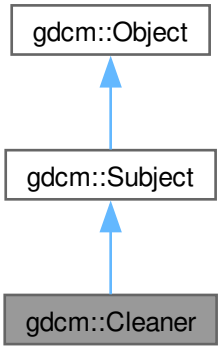
- gdcmCFindMessages.h

12.50 gdcm::Cleaner Class Reference

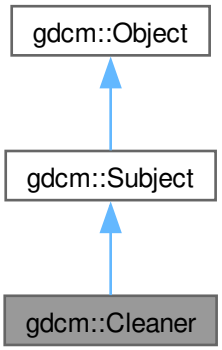
Cleaner.

```
#include <gdcmCleaner.h>
```

Inheritance diagram for gdcm::Cleaner:



Collaboration diagram for gdcm::Cleaner:



Public Member Functions

- Cleaner ()
- ~Cleaner () override
- bool Clean ()

  main loop
- bool Empty (DPath const &dpath)
- bool Empty (PrivateTag const &pt)
- bool Empty (Tag const &t)
- bool Empty (VR const &vr)
- void EmptyWhenScrubFails (bool empty)

  Should I empty instead of scrub upon failure.
- File & GetFile ()
- bool Preserve (DPath const &dpath)
- bool Remove (DPath const &dpath)
- bool Remove (PrivateTag const &pt)
- bool Remove (Tag const &t)
- bool Remove (VR const &vr)
- void RemoveAllGroupLength (bool remove)

  Should I remove all group length (deprecated). Default: true.
- void RemoveAllIllegal (bool remove)

  Should I remove all illegal attribute. Default: true.
- void RemoveAllMissingPrivateCreator (bool remove)
- bool RemoveMissingPrivateCreator (Tag const &t)
- bool Scrub (DPath const &dpath)
- bool Scrub (PrivateTag const &pt)
- bool Scrub (Tag const &t)

  Clean digital tash (typically SIEMENS CSA header):
- bool Scrub (VR const &vr)
- void SetFile (const File &f)

  Set/Get File.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< Cleaner > New ()

  for wrapped language: instantiate a reference counted object

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.50.1 Detailed Description

Cleaner.

This class implement the Subject/Observer pattern trigger the following event:

- AnonymizeEvent
- IterationEvent
- StartEvent
- EndEvent

Examples

Cleaner.cs.

12.50.2 Constructor & Destructor Documentation

12.50.2.1 Cleaner()

```
gdcm::Cleaner::Cleaner ()
```

Referenced by New().

12.50.2.2 ~Cleaner()

```
gdcm::Cleaner::~Cleaner ()  [override]
```

12.50.3 Member Function Documentation

12.50.3.1 Clean()

```
bool gdcm::Cleaner::Clean ()
```

main loop

Examples

Cleaner.cs.

12.50.3.2 Empty() [1/4]

```
bool gdcm::Cleaner::Empty (
            DPath const & dpath)
```

12.50.3.3 Empty() [2/4]

```
bool gdcm::Cleaner::Empty (
            PrivateTag const & pt)
```

12.50.3.4 Empty() [3/4]

```
bool gdcm::Cleaner::Empty (
            Tag const & t)
```

Examples

Cleaner.cs.

12.50.3.5 Empty() [4/4]

```
bool gdcm::Cleaner::Empty (
            VR const & vr)
```

12.50.3.6 EmptyWhenScrubFails()

```
void gdcm::Cleaner::EmptyWhenScrubFails (
            bool empty)
```

Should I empty instead of scrub upon failure.

12.50.3.7 GetFile()

```
File & gdcm::Cleaner::GetFile ()  [inline]
```

Examples

Cleaner.cs.

12.50.3.8 New()

```
SmartPointer< Cleaner > gdcm::Cleaner::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

References Cleaner().

12.50.3.9 Preserve()

```
bool gdcm::Cleaner::Preserve (
            DPath const & dpath)
```

Examples

Cleaner.cs.

12.50.3.10 Remove() [1/4]

```
bool gdcm::Cleaner::Remove (
            DPath const & dpath)
```

12.50.3.11 Remove() [2/4]

```
bool gdcm::Cleaner::Remove (
            PrivateTag const & pt)
```

12.50.3.12 Remove() [3/4]

```
bool gdcm::Cleaner::Remove (
            Tag const & t)
```

Examples

Cleaner.cs.

12.50.3.13 Remove() [4/4]

```
bool gdcm::Cleaner::Remove (
            VR const & vr)
```

12.50.3.14 RemoveAllGroupLength()

```
void gdcm::Cleaner::RemoveAllGroupLength (
            bool remove)
```

Should I remove all group length (deprecated). Default: true.

12.50.3.15 RemoveAllIllegal()

```
void gdcm::Cleaner::RemoveAllIllegal (
            bool remove)
```

Should I remove all illegal attribute. Default: true.

12.50.3.16 RemoveAllMissingPrivateCreator()

```
void gdcm::Cleaner::RemoveAllMissingPrivateCreator (
            bool remove)
```

Should I remove all private tag for which no private creator is found. Default: true

12.50.3.17 RemoveMissingPrivateCreator()

```
bool gdcm::Cleaner::RemoveMissingPrivateCreator (
            Tag const & t)
```

Specify a private tag (odd number) without a private creator (root level only for now):

12.50.3.18 Scrub() [1/4]

```
bool gdcm::Cleaner::Scrub (
            DPath const & dpath)
```

12.50.3.19 Scrub() [2/4]

```
bool gdcm::Cleaner::Scrub (
            PrivateTag const & pt)
```

12.50.3.20 Scrub() [3/4]

```
bool gdcm::Cleaner::Scrub (
            Tag const & t)
```

Clean digital tash (typically SIEMENS CSA header):

Examples

Cleaner.cs.

12.50.3.21 Scrub() [4/4]

```
bool gdcm::Cleaner::Scrub (
            VR const & vr)
```

12.50.3.22 SetFile()

```
void gdcm::Cleaner::SetFile (
            const File & f)  [inline]
```

Set/Get File.

Examples

Cleaner.cs.

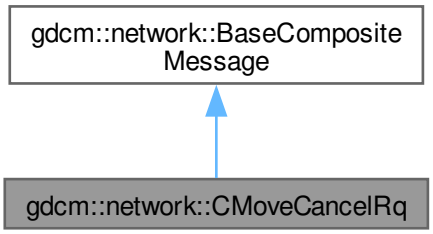
The documentation for this class was generated from the following file:

- gdcmCleaner.h

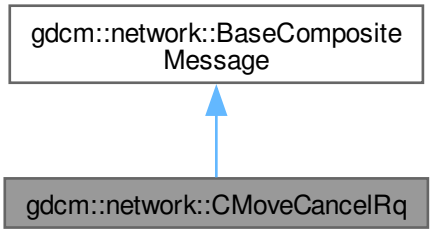
12.51 gdcm::network::CMoveCancelRq Class Reference

`#include <gdcmCMoveMessages.h>`

Inheritance diagram for gdcm::network::CMoveCancelRq:



Collaboration diagram for gdcm::network::CMoveCancelRq:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

12.51.1 Member Function Documentation

12.51.1.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::CMoveCancelRq::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

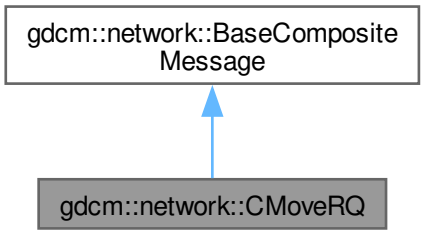
- gdcmCMoveMessages.h

12.52 gdcm::network::CMoveRQ Class Reference

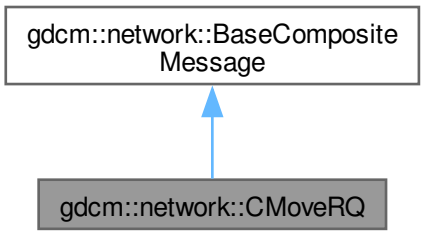
CMoveRQ.

```
#include <gdcmCMoveMessages.h>
```

Inheritance diagram for gdcm::network::CMoveRQ:



Collaboration diagram for gdcm::network::CMoveRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery) override

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default

12.52.1 Detailed Description

CMoveRQ.

this file defines the messages for the cmove action

12.52.2 Member Function Documentation

12.52.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::CMoveRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery)  [override], [virtual]
```

Implements gdcm::network::BaseCompositeMessage.

The documentation for this class was generated from the following file:

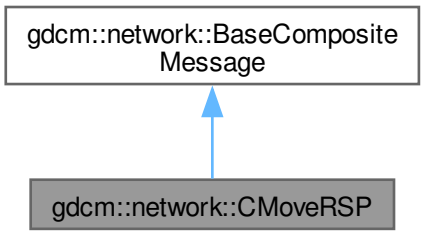
- gdcmCMoveMessages.h

12.53 gdcm::network::CMoveRSP Class Reference

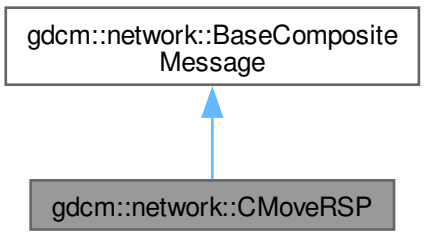
CMoveRSP this file defines the messages for the cmove action.

`#include <gdcmCMoveMessages.h>`

Inheritance diagram for gdcm::network::CMoveRSP:



Collaboration diagram for gdcm::network::CMoveRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

12.53.1 Detailed Description

CMoveRSP this file defines the messages for the cmove action.

12.53.2 Member Function Documentation

12.53.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::CMoveRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

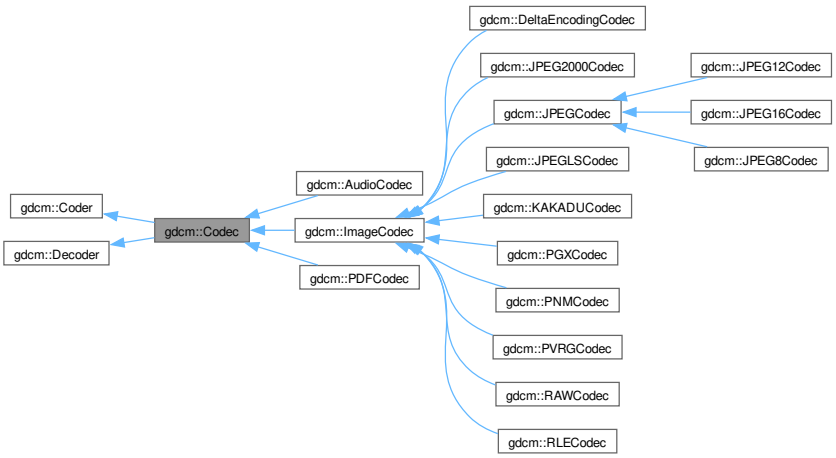
- gdcmCMoveMessages.h

12.54 gdcm::Codec Class Reference

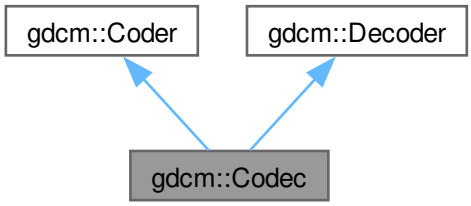
Codec class.

`#include <gdcmCodec.h>`

Inheritance diagram for gdcm::Codec:



Collaboration diagram for gdcm::Codec:



Additional Inherited Members

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool CanCode (TransferSyntax const &) const =0

  Return whether this coder support this transfer syntax (can code it).
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default
- virtual bool CanDecode (TransferSyntax const &) const =0

  Return whether this decoder support this transfer syntax (can decode it).
- virtual bool Decode (DataElement const &, DataElement &)

  Decode.

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Member Functions inherited from gdcm::Decoder

- virtual bool DecodeByStreams (std::istream &, std::ostream &)

12.54.1 Detailed Description

Codec class.

The documentation for this class was generated from the following file:

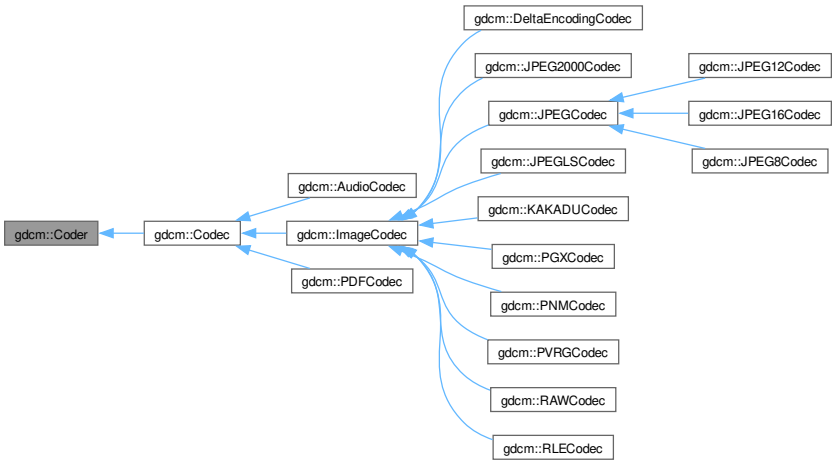
- gdcmCodec.h

12.55 gdcm::Coder Class Reference

Coder.

`#include <gdcmCoder.h>`

Inheritance diagram for gdcm::Coder:



Public Member Functions

- virtual ~Coder ()=default
- virtual bool CanCode (TransferSyntax const &) const =0

  Return whether this coder support this transfer syntax (can code it).
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Protected Member Functions

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

12.55.1 Detailed Description

Coder.

12.55.2 Constructor & Destructor Documentation

12.55.2.1 ~Coder()

```
virtual gdcm::Coder::~Coder ()  [virtual], [default]
```

12.55.3 Member Function Documentation

12.55.3.1 CanCode()

```
virtual bool gdcm::Coder::CanCode (
            TransferSyntax const & ) const  [pure virtual]
```

Return whether this coder support this transfer syntax (can code it).

Implemented in gdcm::AudioCodec, gdcm::ImageCodec, gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PDFCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.55.3.2 Code()

```
virtual bool gdcm::Coder::Code (
            DataElement const & in_,
            DataElement & out_)  [inline], [virtual]
```

Code.

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.55.3.3 InternalCode()

```
virtual bool gdcm::Coder::InternalCode (
            const char * bv,
            unsigned long len,
            std::ostream & os)  [inline], [protected], [virtual]
```

Reimplemented in gdcm::JPEG12Codec, gdcm::JPEG16Codec, and gdcm::JPEG8Codec.

The documentation for this class was generated from the following file:

- gdcmCoder.h

12.56 gdcm::CodeString Class Reference

CodeString.

```
#include <gdcmCodeString.h>
```

Public Types

- typedef InternalClass::const_iterator const_iterator
- typedef InternalClass::const_reference const_reference
- typedef InternalClass::const_reverse_iterator const_reverse_iterator
- typedef InternalClass::difference_type difference_type
- typedef InternalClass::iterator iterator
- typedef InternalClass::pointer pointer
- typedef InternalClass::reference reference
- typedef InternalClass::reverse_iterator reverse_iterator
- typedef InternalClass::size_type size_type
- typedef InternalClass::value_type value_type

Public Member Functions

- CodeString ()

  CodeString constructors.
- CodeString (const InternalClass &s, size_type pos=0, size_type n=InternalClass::npos)
- CodeString (const value_type *s)
- CodeString (const value_type *s, size_type n)
- std::string GetAsString () const

  Return the full code string as std::string.
- bool IsValid () const

  Check if CodeString obj is correct..
- size_type Size () const

  Return the size of the string.

Protected Member Functions

- std::string TrimInternal () const

Friends

- bool operator!= (const CodeString &ref, const CodeString &cs)
- std::ostream & operator<< (std::ostream &os, const CodeString &str)
- bool operator== (const CodeString &ref, const CodeString &cs)

12.56.1 Detailed Description

CodeString.

This is an implementation of DICOM VR: CS The cstor will properly Trim so that operator== is correct.

Note

the cstor of CodeString will Trim the string on the fly so as to remove the extra leading and ending spaces. However it will not perform validation on the fly (CodeString obj can contains invalid char such as lower cases). This design was chosen to be a little tolerant to broken DICOM implementation, and thus allow user to compare lower case CS from there input file without the need to first rewrite them to get rid of invalid character (validation is a different operation from searching, querying).

Warning

when writing out DICOM file it is highly recommended to perform the IsValid() call, at least to check that the length of the string match the definition in the standard.

12.56.2 Member Typedef Documentation

12.56.2.1 const_iterator

```
typedef InternalClass::const_iterator gdcm::CodeString::const_iterator
```

12.56.2.2 const_reference

```
typedef InternalClass::const_reference gdcm::CodeString::const_reference
```

12.56.2.3 const_reverse_iterator

```
typedef InternalClass::const_reverse_iterator gdcm::CodeString::const_reverse_iterator
```

12.56.2.4 difference_type

```
typedef InternalClass::difference_type gdcm::CodeString::difference_type
```

12.56.2.5 iterator

```
typedef InternalClass::iterator gdcm::CodeString::iterator
```

12.56.2.6 pointer

```
typedef InternalClass::pointer gdcm::CodeString::pointer
```

12.56.2.7 reference

```
typedef InternalClass::reference gdcm::CodeString::reference
```

12.56.2.8 reverse_iterator

```
typedef InternalClass::reverse_iterator gdcm::CodeString::reverse_iterator
```

12.56.2.9 size_type

```
typedef InternalClass::size_type gdcm::CodeString::size_type
```

12.56.2.10 value_type

```
typedef InternalClass::value_type gdcm::CodeString::value_type
```

12.56.3 Constructor & Destructor Documentation

12.56.3.1 CodeString() [1/4]

```
gdcm::CodeString::CodeString () [inline]
```

CodeString constructors.

Referenced by operator!=, operator<<, and operator==.

12.56.3.2 CodeString() [2/4]

```
gdcm::CodeString::CodeString (
            const value_type * s)  [inline]
```

12.56.3.3 CodeString() [3/4]

```
gdcm::CodeString::CodeString (
            const value_type * s,
            size_type n)  [inline]
```

12.56.3.4 CodeString() [4/4]

```
gdcm::CodeString::CodeString (
            const InternalClass & s,
            size_type pos = 0,
            size_type n = InternalClass::npos)  [inline]
```

12.56.4 Member Function Documentation

12.56.4.1 GetAsString()

```
std::string gdcm::CodeString::GetAsString () const  [inline]
```

Return the full code string as std::string.

12.56.4.2 IsValid()

```
bool gdcm::CodeString::IsValid () const
```

Check if CodeString obj is correct..

12.56.4.3 Size()

```
size_type gdcm::CodeString::Size () const  [inline]
```

Return the size of the string.

12.56.4.4 TrimInternal()

```
std::string gdcm::CodeString::TrimInternal () const  [inline], [protected]
```

12.56.5 Friends And Related Symbol Documentation

12.56.5.1 operator"!=

```
bool operator!= (
            const CodeString & ref,
            const CodeString & cs)  [friend]
```

References CodeString().

12.56.5.2 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const CodeString & str)  [friend]
```

References CodeString().

12.56.5.3 operator==

```
bool operator== (
            const CodeString & ref,
            const CodeString & cs)  [friend]
```

References CodeString().

The documentation for this class was generated from the following file:

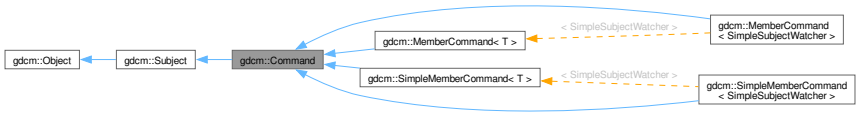
- gdcmCodeString.h

12.57 gdcm::Command Class Reference

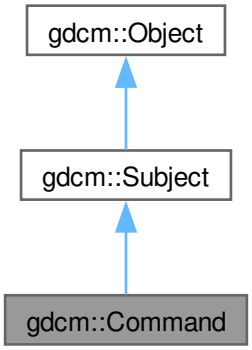
Command superclass for callback/observer methods.

```
#include <gdcmCommand.h>
```

Inheritance diagram for gdcm::Command:



Collaboration diagram for gdcm::Command:



Public Member Functions

- Command (const Command &)=delete
- virtual void Execute (const Subject *caller, const Event &event)=0
- virtual void Execute (Subject *caller, const Event &event)=0

  Abstract method that defines the action to be taken by the command.
- void operator= (const Command &)=delete

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Protected Member Functions

- Command ()
- ~Command () override

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.57.1 Detailed Description

Command superclass for callback/observer methods.

See also

Subject

12.57.2 Constructor & Destructor Documentation

12.57.2.1 Command() [1/2]

```
gdcm::Command::Command (
            const Command & )  [delete]
```

References Command().

Referenced by Command(), and operator=().

12.57.2.2 Command() [2/2]

```
gdcm::Command::Command ()  [protected]
```

12.57.2.3 ~Command()

```
gdcm::Command::~Command ()  [override], [protected]
```

12.57.3 Member Function Documentation

12.57.3.1 Execute() [1/2]

```
virtual void gdcm::Command::Execute (
            const Subject * caller,
            const Event & event)  [pure virtual]
```

Abstract method that defines the action to be taken by the command. This variant is expected to be used when requests comes from a const Object

Implemented in gdcm::MemberCommand< T >, gdcm::MemberCommand< SimpleSubjectWatcher >, gdcm::SimpleMemberCommand<
and gdcm::SimpleMemberCommand< SimpleSubjectWatcher >.

References gdcm::Subject::Subject().

12.57.3.2 Execute() [2/2]

```
virtual void gdcm::Command::Execute (
            Subject * caller,
            const Event & event)  [pure virtual]
```

Abstract method that defines the action to be taken by the command.

Implemented in gdcm::MemberCommand< T >, gdcm::MemberCommand< SimpleSubjectWatcher >, gdcm::SimpleMemberCommand<
and gdcm::SimpleMemberCommand< SimpleSubjectWatcher >.

References gdcm::Subject::Subject().

12.57.3.3 operator=()

```
void gdcm::Command::operator= (
            const Command & )  [delete]
```

References Command().

The documentation for this class was generated from the following file:

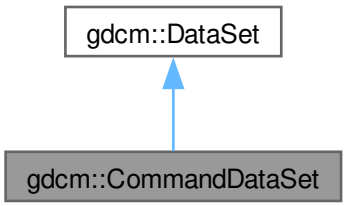
- gdcmCommand.h

12.58 gdcm::CommandDataSet Class Reference

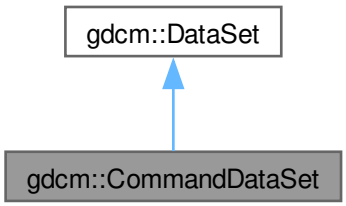
Class to represent a Command DataSet.

`#include <gdcmCommandDataSet.h>`

Inheritance diagram for gdcm::CommandDataSet:



Collaboration diagram for gdcm::CommandDataSet:



Public Member Functions

- CommandDataSet ()=default
- ~CommandDataSet ()=default
- void Insert (const DataElement &de)
- std::istream & Read (std::istream &is)

  Read.
- void Replace (const DataElement &de)
- std::ostream & Write (std::ostream &os) const

  Write.

Public Member Functions inherited from gdcm::DataSet

- Iterator Begin ()
- ConstIterator Begin () const
- void Clear ()
- template<typename TDE>
  unsigned int ComputeGroupLength (Tag const &tag) const
- Iterator End ()
- ConstIterator End () const
- bool FindDataElement (const PrivateTag &t) const

  Look up if private tag 't' is present in the dataset:
- bool FindDataElement (const Tag &t) const
- const DataElement & FindNextDataElement (const Tag &t) const
- const DataElement & GetDataElement (const PrivateTag &t) const

  Return the dataelement.
- const DataElement & GetDataElement (const Tag &t) const
- DataElementSet & GetDES ()
- const DataElementSet & GetDES () const
- template<typename TDE>
  VL GetLength () const
- MediaStorage GetMediaStorage () const
- std::string GetPrivateCreator (const Tag &t) const
- PrivateTag GetPrivateTag (const Tag &t) const

  Return the private tag of the private tag 't', private creator will be set to empty if not found.
- void Insert (const DataElement &de)
- bool IsEmpty () const

  Returns if the dataset is empty.
- const DataElement & operator() (uint16_t group, uint16_t element) const
- DataSet & operator= (DataSet const &)=default
- const DataElement & operator[ ] (const Tag &t) const
- void Print (std::ostream &os, std::string const &indent="") const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadNested (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedPrivateTags (std::istream &is, const std::set< PrivateTag > &tags, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedPrivateTagsWithLength (std::istream &is, const std::set< PrivateTag > &tags, VL &length, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedTags (std::istream &is, const std::set< Tag > &tags, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedTagsWithLength (std::istream &is, const std::set< Tag > &tags, VL &length, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadUpToTag (std::istream &is, const Tag &t, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadUpToTagWithLength (std::istream &is, const Tag &t, std::set< Tag > const &skiptags, VL &length)

- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- SizeType Remove (const Tag &tag)

  Completely remove a dataelement from the dataset.
- void Replace (const DataElement &de)

  Replace a dataelement with another one.
- void ReplaceEmpty (const DataElement &de)

  Only replace a DICOM attribute when it is missing or empty.
- SizeType Size () const
- template<typename TDE, typename TSwap>
  std::ostream const & Write (std::ostream &os) const

Friends

- std::ostream & operator<< (std::ostream &_os, const CommandDataSet &_val)

Additional Inherited Members

Public Types inherited from gdcm::DataSet

- typedef DataElementSet::const_iterator ConstIterator
- typedef std::set< DataElement > DataElementSet
- typedef DataElementSet::iterator Iterator
- typedef DataElementSet::size_type SizeType

Protected Member Functions inherited from gdcm::DataSet

- Tag ComputeDataElement (const PrivateTag &t) const
- const DataElement & GetDEEnd () const
- void InsertDataElement (const DataElement &de)

12.58.1 Detailed Description

Class to represent a Command DataSet.

See also

DataSet

12.58.2 Constructor & Destructor Documentation

12.58.2.1 CommandDataSet()

```
gdcm::CommandDataSet::CommandDataSet ()  [default]
```

Referenced by ~CommandDataSet(), and operator<<.

12.58.2.2 ~CommandDataSet()

```
gdcm::CommandDataSet::~CommandDataSet ()  [default]
```

References CommandDataSet(), and operator<<.

12.58.3 Member Function Documentation

12.58.3.1 Insert()

```
void gdcm::CommandDataSet::Insert (
            const DataElement & de)  [inline]
```

References gdcmErrorMacro, gdcm::Tag::GetGroup(), gdcm::DataElement::GetTag(), and gdcm::DataSet::InsertDataElement().

Referenced by Replace().

12.58.3.2 Read()

```
std::istream & gdcm::CommandDataSet::Read (
            std::istream & is)
```

Read.

12.58.3.3 Replace()

```
void gdcm::CommandDataSet::Replace (
            const DataElement & de)  [inline]
```

References gdcm::DataElement::GetTag(), Insert(), and gdcm::DataSet::Remove().

12.58.3.4 Write()

```
std::ostream & gdcm::CommandDataSet::Write (
            std::ostream & os) const
```

Write.

12.58.4 Friends And Related Symbol Documentation

12.58.4.1 operator<<

```
std::ostream & operator<< (
             std::ostream & _os,
             const CommandDataSet & _val)  [friend]
```

References CommandDataSet(), and gdcm::DataSet::Print().

Referenced by ~CommandDataSet().

The documentation for this class was generated from the following file:

- gdcmCommandDataSet.h

12.59 gdcm::network::CompositeMessageFactory Class Reference

CompositeMessageFactory.

```
#include <gdcmCompositeMessageFactory.h>
```

Static Public Member Functions

- static std::vector< PresentationDataValue > ConstructCEchoRQ (const ULConnection &inConnection)
- static std::vector< PresentationDataValue > ConstructCFindRQ (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)
- static std::vector< PresentationDataValue > ConstructCMoveRQ (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)
- static std::vector< PresentationDataValue > ConstructCStoreRQ (const ULConnection &inConnection, const File &file, bool writeDataSet=true)
- static std::vector< PresentationDataValue > ConstructCStoreRSP (const DataSet *inDataSet, const BasePDU *inPC)

12.59.1 Detailed Description

CompositeMessageFactory.

This class constructs PDataPDUs, but that have been specifically constructed for the composite DICOM services (C-Echo, C-Find, C-Get, C-Move, and C-Store). It will also handle parsing the incoming data to determine which of the CompositePDUs the incoming data is, and so therefore allowing the scu to determine what to do with incoming data (if acting as a storescp server, for instance).

12.59.2 Member Function Documentation

12.59.2.1 ConstructCEchoRQ()

```
std::vector< PresentationDataValue > gdcm::network::CompositeMessageFactory::ConstructCEchoRQ (
            const ULConnection & inConnection)  [static]
```

12.59.2.2 ConstructCFindRQ()

```
std::vector< PresentationDataValue > gdcm::network::CompositeMessageFactory::ConstructCFindRQ (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery)  [static]
```

12.59.2.3 ConstructCMoveRQ()

```
std::vector< PresentationDataValue > gdcm::network::CompositeMessageFactory::ConstructCMoveRQ (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery)  [static]
```

12.59.2.4 ConstructCStoreRQ()

```
std::vector< PresentationDataValue > gdcm::network::CompositeMessageFactory::ConstructCStoreRQ (
            const ULConnection & inConnection,
            const File & file,
            bool writeDataSet = true)  [static]
```

12.59.2.5 ConstructCStoreRSP()

```
std::vector< PresentationDataValue > gdcm::network::CompositeMessageFactory::ConstructCStoreRSP (
            const DataSet * inDataSet,
            const BasePDU * inPC)  [static]
```

The documentation for this class was generated from the following file:

- gdcmCompositeMessageFactory.h

12.60 gdcm::CompositeNetworkFunctions Class Reference

Composite Network Functions.

```
#include <gdcmCompositeNetworkFunctions.h>
```

Public Types

- typedef std::vector< KeyValuePairType > KeyValuePairArrayType
- typedef std::pair< Tag, std::string > KeyValuePairType

Static Public Member Functions

- static bool CEcho (const char *remote, uint16_t portno, const char *aetitle=nullptr, const char *call=nullptr)
- static bool CFind (const char *remote, uint16_t portno, const BaseRootQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle=nullptr, const char *call=nullptr)
- static bool CMove (const char *remote, uint16_t portno, const BaseRootQuery *query, uint16_t portscp, const char *aetitle=nullptr, const char *call=nullptr, const char *outputdir=nullptr)
- static BaseRootQuery * ConstructQuery (ERootType inRootType, EQueryLevel inQueryLevel, const DataSet &queryds, EQueryType queryType=eFind)
- static BaseRootQuery * ConstructQuery (ERootType inRootType, EQueryLevel inQueryLevel, const KeyValuePairArrayType &keys, EQueryType queryType=eFind)
- static bool CStore (const char *remote, uint16_t portno, const Directory::FilenamesType &filenames, const char *aetitle=nullptr, const char *call=nullptr)

12.60.1 Detailed Description

Composite Network Functions.

These functions provide a generic API to the DICOM functions implemented in GDCM. Advanced users can use this code as a template for building their own versions of these functions (for instance, to provide progress bars or some other way of handling returned query information), but for most users, these functions should be sufficient to interface with a PACS to a local machine. Note that these functions are not contained within a static class or some other class-style interface, because multiple connections can be instantiated in the same program. The DICOM standard is much more function oriented rather than class oriented in this instance, so the design of this API reflects that functional approach. These functions implements the following SCU operations:

- C-ECHO SCU
- C-FIND SCU
- C-STORE SCU
- C-MOVE SCU (+internal C-STORE SCP)

Examples

SendFileSCU.cs.

12.60.2 Member Typedef Documentation

12.60.2.1 KeyValuePairArrayType

```
typedef std::vector< KeyValuePairType > gdcm::CompositeNetworkFunctions::KeyValuePairArrayType
```

12.60.2.2 KeyValuePairType

```
typedef std::pair<Tag, std::string> gdcm::CompositeNetworkFunctions::KeyValuePairType
```

12.60.3 Member Function Documentation

12.60.3.1 CEcho()

```
bool gdcm::CompositeNetworkFunctions::CEcho (
            const char * remote,
            uint16_t portno,
            const char * aetitle = nullptr,
            const char * call = nullptr)  [static]
```

The most basic network function. Use this function to ensure that the remote server is responding on the given IP and port number as expected.

Parameters

aetitle	when not set will default to 'GDCMSCU'
call	when not set will default to 'ANY-SCP'

Warning

This is an error to set remote to NULL or portno to 0

Returns

true if it worked.

Examples

SendFileSCU.cs.

12.60.3.2 CFind()

```
bool gdcm::CompositeNetworkFunctions::CFind (
            const char * remote,
            uint16_t portno,
            const BaseRootQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle = nullptr,
            const char * call = nullptr)  [static]
```

This function will use the provided query to determine what files a remote server contains that match the query strings. The return is a vector of datasets that contain tags as reported by the server. If the dataset is empty, then it is possible that an error condition was encountered; in which case, the user should monitor the error and warning streams.

Parameters

aetitle	when not set will default to 'GDCMSCU'
call	when not set will default to 'ANY-SCP'

Warning

This is an error to set remote to NULL or portno to 0

Returns

true if it worked.

12.60.3.3 CMove()

```
bool gdcm::CompositeNetworkFunctions::CMove (
            const char * remote,
            uint16_t portno,
            const BaseRootQuery * query,
            uint16_t portscp,
            const char * aetitle = nullptr,
            const char * call = nullptr,
            const char * outputdir = nullptr)  [static]
```

This function will use the provided query to get files from a remote server. NOTE that this functionality is essentially equivalent to C-GET in the DICOM standard; however, C-GET has been deprecated, so this function allows for the user to ask a remote server for files matching a query and return them to the local machine. Files will be written to the given output directory. If the operation succeeds, the function returns true. This function is a prime candidate for being overwritten by expert users; if the datasets should remain in memory, for instance, that behavior can be changed by creating a user-level version of this function.

Parameters

aetitle	when not set will default to 'GDCMSCU'
call	when not set will default to 'ANY-SCP' This is an error to set remote to NULL or portno to 0 when
outputdir	is not set default to current dir ('.')

Returns

true if it worked.

12.60.3.4 ConstructQuery() [1/2]

```
BaseRootQuery * gdcm::CompositeNetworkFunctions::ConstructQuery (
            ERootType inRootType,
            EQueryLevel inQueryLevel,
            const DataSet & queryds,
            EQueryType queryType = eFind)  [static]
```

This function will take a list of strings and tags and fill in a query that can be used for either CFind or CMove (depending on the input boolean

Parameters

inMove).	Note that the caller is responsible for deleting the constructed query. This function is used to build both a move and a find query (true for inMove if it's move, false if it's find)

References gdcm::eFind.

12.60.3.5 ConstructQuery() [2/2]

```
BaseRootQuery * gdcm::CompositeNetworkFunctions::ConstructQuery (
            ERootType inRootType,
            EQueryLevel inQueryLevel,
            const KeyValuePairArrayType & keys,
            EQueryType queryType = eFind)  [static]
```

Deprecated

References gdcm::eFind.

12.60.3.6 CStore()

```
bool gdcm::CompositeNetworkFunctions::CStore (
            const char * remote,
            uint16_t portno,
            const Directory::FilenamesType & filenames,
            const char * aetitle = nullptr,
            const char * call = nullptr)  [static]
```

This function will place the provided files into the remote server. The function returns true if it worked for all files.

Warning

the server side can refuse an association on a given file

Parameters

aetitle	when not set will default to 'GDCMSCU'
call	when not set will default to 'ANY-SCP'

Warning

This is an error to set remote to NULL or portno to 0

Returns

true if it worked for all files

Examples

SendFileSCU.cs.

The documentation for this class was generated from the following file:

- gdcmCompositeNetworkFunctions.h

12.61 gdcm::ConstCharWrapper Class Reference

Do not use me.

`#include <gdcmConstCharWrapper.h>`

Public Member Functions

- ConstCharWrapper (const char *i=0)
- operator const char * () const

12.61.1 Detailed Description

Do not use me.

12.61.2 Constructor & Destructor Documentation

12.61.2.1 ConstCharWrapper()

```
gdcm::ConstCharWrapper::ConstCharWrapper (
            const char * i = 0)  [inline]
```

12.61.3 Member Function Documentation

12.61.3.1 operator const char *()

```
gdcm::ConstCharWrapper::operator const char * () const  [inline]
```

The documentation for this class was generated from the following file:

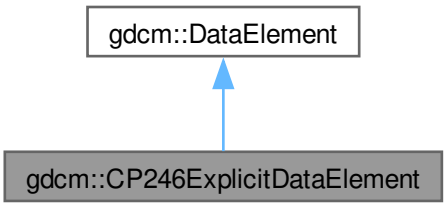
- gdcmConstCharWrapper.h

12.62 gdcm::CP246ExplicitDataElement Class Reference

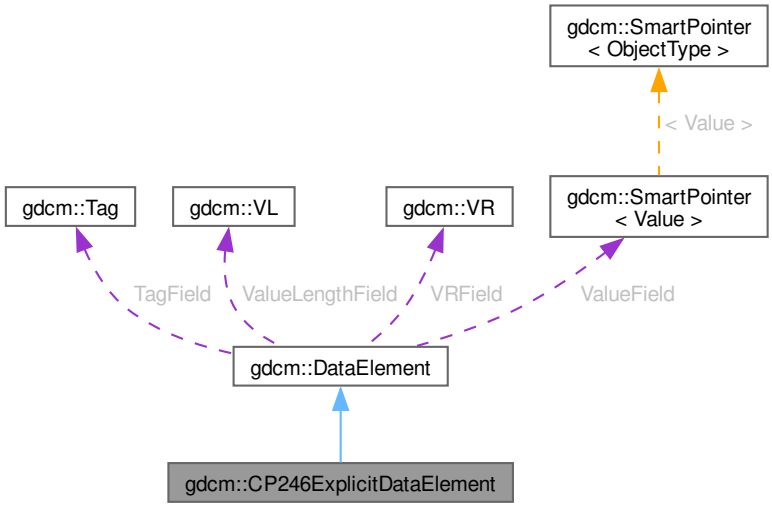
Class to read/write a DataElement as CP246Explicit Data Element.

`#include <gdcmCP246ExplicitDataElement.h>`

Inheritance diagram for gdcm::CP246ExplicitDataElement:



Collaboration diagram for gdcm::CP246ExplicitDataElement:



Public Member Functions

- VL GetLength () const

- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)

- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.62.1 Detailed Description

Class to read/write a DataElement as CP246Explicit Data Element.

Note

Some system are producing SQ, declare them as UN, but encode the SQ as 'Explicit' instead of Implicit

12.62.2 Member Function Documentation

12.62.2.1 GetLength()

```
VL gdcm::CP246ExplicitDataElement::GetLength () const
```

12.62.2.2 Read()

```
template<typename TSwap>
std::istream & gdcm::CP246ExplicitDataElement::Read (
             std::istream & is)
```

12.62.2.3 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::CP246ExplicitDataElement::ReadPreValue (
             std::istream & is)
```

12.62.2.4 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::CP246ExplicitDataElement::ReadValue (
             std::istream & is,
             bool readvalues = true)
```

12.62.2.5 ReadWithLength()

```
template<typename TSwap>
std::istream & gdcm::CP246ExplicitDataElement::ReadWithLength (
             std::istream & is,
             VL & length)
```

The documentation for this class was generated from the following file:

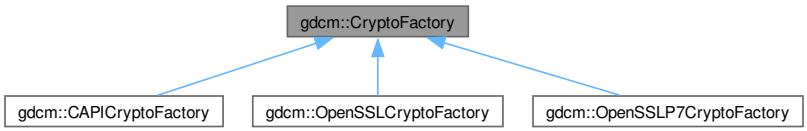
- gdcmCP246ExplicitDataElement.h

12.63 gdcm::CryptoFactory Class Reference

Class to do handle the crypto factory.

`#include <gdcmCryptoFactory.h>`

Inheritance diagram for gdcm::CryptoFactory:



Public Types

- enum CryptoLib {
  DEFAULT = 0 ,
  OPENSSL = 1 ,
  CAPI = 2 ,
  OPENSSLP7 = 3 }

Public Member Functions

- virtual CryptographicMessageSyntax * CreateCMSProvider ()=0

Static Public Member Functions

- static CryptoFactory * GetFactoryInstance (CryptoLib id=DEFAULT)

Protected Member Functions

- CryptoFactory ()=default
- CryptoFactory (CryptoLib id)
- ~CryptoFactory ()=default

12.63.1 Detailed Description

Class to do handle the crypto factory.

GDCM needs to access in a platform independent way the user specified crypto engine. It can be:

- CAPI (windows only)
- OPENSSL (portable)
- OPENSSLP7 (portable) By default the factory will try: CAPI if on windows OPENSSL if possible OPENSSLP7 when older OpenSSL is used.

12.63.2 Member Enumeration Documentation

12.63.2.1 CryptoLib

`enum gdcm::CryptoFactory::CryptoLib`

Enumerator

DEFAULT	
OPENSSL	
CAPI	
OPENSSLP7	

12.63.3 Constructor & Destructor Documentation

12.63.3.1 CryptoFactory() [1/2]

```
gdcm::CryptoFactory::CryptoFactory (
            CryptoLib id)  [inline], [protected]
```

Referenced by gdcm::OpenSSLCryptoFactory::OpenSSLCryptoFactory(), gdcm::OpenSSLP7CryptoFactory::OpenSSLP7CryptoFactory() and GetFactoryInstance().

12.63.3.2 CryptoFactory() [2/2]

```
gdcm::CryptoFactory::CryptoFactory ()  [protected], [default]
```

12.63.3.3 ~CryptoFactory()

```
gdcm::CryptoFactory::~CryptoFactory ()  [protected], [default]
```

12.63.4 Member Function Documentation

12.63.4.1 CreateCMSProvider()

```
virtual CryptographicMessageSyntax * gdcm::CryptoFactory::CreateCMSProvider ()  [pure virtual]
```

Implemented in gdcm::CAPICryptoFactory, gdcm::OpenSSLCryptoFactory, and gdcm::OpenSSLP7CryptoFactory.

Examples

BasicAnonymizer.cs, and ClinicalTrialIdentificationWorkflow.cs.

12.63.4.2 GetFactoryInstance()

```
CryptoFactory * gdcm::CryptoFactory::GetFactoryInstance (
            CryptoLib id = DEFAULT)  [static]
```

References CryptoFactory(), and DEFAULT.

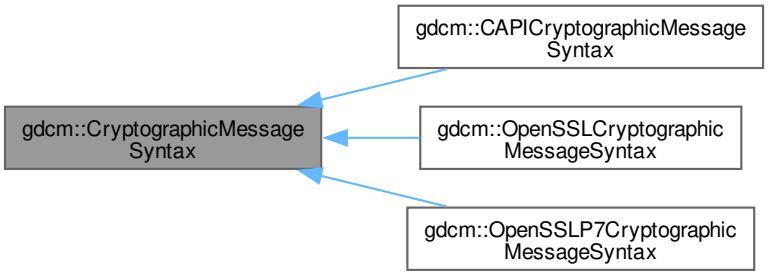
The documentation for this class was generated from the following file:

- gdcmCryptoFactory.h

12.64 gdcm::CryptographicMessageSyntax Class Reference

`#include <gdcmCryptographicMessageSyntax.h>`

Inheritance diagram for gdcm::CryptographicMessageSyntax:



Public Types

- enum CipherTypes {
  DES3_CIPHER ,
  AES128_CIPHER ,
  AES192_CIPHER ,
  AES256_CIPHER }

Public Member Functions

- CryptographicMessageSyntax ()=default
- CryptographicMessageSyntax (const CryptographicMessageSyntax &)=delete
- virtual ~CryptographicMessageSyntax ()=default
- virtual bool Decrypt (char *output, size_t &outlen, const char *array, size_t len) const =0
  decrypt content from a CMS envelopedData structure
- virtual bool Encrypt (char *output, size_t &outlen, const char *array, size_t len) const =0
  create a CMS envelopedData structure
- virtual CipherTypes GetCipherType () const =0
- void operator= (const CryptographicMessageSyntax &)=delete
- virtual bool ParseCertificateFile (const char *filename)=0
- virtual bool ParseKeyFile (const char *filename)=0
- virtual void SetCipherType (CipherTypes type)=0
- virtual bool SetPassword (const char *pass, size_t passLen)=0

12.64.1 Member Enumeration Documentation

12.64.1.1 CipherTypes

`enum gdcm::CryptographicMessageSyntax::CipherTypes`

Enumerator

DES3_CIPHER	
AES128_CIPHER	
AES192_CIPHER	
AES256_CIPHER	

12.64.2 Constructor & Destructor Documentation

12.64.2.1 CryptographicMessageSyntax() [1/2]

```
gdcm::CryptographicMessageSyntax::CryptographicMessageSyntax ()  [default]
```

Referenced by CryptographicMessageSyntax(), and operator=().

12.64.2.2 ~CryptographicMessageSyntax()

```
virtual gdcm::CryptographicMessageSyntax::~CryptographicMessageSyntax ()  [virtual], [default]
```

12.64.2.3 CryptographicMessageSyntax() [2/2]

```
gdcm::CryptographicMessageSyntax::CryptographicMessageSyntax (
            const CryptographicMessageSyntax & )  [delete]
```

References CryptographicMessageSyntax().

12.64.3 Member Function Documentation

12.64.3.1 Decrypt()

```
virtual bool gdcm::CryptographicMessageSyntax::Decrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len) const  [pure virtual]
```

decrypt content from a CMS envelopedData structure

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

12.64.3.2 Encrypt()

```
virtual bool gdcm::CryptographicMessageSyntax::Encrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len) const  [pure virtual]
```

create a CMS envelopedData structure

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

12.64.3.3 GetCipherType()

```
virtual CipherTypes gdcm::CryptographicMessageSyntax::GetCipherType () const  [pure virtual]
```

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

12.64.3.4 operator=()

```
void gdcm::CryptographicMessageSyntax::operator= (
            const CryptographicMessageSyntax & )  [delete]
```

References CryptographicMessageSyntax().

12.64.3.5 ParseCertificateFile()

```
virtual bool gdcm::CryptographicMessageSyntax::ParseCertificateFile (
            const char * filename)  [pure virtual]
```

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

Examples

BasicAnonymizer.cs, and ClinicalTrialIdentificationWorkflow.cs.

12.64.3.6 ParseKeyFile()

```
virtual bool gdcm::CryptographicMessageSyntax::ParseKeyFile (
            const char * filename)  [pure virtual]
```

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

12.64.3.7 SetCipherType()

```
virtual void gdcm::CryptographicMessageSyntax::SetCipherType (
            CipherTypes type)  [pure virtual]
```

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

12.64.3.8 SetPassword()

```
virtual bool gdcm::CryptographicMessageSyntax::SetPassword (
            const char * pass,
            size_t passLen)  [pure virtual]
```

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

The documentation for this class was generated from the following file:

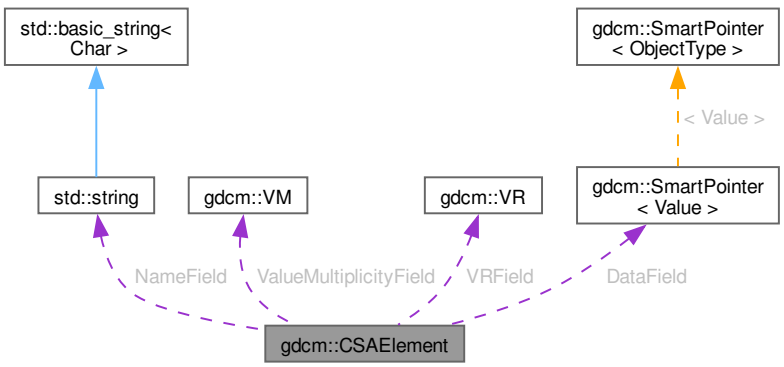
- gdcmCryptographicMessageSyntax.h

12.65 gdcm::CSAElement Class Reference

Class to represent a CSA Element.

```
#include <gdcmCSAElement.h>
```

Collaboration diagram for gdcm::CSAElement:



Public Member Functions

- CSAElement (const CSAElement &_val)
- CSAElement (unsigned int kf=0)
- const ByteValue * GetByteValue () const
- unsigned int GetKey () const

  Set/Get Key.
- const char * GetName () const

  Set/Get Name.
- unsigned int GetNoOfItems () const

  Set/Get NoOfItems.
- unsigned int GetSyngoDT () const

  Set/Get SyngoDT.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- const VM & GetVM () const

  Set/Get VM.
- VR const & GetVR () const

  Set/Get VR.
- bool IsEmpty () const

  Check if CSA Element is empty.
- bool operator< (const CSAElement &de) const
- CSAElement & operator= (const CSAElement &de)=default
- bool operator== (const CSAElement &de) const
- void SetByteValue (const char *array, VL length)

  Set.
- void SetKey (unsigned int key)
- void SetName (const char *name)
- void SetNoOfItems (unsigned int items)
- void SetSyngoDT (unsigned int syngodt)
- void SetValue (Value const &vl)
- void SetVM (const VM &vm)
- void SetVR (VR const &vr)

Protected Types

- typedef SmartPointer< Value > DataPtr

Protected Attributes

- DataPtr DataField
- unsigned int KeyField
- std::string NameField
- unsigned int NoOfItemsField
- unsigned int SyngoDTField
- VM ValueMultiplicityField
- VR VRField

Friends

- std::ostream & operator<< (std::ostream &os, const CSAElement &val)

12.65.1 Detailed Description

Class to represent a CSA Element.

See also

CSAHeader

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, MrProtocol.cxx, and csa2img.cxx.

12.65.2 Member Typedef Documentation

12.65.2.1 DataPtr

```
typedef SmartPointer<Value> gdcm::CSAElement::DataPtr  [protected]
```

12.65.3 Constructor & Destructor Documentation

12.65.3.1 CSAElement() [1/2]

```
gdcm::CSAElement::CSAElement (
            unsigned int kf = 0)  [inline]
```

References KeyField.

Referenced by CSAElement(), operator<(), operator<<, operator=(), and operator==().

12.65.3.2 CSAElement() [2/2]

```
gdcm::CSAElement::CSAElement (
            const CSAElement & _val)  [inline]
```

References CSAElement().

12.65.4 Member Function Documentation

12.65.4.1 GetByteValue()

```
const ByteValue * gdcm::CSAElement::GetByteValue () const  [inline]
```

Return the Value of CSAElement as a ByteValue (if possible)

Warning

: You need to check for NULL return value

Examples

DumpSiemensBase64.cxx, and MrProtocol.cxx.

References DataField.

12.65.4.2 GetKey()

```
unsigned int gdcm::CSAElement::GetKey () const  [inline]
```

Set/Get Key.

References KeyField.

Referenced by operator<().

12.65.4.3 GetName()

```
const char * gdcm::CSAElement::GetName () const  [inline]
```

Set/Get Name.

References NameField.

12.65.4.4 GetNoOfItems()

```
unsigned int gdcm::CSAElement::GetNoOfItems () const  [inline]
```

Set/Get NoOfItems.

References NoOfItemsField.

12.65.4.5 GetSyngoDT()

```
unsigned int gdcm::CSAElement::GetSyngoDT () const  [inline]
```

Set/Get SyngoDT.

References SyngoDTField.

12.65.4.6 GetValue() [1/2]

```
Value & gdcm::CSAElement::GetValue ()  [inline]
```

References DataField.

12.65.4.7 GetValue() [2/2]

```
Value const & gdcm::CSAElement::GetValue () const  [inline]
```

Set/Get Value (bytes array, SQ of items, SQ of fragments):

Examples

csa2img.cxx.

References DataField.

12.65.4.8 GetVM()

```
const VM & gdcm::CSAElement::GetVM () const  [inline]
```

Set/Get VM.

References ValueMultiplicityField.

12.65.4.9 GetVR()

```
VR const & gdcm::CSAElement::GetVR () const  [inline]
```

Set/Get VR.

References VRField.

12.65.4.10 IsEmpty()

```
bool gdcm::CSAElement::IsEmpty () const  [inline]
```

Check if CSA Element is empty.

Examples

csa2img.cxx.

References DataField.

12.65.4.11 operator<()

```
bool gdcm::CSAElement::operator< (
            const CSAElement & de) const  [inline]
```

References CSAElement(), and GetKey().

12.65.4.12 operator=()

```
CSAElement & gdcm::CSAElement::operator= (
            const CSAElement & de)  [default]
```

References CSAElement().

12.65.4.13 operator==()

```
bool gdcm::CSAElement::operator== (
            const CSAElement & de) const  [inline]
```

References CSAElement(), KeyField, NameField, SyngoDTField, ValueMultiplicityField, and VRField.

12.65.4.14 SetByteValue()

```
void gdcm::CSAElement::SetByteValue (
            const char * array,
            VL length)  [inline]
```

Set.

References SetValue().

12.65.4.15 SetKey()

```
void gdcm::CSAElement::SetKey (
            unsigned int key)  [inline]
```

References KeyField.

12.65.4.16 SetName()

```
void gdcm::CSAElement::SetName (
            const char * name)  [inline]
```

References NameField.

12.65.4.17 SetNoOfItems()

```
void gdcm::CSAElement::SetNoOfItems (
            unsigned int items)  [inline]
```

References NoOfItemsField.

12.65.4.18 SetSyngoDT()

```
void gdcm::CSAElement::SetSyngoDT (
            unsigned int syngodt)  [inline]
```

References SyngoDTField.

12.65.4.19 SetValue()

```
void gdcm::CSAElement::SetValue (
            Value const & vl)  [inline]
```

References DataField.

Referenced by SetByteValue().

12.65.4.20 SetVM()

```
void gdcm::CSAElement::SetVM (
            const VM & vm)  [inline]
```

References ValueMultiplicityField.

12.65.4.21 SetVR()

```
void gdcm::CSAElement::SetVR (
            VR const & vr)  [inline]
```

References VRField.

12.65.5 Friends And Related Symbol Documentation

12.65.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const CSAElement & val)  [friend]
```

References CSAElement(), DataField, gdcm::ByteValue::GetLength(), gdcm::ByteValue::GetPointer(), KeyField, NameField, NoOfItemsField, SyngoDTField, ValueMultiplicityField, gdcm::VM::VM1, and VRField.

12.65.6 Member Data Documentation

12.65.6.1 DataField

```
DataPtr gdcm::CSAElement::DataField  [protected]
```

Referenced by GetByteValue(), GetValue(), GetValue(), IsEmpty(), operator<<, and SetValue().

12.65.6.2 KeyField

```
unsigned int gdcm::CSAElement::KeyField  [protected]
```

Referenced by CSAElement(), GetKey(), operator<<, operator==(), and SetKey().

12.65.6.3 NameField

```
std::string gdcm::CSAElement::NameField  [protected]
```

Referenced by GetName(), operator<<, operator==(), and SetName().

12.65.6.4 NoOfItemsField

```
unsigned int gdcm::CSAElement::NoOfItemsField  [protected]
```

Referenced by GetNoOfItems(), operator<<, and SetNoOfItems().

12.65.6.5 SyngoDTField

```
unsigned int gdcm::CSAElement::SyngoDTField  [protected]
```

Referenced by GetSyngoDT(), operator<<, operator==(), and SetSyngoDT().

12.65.6.6 ValueMultiplicityField

```
VM gdcm::CSAElement::ValueMultiplicityField  [protected]
```

Referenced by GetVM(), operator<<, operator==(), and SetVM().

12.65.6.7 VRField

```
VR gdcm::CSAElement::VRField  [protected]
```

Referenced by GetVR(), operator<<, operator==(), and SetVR().

The documentation for this class was generated from the following file:

- gdcmCSAElement.h

12.66 gdcm::CSAHeader Class Reference

Class for CSAHeader.

```
#include <gdcmCSAHeader.h>
```

Public Types

- enum CSAHeaderType {
  UNKNOWN = 0 ,
  SV10 ,
  NOMAGIC ,
  DATASET_FORMAT ,
  INTERFILE ,
  ZEROED_OUT }

  Diverse format of CSAHeader as found 'in the wild'.

Public Member Functions

- CSAHeader ()
- ~CSAHeader ()=default
- bool FindCSAElementByName (const char *name)
- const CSAElement & GetCSAElementByName (const char *name)
- const DataSet & GetDataSet () const

  Return the DataSet output (use only if Format == DATASET_FORMAT).
- CSAHeaderType GetFormat () const
- const char * GetInterfile () const

  Return the string output (use only if Format == Interfile).
- bool GetMrProtocol (const DataSet &ds, MrProtocol &mrProtocol)

  Retrieve the ASCII portion stored within the MrProtocol/MrPhoenixProtocol:
- bool LoadFromDataElement (DataElement const &de)

  Decode the CSAHeader from element 'de'.
- void Print (std::ostream &os) const

  Print the CSAHeader (use only if Format == SV10 or NOMAGIC).

Static Public Member Functions

- static const PrivateTag & GetCSADataInfo ()
- static const PrivateTag & GetCSAImageHeaderInfoTag ()
- static const PrivateTag & GetCSASeriesHeaderInfoTag ()

Protected Member Functions

- const CSAElement & GetCSAEEnd () const

Friends

- std::ostream & operator<< (std::ostream &_os, const CSAHeader &d)

12.66.1 Detailed Description

Class for CSAHeader.

SIEMENS store private information in tag (0x0029,0x10,"SIEMENS CSA HEADER") this class is meant for user wishing to access values stored within this private attribute. There are basically two main 'format' for this attribute : SV10/↩ NOMAGIC and DATASET_FORMAT SV10 and NOMAGIC are from a user prospective identical, see CSAHeader.xml for possible name / value stored in this format. DATASET_FORMAT is in fact simply just another DICOM dataset (implicit) with -currently unknown- value. This can be only be printed for now.

Warning

Everything you do with this code is at your own risk, since decoding process was not written from specification documents.

the API of this class might change.

Todo MrEvaProtocol in 29,1020 contains ^M that would be nice to get rid of on UNIX system...

See also

PDBHeader

External references: 5.1.3.2.4.1 MEDCOM History Information and 5.1.4.3 CSA Non-Image Module in `http://tamsinfo.toshiba.com/docrequest/pdf/E.Soft_v2.0.pdf`

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, MrProtocol.cxx, and csa2img.cxx.

12.66.2 Member Enumeration Documentation

12.66.2.1 CSAHeaderType

`enum gdcm::CSAHeader::CSAHeaderType`

Diverse format of CSAHeader as found 'in the wild'.

Enumerator

UNKNOWN	
SV10	
NOMAGIC	
DATASET_FORMAT	
INTERFILE	
ZEROED_OUT	

12.66.3 Constructor & Destructor Documentation

12.66.3.1 CSAHeader()

`gdcm::CSAHeader::CSAHeader () [inline]`

References UNKNOWN.

Referenced by operator<<.

12.66.3.2 ~CSAHeader()

```
gdcm::CSAHeader::~CSAHeader ()  [default]
```

12.66.4 Member Function Documentation

12.66.4.1 FindCSAElementByName()

```
bool gdcm::CSAHeader::FindCSAElementByName (
            const char * name)
```

Return true if the CSA element matching 'name' is found or not

Warning

Case Sensitive

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, MrProtocol.cxx, and csa2img.cxx.

12.66.4.2 GetCSADataInfo()

```
const PrivateTag & gdcm::CSAHeader::GetCSADataInfo ()  [static]
```

Return the private tag used by SIEMENS to store the CSA Data Info This is: PrivateTag(0x0029,0x10,"SIEMENS CSA NON-IMAGE");

12.66.4.3 GetCSAEEnd()

```
const CSAElement & gdcm::CSAHeader::GetCSAEEnd () const  [protected]
```

12.66.4.4 GetCSAElementByName()

```
const CSAElement & gdcm::CSAHeader::GetCSAElementByName (
            const char * name)
```

Return the CSAElement corresponding to name 'name'

Warning

Case Sensitive

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, MrProtocol.cxx, and csa2img.cxx.

12.66.4.5 GetCSAImageHeaderInfoTag()

```
const PrivateTag & gdcm::CSAHeader::GetCSAImageHeaderInfoTag ()  [static]
```

Return the private tag used by SIEMENS to store the CSA Image Header This is: PrivateTag(0x0029,0x10,"SIEMENS CSA HEADER");

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, PublicDict.cxx, and csa2img.cxx.

12.66.4.6 GetCSASeriesHeaderInfoTag()

```
const PrivateTag & gdcm::CSAHeader::GetCSASeriesHeaderInfoTag ()  [static]
```

Return the private tag used by SIEMENS to store the CSA Series Header This is: PrivateTag(0x0029,0x20,"SIEMENS CSA HEADER");

Examples

MrProtocol.cxx.

12.66.4.7 GetDataSet()

```
const DataSet & gdcm::CSAHeader::GetDataSet () const  [inline]
```

Return the DataSet output (use only if Format == DATASET_FORMAT).

12.66.4.8 GetFormat()

```
CSAHeaderType gdcm::CSAHeader::GetFormat () const
```

return the format of the CSAHeader SV10 and NOMAGIC are equivalent.

12.66.4.9 GetInterfile()

```
const char * gdcm::CSAHeader::GetInterfile () const  [inline]
```

Return the string output (use only if Format == Interfile).

12.66.4.10 GetMrProtocol()

```
bool gdcm::CSAHeader::GetMrProtocol (
            const DataSet & ds,
            MrProtocol & mrProtocol)
```

Retrieve the ASCII portion stored within the MrProtocol/MrPhoenixProtocol:

Examples

MrProtocol.cxx.

12.66.4.11 LoadFromDataElement()

```
bool gdcm::CSAHeader::LoadFromDataElement (
            DataElement const & de)
```

Decode the CSAHeader from element 'de'.

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, MrProtocol.cxx, and csa2img.cxx.

12.66.4.12 Print()

```
void gdcm::CSAHeader::Print (
            std::ostream & os) const
```

Print the CSAHeader (use only if Format == SV10 or NOMAGIC).

Examples

csa2img.cxx.

Referenced by operator<<.

12.66.5 Friends And Related Symbol Documentation

12.66.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const CSAHeader & d)  [friend]
```

References CSAHeader(), and Print().

The documentation for this class was generated from the following file:

- gdcmCSAHeader.h

12.67 gdcm::CSAHeaderDict Class Reference

Class to represent a map of CSAHeaderDictEntry.

`#include <gdcmCSAHeaderDict.h>`

Public Types

- typedef MapCSAHeaderDictEntry::const_iterator ConstIterator
- typedef MapCSAHeaderDictEntry::iterator Iterator
- typedef std::set< CSAHeaderDictEntry > MapCSAHeaderDictEntry

Public Member Functions

- CSAHeaderDict ()
- CSAHeaderDict (const CSAHeaderDict &_val)=delete
- void AddCSAHeaderDictEntry (const CSAHeaderDictEntry &de)
- ConstIterator Begin () const
- ConstIterator End () const
- const CSAHeaderDictEntry & GetCSAHeaderDictEntry (const char *name) const
- bool IsEmpty () const
- CSAHeaderDict & operator= (const CSAHeaderDict &_val)=delete

Protected Member Functions

- void LoadDefault ()

Friends

- class Dicts
- std::ostream & operator<< (std::ostream &_os, const CSAHeaderDict &_val)

12.67.1 Detailed Description

Class to represent a map of CSAHeaderDictEntry.

Examples

MrProtocol.cxx.

12.67.2 Member Typedef Documentation

12.67.2.1 ConstIterator

`typedef MapCSAHeaderDictEntry::const_iterator gdcm::CSAHeaderDict::ConstIterator`

12.67.2.2 Iterator

```
typedef MapCSAHeaderDictEntry::iterator gdcm::CSAHeaderDict::Iterator
```

12.67.2.3 MapCSAHeaderDictEntry

```
typedef std::set<CSAHeaderDictEntry> gdcm::CSAHeaderDict::MapCSAHeaderDictEntry
```

12.67.3 Constructor & Destructor Documentation

12.67.3.1 CSAHeaderDict() [1/2]

```
gdcm::CSAHeaderDict::CSAHeaderDict ()  [inline]
```

Referenced by CSAHeaderDict(), operator<<, and operator=().

12.67.3.2 CSAHeaderDict() [2/2]

```
gdcm::CSAHeaderDict::CSAHeaderDict (
            const CSAHeaderDict & _val)  [delete]
```

References CSAHeaderDict(), and operator<<.

12.67.4 Member Function Documentation

12.67.4.1 AddCSAHeaderDictEntry()

```
void gdcm::CSAHeaderDict::AddCSAHeaderDictEntry (
            const CSAHeaderDictEntry & de)  [inline]
```

12.67.4.2 Begin()

```
ConstIterator gdcm::CSAHeaderDict::Begin () const  [inline]
```

12.67.4.3 End()

```
ConstIterator gdcm::CSAHeaderDict::End () const  [inline]
```

12.67.4.4 GetCSAHeaderDictEntry()

```
const CSAHeaderDictEntry & gdcm::CSAHeaderDict::GetCSAHeaderDictEntry (
            const char * name) const  [inline]
```

Examples

MrProtocol.cxx.

12.67.4.5 IsEmpty()

```
bool gdcm::CSAHeaderDict::IsEmpty () const  [inline]
```

12.67.4.6 LoadDefault()

```
void gdcm::CSAHeaderDict::LoadDefault ()  [protected]
```

12.67.4.7 operator=()

```
CSAHeaderDict & gdcm::CSAHeaderDict::operator= (
            const CSAHeaderDict & _val)  [delete]
```

References CSAHeaderDict().

12.67.5 Friends And Related Symbol Documentation

12.67.5.1 Dicts

```
friend class Dicts  [friend]
```

References Dicts.

Referenced by Dicts.

12.67.5.2 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const CSAHeaderDict & _val)  [friend]
```

References CSAHeaderDict().

Referenced by CSAHeaderDict().

The documentation for this class was generated from the following file:

- gdcmCSAHeaderDict.h

12.68 gdcm::CSAHeaderDictEntry Class Reference

Class to represent an Entry in the Dict.

`#include <gdcmCSAHeaderDictEntry.h>`

Public Member Functions

- CSAHeaderDictEntry (const char *name="", VR const &vr=VR::INVALID, VM const &vm=VM::VM0, const char *desc="")
- const char * GetDescription () const

  Set/Get Description.
- const char * GetName () const

  Set/Get Name.
- const VM & GetVM () const

  Set/Get VM.
- const VR & GetVR () const

  Set/Get VR.
- bool operator< (const CSAHeaderDictEntry &entry) const
- void SetDescription (const char *desc)
- void SetName (const char *name)
- void SetVM (VM const &vm)
- void SetVR (const VR &vr)

Friends

- std::ostream & operator<< (std::ostream &_os, const CSAHeaderDictEntry &_val)

12.68.1 Detailed Description

Class to represent an Entry in the Dict.

Does not really exist within the DICOM definition, just a way to minimize storage and have a mapping from gdcm::Tag to the needed information

Note

bla TODO FIXME: Need a PublicCSAHeaderDictEntry...indeed CSAHeaderDictEntry has a notion of retired which does not exist in PrivateCSAHeaderDictEntry...

See also

gdcm::Dict

Examples

MrProtocol.cxx.

12.68.2 Constructor & Destructor Documentation

12.68.2.1 CSAHeaderDictEntry()

```
gdcm::CSAHeaderDictEntry::CSAHeaderDictEntry (
            const char * name = "",
            VR const & vr = VR::INVALID,
            VM const & vm = VM::VM0,
            const char * desc = "")  [inline]
```

References gdcm::VR::INVALID, and gdcm::VM::VM0.

Referenced by operator<(), and operator<<.

12.68.3 Member Function Documentation

12.68.3.1 GetDescription()

```
const char * gdcm::CSAHeaderDictEntry::GetDescription () const  [inline]
```

Set/Get Description.

12.68.3.2 GetName()

```
const char * gdcm::CSAHeaderDictEntry::GetName () const  [inline]
```

Set/Get Name.

Referenced by operator<().

12.68.3.3 GetVM()

```
const VM & gdcm::CSAHeaderDictEntry::GetVM () const  [inline]
```

Set/Get VM.

12.68.3.4 GetVR()

```
const VR & gdcm::CSAHeaderDictEntry::GetVR () const  [inline]
```

Set/Get VR.

12.68.3.5 operator<()

```
bool gdcm::CSAHeaderDictEntry::operator< (
            const CSAHeaderDictEntry & entry) const  [inline]
```

References CSAHeaderDictEntry(), and GetName().

12.68.3.6 SetDescription()

```
void gdcm::CSAHeaderDictEntry::SetDescription (
            const char * desc)  [inline]
```

12.68.3.7 SetName()

```
void gdcm::CSAHeaderDictEntry::SetName (
            const char * name)  [inline]
```

12.68.3.8 SetVM()

```
void gdcm::CSAHeaderDictEntry::SetVM (
            VM const & vm)  [inline]
```

12.68.3.9 SetVR()

```
void gdcm::CSAHeaderDictEntry::SetVR (
            const VR & vr)  [inline]
```

12.68.4 Friends And Related Symbol Documentation

12.68.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const CSAHeaderDictEntry & _val)  [friend]
```

References CSAHeaderDictEntry().

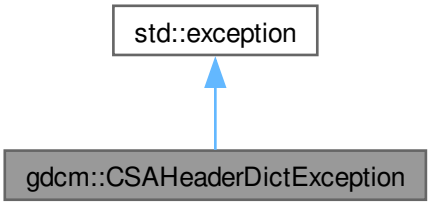
The documentation for this class was generated from the following file:

- gdcmCSAHeaderDictEntry.h

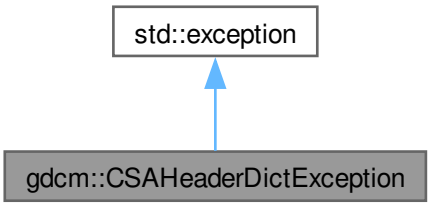
12.69 gdcm::CSAHeaderDictException Class Reference

`#include <gdcmCSAHeaderDict.h>`

Inheritance diagram for gdcm::CSAHeaderDictException:



Collaboration diagram for gdcm::CSAHeaderDictException:



The documentation for this class was generated from the following file:

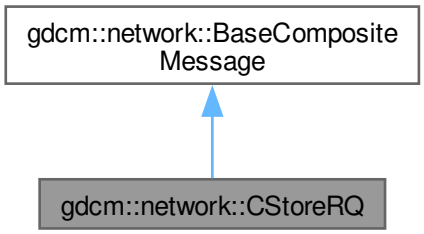
- gdcmCSAHeaderDict.h

12.70 gdcm::network::CStoreRQ Class Reference

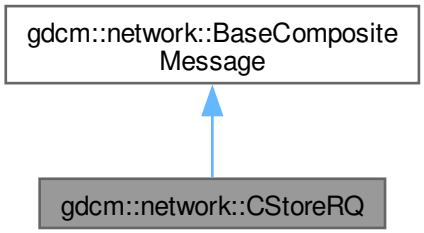
CStoreRQ.

`#include <gdcmCStoreMessages.h>`

Inheritance diagram for gdcm::network::CStoreRQ:



Collaboration diagram for gdcm::network::CStoreRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const File &file, bool writeDataSet=true)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default

12.70.1 Detailed Description

CStoreRQ.

this file defines the messages for the cecho action

12.70.2 Member Function Documentation

12.70.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::CStoreRQ::ConstructPDV (
            const ULConnection & inConnection,
            const File & file,
            bool writeDataSet = true)
```

The documentation for this class was generated from the following file:

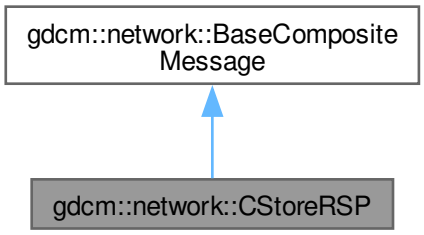
- gdcmCStoreMessages.h

12.71 gdcm::network::CStoreRSP Class Reference

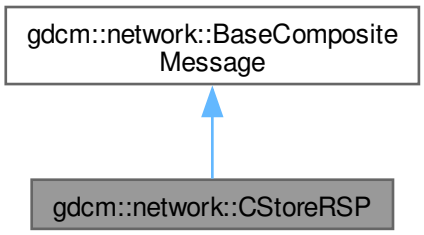
CStoreRSP this file defines the messages for the cecho action.

```
#include <gdcmCStoreMessages.h>
```

Inheritance diagram for gdcm::network::CStoreRSP:



Collaboration diagram for gdcm::network::CStoreRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const DataSet *inDataSet, const BasePDU *inPC)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default

12.71.1 Detailed Description

CStoreRSP this file defines the messages for the cecho action.

12.71.2 Member Function Documentation

12.71.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::CStoreRSP::ConstructPDV (
            const DataSet * inDataSet,
            const BasePDU * inPC)
```

The documentation for this class was generated from the following file:

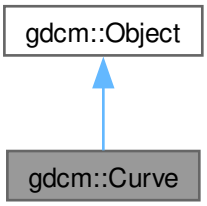
- gdcmCStoreMessages.h

12.72 gdcm::Curve Class Reference

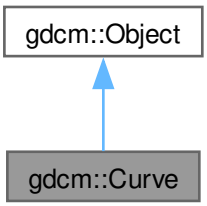
Curve class to handle element 50xx,3000 Curve Data.

`#include <gdcmCurve.h>`

Inheritance diagram for gdcm::Curve:



Collaboration diagram for gdcm::Curve:



Public Member Functions

- Curve ()
- Curve (Curve const &ov)
- ~Curve () override
- void Decode (std::istream &is, std::ostream &os)
- void GetAsPoints (float *array) const
- std::vector< unsigned short > const & GetCurveDataDescriptor () const
- unsigned short GetDataValueRepresentation () const
- unsigned short GetDimensions () const
- unsigned short GetGroup () const
- unsigned short GetNumberOfPoints () const
- const char * GetTypeOfData () const
- const char * GetTypeOfDataDescription () const
- bool IsEmpty () const
- void Print (std::ostream &) const override
- void SetCoordinateStartValue (unsigned short v)
- void SetCoordinateStepValue (unsigned short v)
- void SetCurve (const char *array, unsigned int length)
- void SetCurveDataDescriptor (const uint16_t *values, size_t num)
- void SetCurveDescription (const char *curvedescription)
- void SetDataValueRepresentation (unsigned short datavaluerepresentation)
- void SetDimensions (unsigned short dimensions)
- void SetGroup (unsigned short group)
- void SetNumberOfPoints (unsigned short numberofpoints)
- void SetTypeOfData (const char *typeofdata)
- void Update (const DataElement &de)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static unsigned int GetNumberOfCurves (DataSet const &ds)

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.72.1 Detailed Description

Curve class to handle element 50xx,3000 Curve Data.

WARNING: This is deprecated and lastly defined in PS 3.3 - 2004

Examples:

- GE_DLX-8-MONO2-Multiframe-Jpeg_Lossless.dcm
- GE_DLX-8-MONO2-Multiframe.dcm
- gdcmSampleData/Philips_Medical_Images/integris_HV_5000/xa_integris.dcm
- TOSHIBA-CurveData[1-3].dcm

12.72.2 Constructor & Destructor Documentation

12.72.2.1 Curve() [1/2]

```
gdcm::Curve::Curve ()
```

Referenced by Curve().

12.72.2.2 ~Curve()

```
gdcm::Curve::~Curve ()  [override]
```

12.72.2.3 Curve() [2/2]

```
gdcm::Curve::Curve (
            Curve const & ov)
```

References Curve().

12.72.3 Member Function Documentation

12.72.3.1 Decode()

```
void gdcm::Curve::Decode (
            std::istream & is,
            std::ostream & os)
```

12.72.3.2 GetAsPoints()

```
void gdcm::Curve::GetAsPoints (
            float * array) const
```

12.72.3.3 GetCurveDataDescriptor()

```
std::vector< unsigned short > const & gdcm::Curve::GetCurveDataDescriptor () const
```

12.72.3.4 GetDataValueRepresentation()

```
unsigned short gdcm::Curve::GetDataValueRepresentation () const
```

12.72.3.5 GetDimensions()

```
unsigned short gdcm::Curve::GetDimensions () const
```

12.72.3.6 GetGroup()

```
unsigned short gdcm::Curve::GetGroup () const
```

12.72.3.7 GetNumberOfCurves()

```
unsigned int gdcm::Curve::GetNumberOfCurves (
            DataSet const & ds)  [static]
```

12.72.3.8 GetNumberOfPoints()

```
unsigned short gdcm::Curve::GetNumberOfPoints () const
```

12.72.3.9 GetTypeOfData()

```
const char * gdcm::Curve::GetTypeOfData () const
```

12.72.3.10 GetTypeOfDataDescription()

```
const char * gdcm::Curve::GetTypeOfDataDescription () const
```

12.72.3.11 IsEmpty()

```
bool gdcm::Curve::IsEmpty () const
```

12.72.3.12 Print()

```
void gdcm::Curve::Print (
            std::ostream & ) const  [override], [virtual]
```

Reimplemented from gdcm::Object.

12.72.3.13 SetCoordinateStartValue()

```
void gdcm::Curve::SetCoordinateStartValue (
            unsigned short v)
```

12.72.3.14 SetCoordinateStepValue()

```
void gdcm::Curve::SetCoordinateStepValue (
            unsigned short v)
```

12.72.3.15 SetCurve()

```
void gdcm::Curve::SetCurve (
            const char * array,
            unsigned int length)
```

12.72.3.16 SetCurveDataDescriptor()

```
void gdcm::Curve::SetCurveDataDescriptor (
            const uint16_t * values,
            size_t num)
```

12.72.3.17 SetCurveDescription()

```
void gdcm::Curve::SetCurveDescription (
            const char * curvedescription)
```

12.72.3.18 SetDataValueRepresentation()

```
void gdcm::Curve::SetDataValueRepresentation (
            unsigned short datavaluerepresentation)
```

12.72.3.19 SetDimensions()

```
void gdcm::Curve::SetDimensions (
            unsigned short dimensions)
```

12.72.3.20 SetGroup()

```
void gdcm::Curve::SetGroup (
            unsigned short group)
```

12.72.3.21 SetNumberOfPoints()

```
void gdcm::Curve::SetNumberOfPoints (
            unsigned short numberofpoints)
```

12.72.3.22 SetTypeOfData()

```
void gdcm::Curve::SetTypeOfData (
            const char * typeofdata)
```

12.72.3.23 Update()

```
void gdcm::Curve::Update (
            const DataElement & de)
```

The documentation for this class was generated from the following file:

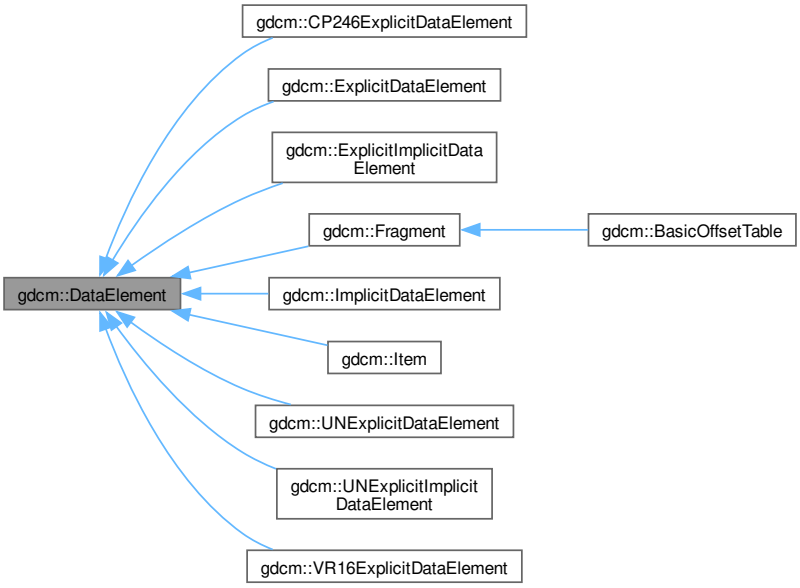
- gdcmCurve.h

12.73 gdcm::DataElement Class Reference

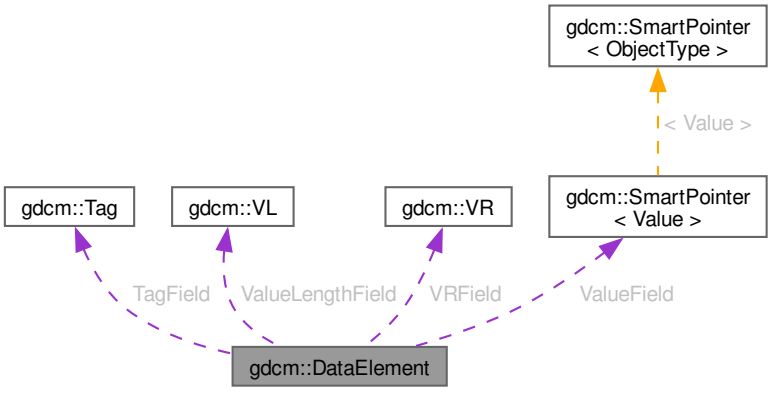
Class to represent a Data Element either Implicit or Explicit.

`#include <gdcmDataElement.h>`

Inheritance diagram for gdcm::DataElement:



Collaboration diagram for gdcm::DataElement:



Public Member Functions

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Protected Types

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

Friends

- std::ostream & operator<< (std::ostream &_os, const DataElement &_val)

12.73.1 Detailed Description

Class to represent a Data Element either Implicit or Explicit.

DATA ELEMENT: A unit of information as defined by a single entry in the data dictionary. An encoded Information Object Definition (IOD) Attribute that is composed of, at a minimum, three fields: a Data Element Tag, a Value Length, and a Value Field. For some specific Transfer Syntaxes, a Data Element also contains a VR Field where the Value Representation of that Data Element is specified explicitly.

Design:

- A DataElement in GDCM always store VL (Value Length) on a 32 bits integer even when VL is 16 bits
- A DataElement always store the VR even for Implicit TS, in which case VR is defaulted to VR::INVALID
- For Item start/end (See 0xfffe tags), Value is NULL

See also

ExplicitDataElement ImplicitDataElement

Examples

BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FileChangeTS.cs, FileChangeTSLossy.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, MpegVideoInfo.cs, NewSequence.cs, ReadAndDumpDICOMDIR.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, SimplePrint.cs, StreamImageReaderTest.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.73.2 Member Typedef Documentation

12.73.2.1 ValuePtr

```
typedef SmartPointer<Value> gdcm::DataElement::ValuePtr  [protected]
```

12.73.3 Constructor & Destructor Documentation

12.73.3.1 DataElement() [1/2]

```
gdcm::DataElement::DataElement (
            const Tag & t = Tag(0),
            const VL & vl = 0,
            const VR & vr = VR::INVALID)  [inline]
```

References gdcm::VR::INVALID, TagField, ValueField, ValueLengthField, and VRField.

Referenced by DataElement(), gdcm::Fragment::Fragment(), gdcm::Item::Item(), gdcm::Item::Item(), gdcm::Item::GetDataElement(), gdcm::Item::InsertDataElement(), operator<(), operator<<, operator=(), and operator==().

12.73.3.2 DataElement() [2/2]

```
gdcm::DataElement::DataElement (
            const DataElement & _val)  [inline]
```

References DataElement().

12.73.4 Member Function Documentation

12.73.4.1 Clear()

```
void gdcm::DataElement::Clear ()  [inline]
```

Clear Data Element (make Value empty and invalidate Tag & VR).

References gdcm::VR::INVALID, TagField, ValueField, ValueLengthField, and VRField.

Referenced by gdcm::Item::Clear().

12.73.4.2 Empty()

```
void gdcm::DataElement::Empty ()  [inline]
```

Make Data Element empty (no Value).

References ValueField, and ValueLengthField.

12.73.4.3 GetByteValue()

```
const ByteValue * gdcm::DataElement::GetByteValue () const  [inline]
```

Return the Value of DataElement as a ByteValue (if possible)

Warning

: You need to check for NULL return value

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetSubSequenceData.cxx, PatchFile.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

References ValueField.

Referenced by IsEmpty(), gdcm::BasicOffsetTable::operator<<, gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Se gdcm::Element< TVR, TVM >::SetFromDataElement(), gdcm::Element< TVR, VM::VM1_n >::SetFromDataElement(), and gdcm::Fragment::Write().

12.73.4.4 GetLength()

```
template<typename TDE>
VL gdcm::DataElement::GetLength () const  [inline]
```

References GetLength().

Referenced by GetLength().

12.73.4.5 GetSequenceOfFragments() [1/2]

```
SequenceOfFragments * gdcm::DataElement::GetSequenceOfFragments ()
```

12.73.4.6 GetSequenceOfFragments() [2/2]

```
const SequenceOfFragments * gdcm::DataElement::GetSequenceOfFragments () const
```

Return the Value of DataElement as a Sequence Of Fragments (if possible)

Warning

: You need to check for NULL return value

Examples

DecompressImage.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, and GetJPEGSamplePrecision.cxx.

12.73.4.7 GetTag() [1/2]

```
Tag & gdcm::DataElement::GetTag ()  [inline]
```

References TagField.

12.73.4.8 GetTag() [2/2]

```
const Tag & gdcm::DataElement::GetTag () const  [inline]
```

Get Tag.

Examples

DumpGEMSMovieGroup.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, SimplePrint.cs, and pmsct_rgb1.cxx.

References TagField.

Referenced by gdcm::CommandDataSet::Insert(), gdcm::DataSet::Insert(), gdcm::FileMetaInformation::Insert(), operator<(), gdcm::SequenceOfItems::Read(), gdcm::SequenceOfFragments::ReadValue(), gdcm::CommandDataSet::Replace(), gdcm::FileMetaInformation::Replace(), gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement(), and gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

12.73.4.9 GetValue() [1/2]

```
Value & gdcm::DataElement::GetValue ()  [inline]
```

References gdcmAssertAlwaysMacro, and ValueField.

12.73.4.10 GetValue() [2/2]

```
Value const & gdcm::DataElement::GetValue () const  [inline]
```

Set/Get Value (bytes array, SQ of items, SQ of fragments):

Examples

ReadAndDumpDICOMDIR.cxx.

References gdcmAssertAlwaysMacro, and ValueField.

Referenced by gdcm::DataSet::InsertDataElement(), gdcm::Element< TVR, TVM >::SetFromDataElement(), and gdcm::Element< TVR, VM::VM1_n >::SetFromDataElement().

12.73.4.11 GetValueAsSQ()

```
SmartPointer< SequenceOfItems > gdcm::DataElement::GetValueAsSQ () const
```

Interpret the Value stored in the DataElement. This is more robust (but also more expensive) to call this function rather than the simplest form: GetSequenceOfItems() It also return NULL when the Value is NOT of type SequenceOfItems

Warning

in case GetSequenceOfItems() succeed the function return this value, otherwise it creates a new SequenceOfItems, you should handle that in your case, for instance: SmartPointer<SequenceOfItems> sqi = de.GetValueAsSQ();

Examples

ChangeSequenceUltrasound.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ExtractEncryptedContent.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, ReadAndDumpDICOMDIR.cxx, SimplePrint.cs, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.73.4.12 GetVL() [1/2]

```
VL & gdcm::DataElement::GetVL ()  [inline]
```

References ValueLengthField.

12.73.4.13 GetVL() [2/2]

```
const VL & gdcm::DataElement::GetVL () const  [inline]
```

Get VL.

Examples

SimplePrint.cs.

References ValueLengthField.

Referenced by gdcm::DataSet::InsertDataElement(), gdcm::SequenceOfItems::Read(), and gdcm::SequenceOfFragments::ReadValue().

12.73.4.14 GetVR()

```
VR const & gdcm::DataElement::GetVR () const  [inline]
```

Get VR do not set VR::SQ on bytevalue data element

Examples

DuplicatePCDE.cxx, and GenFakeIdentifyFile.cxx.

References VRField.

Referenced by gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement(), gdcm::Element< TVR, TVM >::GetAsDataElement(), gdcm::Element< TVR, VM::VM1_n >::GetAsDataElement(), gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Se gdcm::Element< TVR, TVM >::SetFromDataElement(), and gdcm::Element< TVR, VM::VM1_n >::SetFromDataElement().

12.73.4.15 IsEmpty()

```
bool gdcm::DataElement::IsEmpty () const  [inline]
```

Check if Data Element is empty.

Examples

DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, ELSCINT1WaveToText.cxx, FixJAIBugJPEGLS.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

References GetByteValue(), and ValueField.

Referenced by gdcm::DataSet::InsertDataElement(), gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Se and gdcm::Fragment::Write().

12.73.4.16 IsUndefinedLength()

```
bool gdcm::DataElement::IsUndefinedLength () const  [inline]
```

return if Value Length if of undefined length

References ValueLengthField.

Referenced by gdcm::Item::InsertDataElement().

12.73.4.17 operator<()

```
bool gdcm::DataElement::operator< (
            const DataElement & de) const  [inline]
```

References DataElement(), and GetTag().

12.73.4.18 operator=()

```
DataElement & gdcm::DataElement::operator= (
            const DataElement & )  [default]
```

References DataElement().

12.73.4.19 operator==()

```
bool gdcm::DataElement::operator== (
            const DataElement & de) const  [inline]
```

References DataElement(), TagField, ValueField, ValueLengthField, and VRField.

12.73.4.20 Read()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataElement::Read (
            std::istream & is)  [inline]
```

Examples

DumpSiemensBase64.cxx.

References Read().

Referenced by Read(), and ReadOrSkip().

12.73.4.21 ReadOrSkip()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataElement::ReadOrSkip (
            std::istream & is,
            std::set< Tag > const & skiptags)  [inline]
```

References Read().

12.73.4.22 ReadPreValue()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataElement::ReadPreValue (
             std::istream & is,
             std::set< Tag > const & skiptags)  [inline]
```

References ReadPreValue().

Referenced by ReadPreValue().

12.73.4.23 ReadValue()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataElement::ReadValue (
             std::istream & is,
             std::set< Tag > const & skiptags)  [inline]
```

References ReadValue().

Referenced by ReadValue().

12.73.4.24 ReadValueWithLength()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataElement::ReadValueWithLength (
             std::istream & is,
             VL & length,
             std::set< Tag > const & skiptags)  [inline]
```

References ReadValueWithLength().

Referenced by ReadValueWithLength().

12.73.4.25 ReadWithLength()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataElement::ReadWithLength (
             std::istream & is,
             VL & length)  [inline]
```

References ReadWithLength().

Referenced by gdcm::Item::Read(), and ReadWithLength().

12.73.4.26 SetByteValue()

```
void gdcm::DataElement::SetByteValue (
            const char * array,
            VL length)  [inline]
```

Set the byte value

Warning

user need to read DICOM standard for an understanding of:

- even padding
- \0 vs space padding By default even padding is achieved using \0 regardless of the of VR

Examples

BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, Fake_Image_Using_Stream_Image_Writer.cxx, FileChangeTS.cs, FileChangeTSLossy.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSubSequenceData.cxx, MpegVideoInfo.cs, NewSequence.cs, StreamImageReaderTest.cxx, iU22tomultisc.cxx, and rle2img.cxx.

References SetValue().

Referenced by gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement(), gdcm::Element< TVR, TVM >::GetAsDataElement(), and gdcm::Element< TVR, VM::VM1_n >::GetAsDataElement().

12.73.4.27 SetTag()

```
void gdcm::DataElement::SetTag (
            const Tag & t)  [inline]
```

Set Tag Use with cautious (need to match Part 6)

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, GenFakeIdentifyFile.cxx, and GetSubSequenceData.cxx.

References TagField.

12.73.4.28 SetValue()

```
void gdcm::DataElement::SetValue (
            Value const & vl)  [inline]
```

Warning

you need to set the ValueLengthField explicitly

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, DuplicatePCDE.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FixBrokenJ2K.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, MpegVideoInfo.cs, and NewSequence.cs.

References gdcm::Value::GetLength(), ValueField, and ValueLengthField.

Referenced by SetByteValue().

12.73.4.29 SetValueFieldLength()

```
void gdcm::DataElement::SetValueFieldLength (
            VL vl,
            bool readvalues)  [protected]
```

12.73.4.30 SetVL()

```
void gdcm::DataElement::SetVL (
            const VL & vl)  [inline]
```

Set VL Use with cautious (need to match Part 6), advanced user only

See also

SetByteValue

References ValueLengthField.

12.73.4.31 SetVLToUndefined()

```
void gdcm::DataElement::SetVLToUndefined ()
```

Examples

Fake_Image_Using_Stream_Image_Writer.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, and NewSequence.cs.

12.73.4.32 SetVR()

```
void gdcm::DataElement::SetVR (
            VR const & vr)  [inline]
```

Set VR Use with cautious (need to match Part 6), advanced user only

Precondition

vr is a VR::VRALL (not a dual one such as OB_OW)

Examples

Fake_Image_Using_Stream_Image_Writer.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSubSequenceData.cxx, NewSequence.cs, StreamImageReaderTest.cxx, iU22tomultisc.cxx, and rle2img.cxx.

References gdcm::VR::IsVRFile(), and VRField.

Referenced by gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement(), gdcm::Element< TVR, TVM >::GetAsDataElement(), and gdcm::Element< TVR, VM::VM1_n >::GetAsDataElement().

12.73.4.33 Write()

```
template<typename TDE, typename TSwap>
const std::ostream & gdcm::DataElement::Write (
            std::ostream & os) const  [inline]
```

References Write().

Referenced by Write().

12.73.5 Friends And Related Symbol Documentation

12.73.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const DataElement & _val)  [friend]
```

References DataElement(), operator<<, gdcm::Object::Print(), TagField, ValueField, ValueLengthField, and VRField.

Referenced by operator<<.

12.73.6 Member Data Documentation

12.73.6.1 TagField

```
Tag gdcm::DataElement::TagField  [protected]
```

Referenced by DataElement(), Clear(), GetTag(), GetTag(), operator<<, gdcm::Fragment::operator<<, gdcm::Item::operator<<, operator==(), gdcm::BasicOffsetTable::Read(), gdcm::Item::Read(), gdcm::Fragment::ReadBacktrack(), gdcm::Fragment::ReadPreValue(), SetTag(), gdcm::Fragment::Write(), and gdcm::Item::Write().

12.73.6.2 ValueField

```
ValuePtr gdcm::DataElement::ValueField  [protected]
```

Referenced by DataElement(), Clear(), Empty(), GetByteValue(), GetValue(), GetValue(), IsEmpty(), gdcm::BasicOffsetTable::operator<<, operator<<, gdcm::Fragment::operator<<, operator==(), gdcm::BasicOffsetTable::Read(), gdcm::Fragment::ReadBacktrack(), gdcm::Fragment::ReadValue(), and SetValue().

12.73.6.3 ValueLengthField

```
VL gdcm::DataElement::ValueLengthField  [protected]
```

Referenced by DataElement(), Clear(), Empty(), GetVL(), GetVL(), IsUndefinedLength(), gdcm::BasicOffsetTable::operator<<, operator<<, gdcm::Fragment::operator<<, gdcm::Item::operator<<, operator==(), gdcm::BasicOffsetTable::Read(), gdcm::Item::Read(), gdcm::Fragment::ReadBacktrack(), gdcm::Fragment::ReadPreValue(), gdcm::Fragment::ReadValue(), SetValue(), SetVL(), gdcm::Fragment::Write(), and gdcm::Item::Write().

12.73.6.4 VRField

```
VR gdcm::DataElement::VRField  [protected]
```

Referenced by DataElement(), Clear(), GetVR(), operator<<, operator==(), and SetVR().

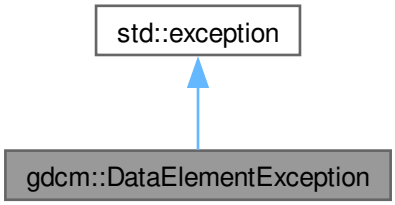
The documentation for this class was generated from the following file:

- gdcmDataElement.h

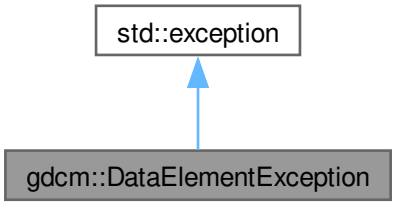
12.74 gdcm::DataElementException Class Reference

`#include <gdcmDataSet.h>`

Inheritance diagram for gdcm::DataElementException:



Collaboration diagram for gdcm::DataElementException:



The documentation for this class was generated from the following file:

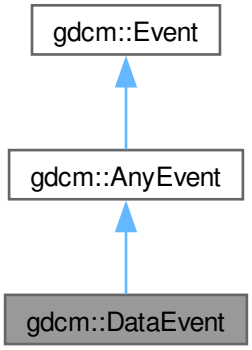
- gdcmDataSet.h

12.75 gdcm::DataEvent Class Reference

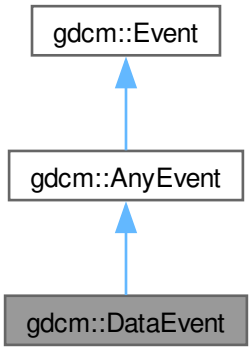
DataEvent.

`#include <gdcmDataEvent.h>`

Inheritance diagram for gdcm::DataEvent:



Collaboration diagram for gdcm::DataEvent:



Public Types

- typedef DataEvent Self
- typedef AnyEvent Superclass

Public Member Functions

- DataEvent (const char *bytes=nullptr, size_t len=0)

- DataEvent (const Self &s)
- ~DataEvent () override=default
- bool CheckEvent (const ::gdcm::Event *e) const override
- const char * GetData () const
- size_t GetDataLength () const
- const char * GetEventName () const override
- ::gdcm::Event * MakeObject () const override
- void operator= (const Self &)=delete
- void SetData (const char *bytes, size_t len)

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

12.75.1 Detailed Description

DataEvent.

12.75.2 Member Typedef Documentation

12.75.2.1 Self

```
typedef DataEvent gdcm::DataEvent::Self
```

12.75.2.2 Superclass

```
typedef AnyEvent gdcm::DataEvent::Superclass
```

12.75.3 Constructor & Destructor Documentation

12.75.3.1 DataEvent() [1/2]

```
gdcm::DataEvent::DataEvent (
            const char * bytes = nullptr,
            size_t len = 0)  [inline]
```

12.75.3.2 ~DataEvent()

```
gdcm::DataEvent::~DataEvent ()  [override], [default]
```

12.75.3.3 DataEvent() [2/2]

```
gdcm::DataEvent::DataEvent (
            const Self & s)  [inline]
```

12.75.4 Member Function Documentation

12.75.4.1 CheckEvent()

```
bool gdcm::DataEvent::CheckEvent (
            const ::gdcm::Event * e) const  [inline], [override]
```

12.75.4.2 GetData()

```
const char * gdcm::DataEvent::GetData () const  [inline]
```

12.75.4.3 GetDataLength()

```
size_t gdcm::DataEvent::GetDataLength () const  [inline]
```

12.75.4.4 GetEventName()

```
const char * gdcm::DataEvent::GetEventName () const  [inline], [override], [virtual]
```

Return the StringName associated with the event.

Implements gdcm::Event.

12.75.4.5 MakeObject()

```
::gdcm::Event * gdcm::DataEvent::MakeObject () const  [inline], [override], [virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implements gdcm::Event.

12.75.4.6 operator=()

```
void gdcm::DataEvent::operator= (
            const Self & )  [delete]
```

12.75.4.7 SetData()

```
void gdcm::DataEvent::SetData (
            const char * bytes,
            size_t len)  [inline]
```

The documentation for this class was generated from the following file:

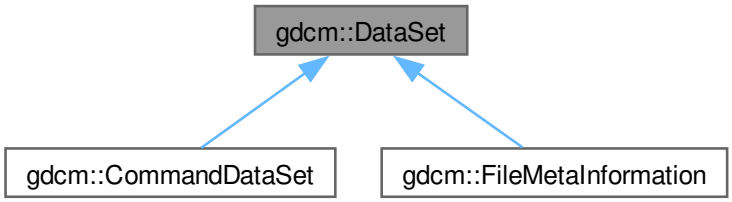
- gdcmDataEvent.h

12.76 gdcm::DataSet Class Reference

Class to represent a Data Set (which contains Data Elements).

`#include <gdcmDataSet.h>`

Inheritance diagram for gdcm::DataSet:



Public Types

- typedef DataElementSet::const_iterator ConstIterator
- typedef std::set< DataElement > DataElementSet
- typedef DataElementSet::iterator Iterator
- typedef DataElementSet::size_type SizeType

Public Member Functions

- Iterator Begin ()
- ConstIterator Begin () const
- void Clear ()
- template<typename TDE>
  unsigned int ComputeGroupLength (Tag const &tag) const
- Iterator End ()
- ConstIterator End () const
- bool FindDataElement (const PrivateTag &t) const

  Look up if private tag 't' is present in the dataset:
- bool FindDataElement (const Tag &t) const
- const DataElement & FindNextDataElement (const Tag &t) const
- const DataElement & GetDataElement (const PrivateTag &t) const

  Return the dataelement.
- const DataElement & GetDataElement (const Tag &t) const
- DataElementSet & GetDES ()
- const DataElementSet & GetDES () const
- template<typename TDE>
  VL GetLength () const
- MediaStorage GetMediaStorage () const
- std::string GetPrivateCreator (const Tag &t) const
- PrivateTag GetPrivateTag (const Tag &t) const

  Return the private tag of the private tag 't', private creator will be set to empty if not found.
- void Insert (const DataElement &de)
- bool IsEmpty () const

  Returns if the dataset is empty.
- const DataElement & operator() (uint16_t group, uint16_t element) const
- DataSet & operator= (DataSet const &)=default
- const DataElement & operator[ ] (const Tag &t) const
- void Print (std::ostream &os, std::string const &indent="") const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadNested (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedPrivateTags (std::istream &is, const std::set< PrivateTag > &tags, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedPrivateTagsWithLength (std::istream &is, const std::set< PrivateTag > &tags, VL &length, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedTags (std::istream &is, const std::set< Tag > &tags, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedTagsWithLength (std::istream &is, const std::set< Tag > &tags, VL &length, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadUpToTag (std::istream &is, const Tag &t, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadUpToTagWithLength (std::istream &is, const Tag &t, std::set< Tag > const &skiptags, VL &length)

- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- SizeType Remove (const Tag &tag)

  Completely remove a dataelement from the dataset.
- void Replace (const DataElement &de)

  Replace a dataelement with another one.
- void ReplaceEmpty (const DataElement &de)

  Only replace a DICOM attribute when it is missing or empty.
- SizeType Size () const
- template<typename TDE, typename TSwap>
  std::ostream const & Write (std::ostream &os) const

Protected Member Functions

- Tag ComputeDataElement (const PrivateTag &t) const
- const DataElement & GetDEEnd () const
- void InsertDataElement (const DataElement &de)

Friends

- class CSAHeader
- std::ostream & operator<< (std::ostream &_os, const DataSet &val)

12.76.1 Detailed Description

Class to represent a Data Set (which contains Data Elements).

A Data Set represents an instance of a real world Information Object

Note

DATA SET: Exchanged information consisting of a structured set of Attribute values directly or indirectly related to Information Objects. The value of each Attribute in a Data Set is expressed as a Data Element. A collection of Data Elements ordered by increasing Data Element Tag number that is an encoding of the values of Attributes of a real world object.

Implementation note. If one do: DataSet ds; ds.SetLength(0); ds.Read(is); setting length to 0 actually means try to read is as if it was a root DataSet. Other value are undefined (nested dataset with undefined length) or defined length (different from 0) means nested dataset with defined length.

Warning

a DataSet does not have a Transfer Syntax type, only a File does.

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CompressLossyJPEG.cs, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writ FileChangeTS.cs, FileChangeTSLossy.cs, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MergeTwoFiles.cxx, MrProtocol.cxx, NewSequence.cs, PatchFile.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, SimplePrint.cs, SortImage.cxx, SortImage2.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, VolumeSorter.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.76.2 Member Typedef Documentation

12.76.2.1 ConstIterator

```
typedef DataElementSet::const_iterator gdcm::DataSet::ConstIterator
```

Examples

DiffFile.cxx, DumpGEMSMovieGroup.cxx, DumpVisusChange.cxx, and DuplicatePCDE.cxx.

12.76.2.2 DataElementSet

```
typedef std::set<DataElement> gdcm::DataSet::DataElementSet
```

12.76.2.3 Iterator

```
typedef DataElementSet::iterator gdcm::DataSet::Iterator
```

12.76.2.4 SizeType

```
typedef DataElementSet::size_type gdcm::DataSet::SizeType
```

12.76.3 Member Function Documentation

12.76.3.1 Begin() [1/2]

```
Iterator gdcm::DataSet::Begin ()  [inline]
```

12.76.3.2 Begin() [2/2]

```
ConstIterator gdcm::DataSet::Begin () const  [inline]
```

Examples

DiffFile.cxx, DumpGEMSMovieGroup.cxx, DumpVisusChange.cxx, and DuplicatePCDE.cxx.

12.76.3.3 Clear()

```
void gdcm::DataSet::Clear ()  [inline]
```

Referenced by gdcm::Item::Read().

12.76.3.4 ComputeDataElement()

```
Tag gdcm::DataSet::ComputeDataElement (
            const PrivateTag & t) const  [protected]
```

References operator<<.

12.76.3.5 ComputeGroupLength()

```
template<typename TDE>
unsigned int gdcm::DataSet::ComputeGroupLength (
            Tag const & tag) const  [inline]
```

References gdcm::Tag::GetElement(), and gdcm::Tag::GetGroup().

12.76.3.6 End() [1/2]

```
Iterator gdcm::DataSet::End ()  [inline]
```

12.76.3.7 End() [2/2]

```
ConstIterator gdcm::DataSet::End () const  [inline]
```

Examples

DiffFile.cxx, DumpGEMSMovieGroup.cxx, DumpVisusChange.cxx, and DuplicatePCDE.cxx.

12.76.3.8 FindDataElement() [1/2]

```
bool gdcm::DataSet::FindDataElement (
            const PrivateTag & t) const
```

Look up if private tag 't' is present in the dataset:

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, MrProtocol.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndPrintAttributes.cxx, ReadGEMSSDO.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

Referenced by gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >:
and gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataSet().

12.76.3.9 FindDataElement() [2/2]

```
bool gdcm::DataSet::FindDataElement (
            const Tag & t) const  [inline]
```

References GetDataElement(), and GetDEEnd().

12.76.3.10 FindNextDataElement()

```
const DataElement & gdcm::DataSet::FindNextDataElement (
            const Tag & t) const  [inline]
```

Examples

DuplicatePCDE.cxx.

References GetDEEnd().

12.76.3.11 GetDataElement() [1/2]

```
const DataElement & gdcm::DataSet::GetDataElement (
            const PrivateTag & t) const
```

Return the dataelement.

12.76.3.12 GetDataElement() [2/2]

```
const DataElement & gdcm::DataSet::GetDataElement (
            const Tag & t) const  [inline]
```

Return the DataElement with Tag 't'

Warning

: This only search at the 'root level' of the DataSet

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, DecompressImage.cs, DeriveSeries.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetJPEGSamplePrecision.cx GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, MrProtocol.cxx, PatchFile.cxx, ReadAndDumpDICOMDIR.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

References GetDEEnd().

Referenced by FindDataElement(), operator()(), operator[](), gdcm::Attribute< Group, Element, TVR, TVM >::Set(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::Set(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Set(), gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataS and gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataSet().

12.76.3.13 GetDEEnd()

```
const DataElement & gdcm::DataSet::GetDEEnd () const  [protected]
```

Referenced by FindDataElement(), FindNextDataElement(), and GetDataElement().

12.76.3.14 GetDES() [1/2]

```
DataElementSet & gdcm::DataSet::GetDES ()  [inline]
```

12.76.3.15 GetDES() [2/2]

```
const DataElementSet & gdcm::DataSet::GetDES () const  [inline]
```

Examples

ReadAndDumpDICOMDIR.cxx.

12.76.3.16 GetLength()

```
template<typename TDE>
VL gdcm::DataSet::GetLength () const  [inline]
```

Referenced by gdcm::FileMetaInformation::GetFullLength().

12.76.3.17 GetMediaStorage()

```
MediaStorage gdcm::DataSet::GetMediaStorage () const
```

12.76.3.18 GetPrivateCreator()

```
std::string gdcm::DataSet::GetPrivateCreator (
            const Tag & t) const
```

Return the private creator of the private tag 't': or an empty string when not found

Examples

DuplicatePCDE.cxx.

12.76.3.19 GetPrivateTag()

```
PrivateTag gdcm::DataSet::GetPrivateTag (
            const Tag & t) const
```

Return the private tag of the private tag 't', private creator will be set to empty if not found.

12.76.3.20 Insert()

```
void gdcm::DataSet::Insert (
            const DataElement & de)  [inline]
```

Insert a DataElement in the DataSet.

Warning

: Tag need to be >= 0x8 to be considered valid data element

Examples

CreateJPIPDataSet.cxx, DumpSiemensBase64.cxx, DuplicatePCDE.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FileChangeTS.cs, FileChangeTSLossy.cs, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, NewSequence.cs, StreamImageReaderTest.cxx, and TemplateEmptyImage.cxx.

References gdcmErrorMacro, gdcm::Tag::GetGroup(), gdcm::DataElement::GetTag(), and InsertDataElement().

12.76.3.21 InsertDataElement()

```
void gdcm::DataSet::InsertDataElement (
            const DataElement & de)  [inline], [protected]
```

References gdcmWarningMacro, gdcm::Value::GetLength(), gdcm::DataElement::GetValue(), gdcm::DataElement::GetVL(), and gdcm::DataElement::IsEmpty().

Referenced by gdcm::CommandDataSet::Insert(), Insert(), and gdcm::FileMetaInformation::Insert().

12.76.3.22 IsEmpty()

```
bool gdcm::DataSet::IsEmpty () const  [inline]
```

Returns if the dataset is empty.

Referenced by gdcm::Item::Read().

12.76.3.23 operator()()

```
const DataElement & gdcm::DataSet::operator() (
            uint16_t group,
            uint16_t element) const  [inline]
```

References GetDataElement().

12.76.3.24 operator=()

```
DataSet & gdcm::DataSet::operator= (
            DataSet const & )  [default]
```

12.76.3.25 operator[]()

```
const DataElement & gdcm::DataSet::operator[] (
            const Tag & t) const  [inline]
```

References GetDataElement().

12.76.3.26 Print()

```
void gdcm::DataSet::Print (
            std::ostream & os,
            std::string const & indent = "") const  [inline]
```

Referenced by gdcm::CommandDataSet::operator<<, operator<<, gdcm::FileMetaInformation::operator<<, and gdcm::Item::operator<<.

12.76.3.27 Read()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::Read (
            std::istream & is)
```

Examples

DumpToshibaDTI.cxx, and DumpToshibaDTI2.cxx.

12.76.3.28 ReadNested()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::ReadNested (
            std::istream & is)
```

12.76.3.29 ReadSelectedPrivateTags()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::ReadSelectedPrivateTags (
            std::istream & is,
            const std::set< PrivateTag > & tags,
            bool readvalues = true)
```

12.76.3.30 ReadSelectedPrivateTagsWithLength()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::ReadSelectedPrivateTagsWithLength (
              std::istream & is,
              const std::set< PrivateTag > & tags,
              VL & length,
              bool readvalues = true)
```

12.76.3.31 ReadSelectedTags()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::ReadSelectedTags (
              std::istream & is,
              const std::set< Tag > & tags,
              bool readvalues = true)
```

12.76.3.32 ReadSelectedTagsWithLength()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::ReadSelectedTagsWithLength (
              std::istream & is,
              const std::set< Tag > & tags,
              VL & length,
              bool readvalues = true)
```

12.76.3.33 ReadUpToTag()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::ReadUpToTag (
              std::istream & is,
              const Tag & t,
              std::set< Tag > const & skiptags)
```

12.76.3.34 ReadUpToTagWithLength()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::ReadUpToTagWithLength (
              std::istream & is,
              const Tag & t,
              std::set< Tag > const & skiptags,
              VL & length)
```

12.76.3.35 ReadWithLength()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::ReadWithLength (
            std::istream & is,
            VL & length)
```

12.76.3.36 Remove()

```
SizeType gdcm::DataSet::Remove (
            const Tag & tag)  [inline]
```

Completely remove a dataelement from the dataset.

Examples

ClinicalTrialIdentificationWorkflow.cs, GenFakeIdentifyFile.cxx, LargeVRDSExplicit.cxx, MergeTwoFiles.cxx, ReformatFile.cs, StandardizeFiles.cs, pmsct_rgb1.cxx, and rle2img.cxx.

Referenced by gdcm::CommandDataSet::Replace(), and gdcm::FileMetaInformation::Replace().

12.76.3.37 Replace()

```
void gdcm::DataSet::Replace (
            const DataElement & de)  [inline]
```

Replace a dataelement with another one.

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CreateFakeRTDOSE.cxx, DeriveSeries.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenFakeIdentifyFile.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, PatchFile.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

References gdcmAssertAlwaysMacro.

12.76.3.38 ReplaceEmpty()

```
void gdcm::DataSet::ReplaceEmpty (
            const DataElement & de)  [inline]
```

Only replace a DICOM attribute when it is missing or empty.

Examples

rle2img.cxx.

References gdcmAssertAlwaysMacro.

12.76.3.39 Size()

```
SizeType gdcm::DataSet::Size () const  [inline]
```

Examples

DumpGEMSMovieGroup.cxx.

Referenced by gdcm::SequenceOfItems::Read().

12.76.3.40 Write()

```
template<typename TDE, typename TSwap>
std::ostream const & gdcm::DataSet::Write (
             std::ostream & os) const
```

12.76.4 Friends And Related Symbol Documentation

12.76.4.1 CSAHeader

```
friend class CSAHeader  [friend]
```

References CSAHeader.

Referenced by CSAHeader.

12.76.4.2 operator<<

```
std::ostream & operator<< (
             std::ostream & _os,
             const DataSet & val)  [friend]
```

References operator<<, and Print().

Referenced by ComputeDataElement(), and operator<<.

The documentation for this class was generated from the following file:

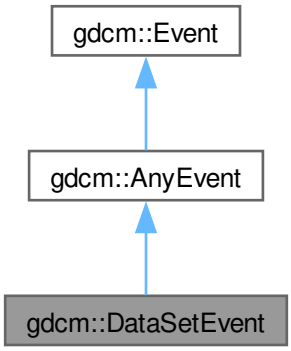
- gdcmDataSet.h

12.77 gdcm::DataSetEvent Class Reference

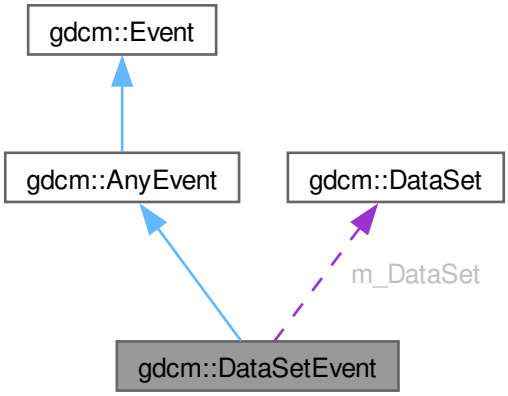
DataSetEvent.

`#include <gdcmDataSetEvent.h>`

Inheritance diagram for gdcm::DataSetEvent:



Collaboration diagram for gdcm::DataSetEvent:



Public Types

- typedef DataSetEvent Self
- typedef AnyEvent Superclass

Public Member Functions

- DataSetEvent (const Self &s)
- DataSetEvent (DataSet const *ds=nullptr)
- ~DataSetEvent () override=default
- bool CheckEvent (const ::gdcm::Event *e) const override
- DataSet const & GetDataSet () const
- const char * GetEventName () const override
- ::gdcm::Event * MakeObject () const override
- void operator= (const Self &)=delete

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

Public Attributes

- const DataSet * m_DataSet

12.77.1 Detailed Description

DataSetEvent.

Special type of event triggered during the DataSet store/move process

12.77.2 Member Typedef Documentation

12.77.2.1 Self

```
typedef DataSetEvent gdcm::DataSetEvent::Self
```

12.77.2.2 Superclass

```
typedef AnyEvent gdcm::DataSetEvent::Superclass
```

12.77.3 Constructor & Destructor Documentation

12.77.3.1 DataSetEvent() [1/2]

```
gdcm::DataSetEvent::DataSetEvent (
            DataSet const * ds = nullptr)  [inline]
```

References m_DataSet.

12.77.3.2 ~DataSetEvent()

```
gdcm::DataSetEvent::~DataSetEvent ()  [override], [default]
```

12.77.3.3 DataSetEvent() [2/2]

```
gdcm::DataSetEvent::DataSetEvent (
            const Self & s)  [inline]
```

12.77.4 Member Function Documentation

12.77.4.1 CheckEvent()

```
bool gdcm::DataSetEvent::CheckEvent (
            const ::gdcm::Event * e) const  [inline], [override]
```

12.77.4.2 GetDataSet()

```
DataSet const & gdcm::DataSetEvent::GetDataSet () const  [inline]
```

References m_DataSet.

12.77.4.3 GetEventName()

```
const char * gdcm::DataSetEvent::GetEventName () const  [inline], [override], [virtual]
```

Return the StringName associated with the event.

Implements gdcm::Event.

12.77.4.4 MakeObject()

```
::gdcm::Event * gdcm::DataSetEvent::MakeObject () const  [inline], [override], [virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implements gdcm::Event.

12.77.4.5 operator=()

```
void gdcm::DataSetEvent::operator= (
             const Self & )  [delete]
```

12.77.5 Member Data Documentation

12.77.5.1 m_DataSet

```
const DataSet* gdcm::DataSetEvent::m_DataSet
```

Referenced by DataSetEvent(), and GetDataSet().

The documentation for this class was generated from the following file:

- gdcmDataSetEvent.h

12.78 gdcm::DataSetHelper Class Reference

DataSetHelper (internal class, not intended for user level).

```
#include <gdcmDataSetHelper.h>
```

Static Public Member Functions

- static VR ComputeVR (File const &file, DataSet const &ds, const Tag &tag)

12.78.1 Detailed Description

DataSetHelper (internal class, not intended for user level).

Examples

SimplePrint.cs.

12.78.2 Member Function Documentation

12.78.2.1 ComputeVR()

```
VR gdcm::DataSetHelper::ComputeVR (
            File const & file,
            DataSet const & ds,
            const Tag & tag)  [static]
```

ds -> current dataset, which is not the same as the root dataset return VR::INVALID in case of error

Examples

SimplePrint.cs.

The documentation for this class was generated from the following file:

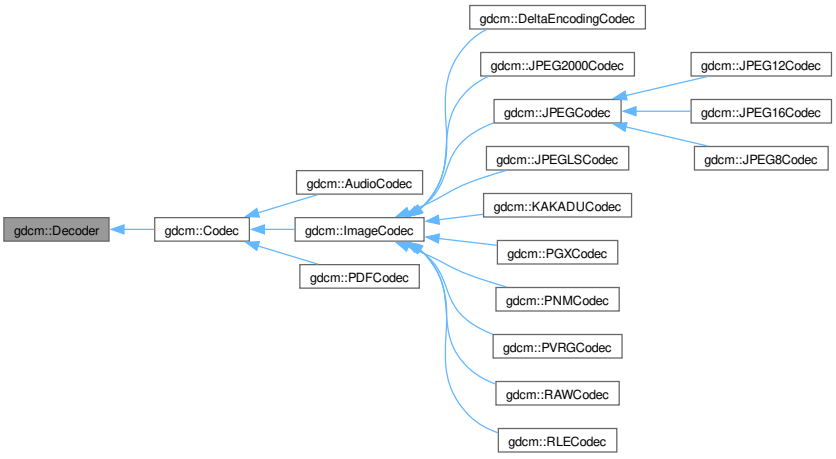
- gdcmDataSetHelper.h

12.79 gdcm::Decoder Class Reference

Decoder.

`#include <gdcmDecoder.h>`

Inheritance diagram for gdcm::Decoder:



Public Member Functions

- virtual ~Decoder ()=default
- virtual bool CanDecode (TransferSyntax const &) const =0

  Return whether this decoder support this transfer syntax (can decode it).
- virtual bool Decode (DataElement const &, DataElement &)

  Decode.

Protected Member Functions

- virtual bool DecodeByStreams (std::istream &, std::ostream &)

12.79.1 Detailed Description

Decoder.

12.79.2 Constructor & Destructor Documentation

12.79.2.1 ~Decoder()

```
virtual gdcm::Decoder::~Decoder ()  [virtual], [default]
```

12.79.3 Member Function Documentation

12.79.3.1 CanDecode()

```
virtual bool gdcm::Decoder::CanDecode (
            TransferSyntax const & ) const  [pure virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Implemented in gdcm::AudioCodec, gdcm::ImageCodec, gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PDFCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.79.3.2 Decode()

```
virtual bool gdcm::Decoder::Decode (
            DataElement const & ,
            DataElement & )  [inline], [virtual]
```

Decode.

Reimplemented in gdcm::AudioCodec, gdcm::DeltaEncodingCodec, gdcm::ImageCodec, gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PDFCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.79.3.3 DecodeByStreams()

```
virtual bool gdcm::Decoder::DecodeByStreams (
            std::istream & ,
            std::ostream & )  [inline], [protected], [virtual]
```

Reimplemented in gdcm::ImageCodec, gdcm::JPEG12Codec, gdcm::JPEG16Codec, gdcm::JPEG2000Codec, gdcm::JPEG8Codec, gdcm::JPEGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

The documentation for this class was generated from the following file:

- gdcmDecoder.h

12.80 gdcm::DefinedTerms Class Reference

Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data Element with Defined Terms that does not contain a Value equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation Type ID (4008,0210) is an example of a Data Element having Defined Terms. It is defined to have a Value that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data Element has Defined Terms other Interpretation Type IDs may be defined by the implementor.

```
#include <gdcmDefinedTerms.h>
```

Public Member Functions

- DefinedTerms ()=default

12.80.1 Detailed Description

Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data Element with Defined Terms that does not contain a Value equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation Type ID (4008,0210) is an example of a Data Element having Defined Terms. It is defined to have a Value that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data Element has Defined Terms other Interpretation Type IDs may be defined by the implementor.

12.80.2 Constructor & Destructor Documentation

12.80.2.1 DefinedTerms()

```
gdcm::DefinedTerms::DefinedTerms ()  [default]
```

The documentation for this class was generated from the following file:

- gdcmDefinedTerms.h

12.81 gdcm::Defs Class Reference

FIXME I do not like the name 'Defs'.

`#include <gdcmDefs.h>`

Public Member Functions

- Defs ()
- Defs (const Defs &val)=delete
- ~Defs ()
- const IOD & GetIODFromFile (const File &file) const
- IODs & GetIODs ()
- const IODs & GetIODs () const
- Macros & GetMacros ()
- const Macros & GetMacros () const
- Modules & GetModules ()
- const Modules & GetModules () const
- Type GetTypeFromTag (const File &file, const Tag &tag) const
- bool IsEmpty () const
- Defs & operator= (const Defs &val)=delete
- bool Verify (const DataSet &ds) const
- bool Verify (const File &file) const

Static Public Member Functions

- static const char * GetIODNameFromMediaStorage (MediaStorage const &ms)

Protected Member Functions

- void LoadDefaults ()
- void LoadFromFile (const char *filename)

Friends

- class Global

12.81.1 Detailed Description

FIXME I do not like the name 'Defs'.

Note

bla

Examples

GenerateStandardSOPClasses.cxx, and TraverseModules.cxx.

12.81.2 Constructor & Destructor Documentation

12.81.2.1 Defs() [1/2]

```
gdcm::Defs::Defs ()
```

Referenced by Defs(), and operator=().

12.81.2.2 ~Defs()

```
gdcm::Defs::~Defs ()
```

12.81.2.3 Defs() [2/2]

```
gdcm::Defs::Defs (
            const Defs & val)  [delete]
```

References Defs().

12.81.3 Member Function Documentation

12.81.3.1 GetIODFromFile()

```
const IOD & gdcm::Defs::GetIODFromFile (
            const File & file) const
```

12.81.3.2 GetIODNameFromMediaStorage()

```
const char * gdcm::Defs::GetIODNameFromMediaStorage (
            MediaStorage const & ms)  [static]
```

Examples

GenerateStandardSOPClasses.cxx.

12.81.3.3 GetIODs() [1/2]

```
IODs & gdcm::Defs::GetIODs ()  [inline]
```

12.81.3.4 GetIODs() [2/2]

```
const IODs & gdcm::Defs::GetIODs () const  [inline]
```

Examples

TraverseModules.cxx.

12.81.3.5 GetMacros() [1/2]

```
Macros & gdcm::Defs::GetMacros ()  [inline]
```

12.81.3.6 GetMacros() [2/2]

```
const Macros & gdcm::Defs::GetMacros () const  [inline]
```

Users should not directly use Macro. Macro are simply a way for DICOM WG to re-use Tables. Macros are conveniently wrapped within Modules. See gdcm::Module API directly

Examples

TraverseModules.cxx.

12.81.3.7 GetModules() [1/2]

```
Modules & gdcm::Defs::GetModules ()  [inline]
```

12.81.3.8 GetModules() [2/2]

```
const Modules & gdcm::Defs::GetModules () const  [inline]
```

Examples

TraverseModules.cxx.

Referenced by IsEmpty().

12.81.3.9 GetTypeFromTag()

```
Type gdcm::Defs::GetTypeFromTag (
            const File & file,
            const Tag & tag) const
```

12.81.3.10 IsEmpty()

```
bool gdcm::Defs::IsEmpty () const  [inline]
```

References GetModules().

12.81.3.11 LoadDefaults()

```
void gdcm::Defs::LoadDefaults ()  [protected]
```

12.81.3.12 LoadFromFile()

```
void gdcm::Defs::LoadFromFile (
            const char * filename)  [protected]
```

12.81.3.13 operator=()

```
Defs & gdcm::Defs::operator= (
            const Defs & val)  [delete]
```

References Defs().

12.81.3.14 Verify() [1/2]

```
bool gdcm::Defs::Verify (
            const DataSet & ds) const
```

12.81.3.15 Verify() [2/2]

```
bool gdcm::Defs::Verify (
            const File & file) const
```

12.81.4 Friends And Related Symbol Documentation

12.81.4.1 Global

```
friend class Global  [friend]
```

References Global.

Referenced by Global.

The documentation for this class was generated from the following file:

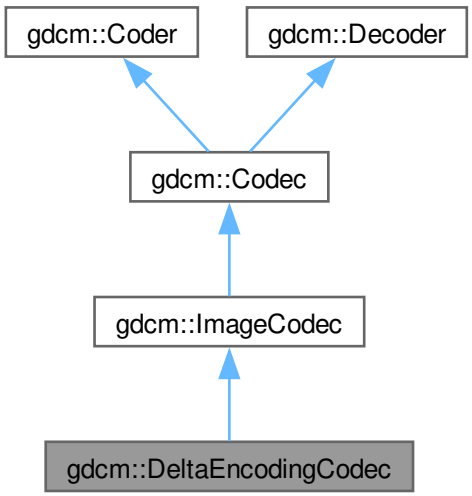
- gdcmDefs.h

12.82 gdcm::DeltaEncodingCodec Class Reference

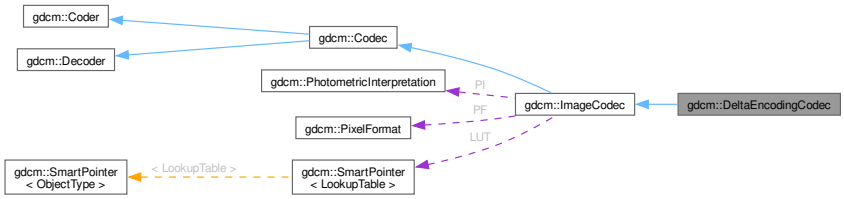
DeltaEncodingCodec compression used by some private vendor.

`#include <gdcmDeltaEncodingCodec.h>`

Inheritance diagram for gdcm::DeltaEncodingCodec:



Collaboration diagram for gdcm::DeltaEncodingCodec:



Public Member Functions

- DeltaEncodingCodec ()
- ~DeltaEncodingCodec ()
- bool CanDecode (TransferSyntax const &ts)
- bool Decode (DataElement const &is, DataElement &os)

  Decode.

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CanCode (TransferSyntax const &) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &) const override

  Return whether this decoder support this transfer syntax (can decode it).
- bool CleanupUnusedBits (char *data, size_t datalen)
- virtual ImageCodec * Clone () const =0
- bool Decode (DataElement const &is_, DataElement &os) override

  Decode.
- const unsigned int * GetDimensions () const
- virtual bool GetHeaderInfo (std::istream &is_, TransferSyntax &ts)
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool Decode (std::istream &is, std::ostream &os)

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.82.1 Detailed Description

DeltaEncodingCodec compression used by some private vendor.

12.82.2 Constructor & Destructor Documentation

12.82.2.1 DeltaEncodingCodec()

```
gdcm::DeltaEncodingCodec::DeltaEncodingCodec ()
```

12.82.2.2 ~DeltaEncodingCodec()

```
gdcm::DeltaEncodingCodec::~DeltaEncodingCodec ()
```

12.82.3 Member Function Documentation

12.82.3.1 CanDecode()

```
bool gdcm::DeltaEncodingCodec::CanDecode (
            TransferSyntax const & ts)
```

12.82.3.2 Decode() [1/2]

```
bool gdcm::DeltaEncodingCodec::Decode (
            DataElement const & ,
            DataElement & )  [virtual]
```

Decode.

Reimplemented from gdcm::Decoder.

12.82.3.3 Decode() [2/2]

```
bool gdcm::DeltaEncodingCodec::Decode (
            std::istream & is,
            std::ostream & os)  [protected]
```

The documentation for this class was generated from the following file:

- gdcmDeltaEncodingCodec.h

12.83 gdcm::DICOMDIR Class Reference

DICOMDIR class.

```
#include <gdcmDICOMDIR.h>
```

Public Member Functions

- DICOMDIR ()=default
- DICOMDIR (FileSet fs)

12.83.1 Detailed Description

DICOMDIR class.

Structured for handling DICOMDIR

12.83.2 Constructor & Destructor Documentation

12.83.2.1 DICOMDIR() [1/2]

```
gdcm::DICOMDIR::DICOMDIR ()  [default]
```

12.83.2.2 DICOMDIR() [2/2]

```
gdcm::DICOMDIR::DICOMDIR (
            FileSet fs)  [inline]
```

The documentation for this class was generated from the following file:

- gdcmDICOMDIR.h

12.84 gdcm::DICOMDIRGenerator Class Reference

DICOMDIRGenerator class.

```
#include <gdcmDICOMDIRGenerator.h>
```

Public Types

- typedef Directory::FilenamesType FilenamesType
- typedef Directory::FilenameType FilenameType

Public Member Functions

- DICOMDIRGenerator ()
- ~DICOMDIRGenerator ()
- bool Generate ()

  Main function to generate the DICOMDIR.
- File & GetFile ()
- void SetDescriptor (const char *d)
- void SetFile (const File &f)

  Set/Get file. The DICOMDIR file will be valid once a call to Generate has been done.
- void SetFilenames (FilenamesType const &fns)

  Set the list of filenames from which the DICOMDIR should be generated from.
- void SetRootDirectory (FilenameType const &root)

  Set the root directory from which the filenames should be considered.

Protected Member Functions

- bool AddImageDirectoryRecord ()
- bool AddPatientDirectoryRecord ()
- bool AddSeriesDirectoryRecord ()
- bool AddStudyDirectoryRecord ()
- Scanner & GetScanner ()

12.84.1 Detailed Description

DICOMDIRGenerator class.

This is a STD-GEN-CD DICOMDIR generator. ref: PS 3.11-2008 Annex D (Normative) - General Purpose CD-R and DVD Interchange Profiles

Note

PS 3.11 - 2008 / D.3.2 Physical Medium And Medium Format The STD-GEN-CD and STD-GEN-SEC-CD application profiles require the 120 mm CD-R physical medium with the ISO/IEC 9660 Media Format, as defined in PS3.12. See also PS 3.12 - 2008 / Annex F 120mm CD-R Medium (Normative) and PS 3.10 - 2008 / 8 DICOM File Service / 8.1 FILE-SET

Warning

: PS 3.11 - 2008 / D.3.1 SOP Classes and Transfer Syntaxes Composite Image & Stand-alone Storage are required to be stored as Explicit VR Little Endian Uncompressed (1.2.840.10008.1.2.1). When a DICOM file is found using another Transfer Syntax the generator will simply stops.

- Input files should be Explicit VR Little Endian
- filenames should be valid VR::CS value (16 bytes, upper case ...)

Bug : There is a current limitation of not handling Referenced SOP Class UID / Referenced SOP Instance UID simply because the Scanner does not allow us See PS 3.11 / Table D.3-2 STD-GEN Additional DICOMDIR Keys

Examples

GenerateDICOMDIR.cs.

12.84.2 Member Typedef Documentation

12.84.2.1 FilenamesType

```
typedef Directory::FilenamesType gdcm::DICOMDIRGenerator::FilenamesType
```

12.84.2.2 FilenameType

```
typedef Directory::FilenameType gdcm::DICOMDIRGenerator::FilenameType
```

12.84.3 Constructor & Destructor Documentation

12.84.3.1 DICOMDIRGenerator()

```
gdcm::DICOMDIRGenerator::DICOMDIRGenerator ()
```

12.84.3.2 ~DICOMDIRGenerator()

```
gdcm::DICOMDIRGenerator::~DICOMDIRGenerator ()
```

12.84.4 Member Function Documentation

12.84.4.1 AddImageDirectoryRecord()

```
bool gdcm::DICOMDIRGenerator::AddImageDirectoryRecord ()  [protected]
```

12.84.4.2 AddPatientDirectoryRecord()

```
bool gdcm::DICOMDIRGenerator::AddPatientDirectoryRecord ()  [protected]
```

12.84.4.3 AddSeriesDirectoryRecord()

```
bool gdcm::DICOMDIRGenerator::AddSeriesDirectoryRecord ()  [protected]
```

12.84.4.4 AddStudyDirectoryRecord()

```
bool gdcm::DICOMDIRGenerator::AddStudyDirectoryRecord ()  [protected]
```

12.84.4.5 Generate()

```
bool gdcm::DICOMDIRGenerator::Generate ()
```

Main function to generate the DICOMDIR.

Examples

GenerateDICOMDIR.cs.

12.84.4.6 GetFile()

```
File & gdcm::DICOMDIRGenerator::GetFile ()
```

Examples

GenerateDICOMDIR.cs.

12.84.4.7 GetScanner()

```
Scanner & gdcm::DICOMDIRGenerator::GetScanner ()  [protected]
```

12.84.4.8 SetDescriptor()

```
void gdcm::DICOMDIRGenerator::SetDescriptor (
            const char * d)
```

Set the File Set ID.

Warning

this need to be a valid VR::CS value

Examples

GenerateDICOMDIR.cs.

12.84.4.9 SetFile()

```
void gdcm::DICOMDIRGenerator::SetFile (
            const File & f)
```

Set/Get file. The DICOMDIR file will be valid once a call to Generate has been done.

12.84.4.10 SetFilenames()

```
void gdcm::DICOMDIRGenerator::SetFilenames (
            FilenamesType const & fns)
```

Set the list of filenames from which the DICOMDIR should be generated from.

Examples

GenerateDICOMDIR.cs.

12.84.4.11 SetRootDirectory()

```
void gdcm::DICOMDIRGenerator::SetRootDirectory (
            FilenameType const & root)
```

Set the root directory from which the filenames should be considered.

The documentation for this class was generated from the following file:

- gdcmDICOMDIRGenerator.h

12.85 gdcm::Dict Class Reference

Class to represent a map of DictEntry.

```
#include <gdcmDict.h>
```

Public Types

- typedef MapDictEntry::const_iterator ConstIterator
- typedef MapDictEntry::iterator Iterator
- typedef std::map< Tag, DictEntry > MapDictEntry

Public Member Functions

- Dict ()
- Dict (const Dict &_val)=delete
- void AddDictEntry (const Tag &tag, const DictEntry &de)
- ConstIterator Begin () const
- ConstIterator End () const
- const DictEntry & GetDictEntry (const Tag &tag) const
- const DictEntry & GetDictEntryByKeyword (const char *keyword, Tag &tag) const
- const DictEntry & GetDictEntryByName (const char *name, Tag &tag) const
- const char * GetKeywordFromTag (Tag const &tag) const

  Function to return the Keyword from a Tag.
- bool IsEmpty () const
- Dict & operator= (const Dict &_val)=delete

Protected Member Functions

- void LoadDefault ()

Friends

- class Dicts
- std::ostream & operator<< (std::ostream &_os, const Dict &_val)

12.85.1 Detailed Description

Class to represent a map of DictEntry.

Note

bla TODO FIXME: For Element == 0x0 need to return Name = Group Length ValueRepresentation = UL Value↩ Multiplicity = 1

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, PublicDict.cxx, and ReadAndPrintAttributes.cxx.

12.85.2 Member Typedef Documentation

12.85.2.1 ConstIterator

```
typedef MapDictEntry::const_iterator gdcm::Dict::ConstIterator
```

12.85.2.2 Iterator

```
typedef MapDictEntry::iterator gdcm::Dict::Iterator
```

12.85.2.3 MapDictEntry

```
typedef std::map<Tag, DictEntry> gdcm::Dict::MapDictEntry
```

12.85.3 Constructor & Destructor Documentation

12.85.3.1 Dict() [1/2]

```
gdcm::Dict::Dict () [inline]
```

Referenced by Dict(), operator<<, and operator=().

12.85.3.2 Dict() [2/2]

```
gdcm::Dict::Dict (
            const Dict & _val)  [delete]
```

References Dict(), and operator<<.

12.85.4 Member Function Documentation

12.85.4.1 AddDictEntry()

```
void gdcm::Dict::AddDictEntry (
            const Tag & tag,
            const DictEntry & de)  [inline]
```

12.85.4.2 Begin()

```
ConstIterator gdcm::Dict::Begin () const  [inline]
```

Examples

GenAllVR.cxx, and GenFakeIdentifyFile.cxx.

12.85.4.3 End()

```
ConstIterator gdcm::Dict::End () const  [inline]
```

Examples

GenAllVR.cxx, and GenFakeIdentifyFile.cxx.

12.85.4.4 GetDictEntry()

```
const DictEntry & gdcm::Dict::GetDictEntry (
            const Tag & tag) const  [inline]
```

Examples

GenFakeIdentifyFile.cxx, and PublicDict.cxx.

12.85.4.5 GetDictEntryByKeyword()

```
const DictEntry & gdcm::Dict::GetDictEntryByKeyword (
            const char * keyword,
            Tag & tag) const  [inline]
```

Lookup DictEntry by keyword. Even if DICOM standard defines keyword as being unique. The lookup table is built on Tag. Therefore looking up a DictEntry by Keyword is more inefficient than looking up by Tag.

12.85.4.6 GetDictEntryByName()

```
const DictEntry & gdcm::Dict::GetDictEntryByName (
            const char * name,
            Tag & tag) const  [inline]
```

Inefficient way of looking up tag by name. Technically DICOM does not guarantee uniqueness (and Curve / Overlay are there to prove it). But most of the time name is in fact uniq and can be uniquely link to a tag

Examples

ReadAndPrintAttributes.cxx.

12.85.4.7 GetKeywordFromTag()

```
const char * gdcm::Dict::GetKeywordFromTag (
            Tag const & tag) const  [inline]
```

Function to return the Keyword from a Tag.

12.85.4.8 IsEmpty()

```
bool gdcm::Dict::IsEmpty () const  [inline]
```

12.85.4.9 LoadDefault()

```
void gdcm::Dict::LoadDefault ()  [protected]
```

12.85.4.10 operator=()

```
Dict & gdcm::Dict::operator= (
            const Dict & _val)  [delete]
```

References Dict().

12.85.5 Friends And Related Symbol Documentation

12.85.5.1 Dicts

```
friend class Dicts  [friend]
```

References Dicts.

Referenced by Dicts.

12.85.5.2 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Dict & _val)  [friend]
```

References Dict().

Referenced by Dict().

The documentation for this class was generated from the following file:

- gdcmDict.h

12.86 gdcm::DictConverter Class Reference

Class to convert a .dic file into something else:

```
#include <gdcmDictConverter.h>
```

Public Types

- enum OutputTypes {
  DICT_DEFAULT = 0 ,
  DICT_DEBUG ,
  DICT_XML }

Public Member Functions

- DictConverter ()
- ~DictConverter ()
- void Convert ()
- const std::string & GetDictName () const
- const std::string & GetInputFilename () const
- const std::string & GetOutputFilename () const
- int GetOutputType () const
- void SetDictName (const char *name)
- void SetInputFileName (const char *filename)
- void SetOutputFileName (const char *filename)
- void SetOutputType (int type)

Static Public Member Functions

- static bool Readuint16 (const char *raw, uint16_t &ov)
- static bool ReadVM (const char *raw, VM::VMType &type)
- static bool ReadVR (const char *raw, VR::VRType &type)

Protected Member Functions

- void AddGroupLength ()
- bool ConvertToCXX (const char *raw, std::string &cxx)
- bool ConvertToXML (const char *raw, std::string &cxx)
- void WriteFooter ()
- void WriteHeader ()

12.86.1 Detailed Description

Class to convert a .dic file into something else:

- CXX code : embed dict into shared lib (DICT_DEFAULT)
- Debug mode (DICT_DEBUG)
- XML dict (DICT_XML)

Note

12.86.2 Member Enumeration Documentation

12.86.2.1 OutputTypes

`enum gdcm::DictConverter::OutputTypes`

Enumerator

DICT_DEFAULT	
DICT_DEBUG	
DICT_XML	

12.86.3 Constructor & Destructor Documentation

12.86.3.1 DictConverter()

`gdcm::DictConverter::DictConverter ()`

12.86.3.2 ~DictConverter()

```
gdcm::DictConverter::~DictConverter ()
```

12.86.4 Member Function Documentation

12.86.4.1 AddGroupLength()

```
void gdcm::DictConverter::AddGroupLength ()  [protected]
```

12.86.4.2 Convert()

```
void gdcm::DictConverter::Convert ()
```

12.86.4.3 ConvertToCXX()

```
bool gdcm::DictConverter::ConvertToCXX (
            const char * raw,
            std::string & cxx)  [protected]
```

12.86.4.4 ConvertToXML()

```
bool gdcm::DictConverter::ConvertToXML (
            const char * raw,
            std::string & cxx)  [protected]
```

12.86.4.5 GetDictName()

```
const std::string & gdcm::DictConverter::GetDictName () const
```

12.86.4.6 GetInputFilename()

```
const std::string & gdcm::DictConverter::GetInputFilename () const
```

12.86.4.7 GetOutputFilename()

```
const std::string & gdcm::DictConverter::GetOutputFilename () const
```

12.86.4.8 GetOutputType()

```
int gdcm::DictConverter::GetOutputType () const  [inline]
```

12.86.4.9 Readuint16()

```
bool gdcm::DictConverter::Readuint16 (
            const char * raw,
            uint16_t & ov)  [static]
```

12.86.4.10 ReadVM()

```
bool gdcm::DictConverter::ReadVM (
            const char * raw,
            VM::VMType & type)  [static]
```

12.86.4.11 ReadVR()

```
bool gdcm::DictConverter::ReadVR (
            const char * raw,
            VR::VRType & type)  [static]
```

12.86.4.12 SetDictName()

```
void gdcm::DictConverter::SetDictName (
            const char * name)
```

12.86.4.13 SetInputFileName()

```
void gdcm::DictConverter::SetInputFileName (
            const char * filename)
```

12.86.4.14 SetOutputFileName()

```
void gdcm::DictConverter::SetOutputFileName (
            const char * filename)
```

12.86.4.15 SetOutputType()

```
void gdcm::DictConverter::SetOutputType (
            int type)  [inline]
```

12.86.4.16 WriteFooter()

```
void gdcm::DictConverter::WriteFooter ()  [protected]
```

12.86.4.17 WriteHeader()

```
void gdcm::DictConverter::WriteHeader ()  [protected]
```

The documentation for this class was generated from the following file:

- gdcmDictConverter.h

12.87 gdcm::DictEntry Class Reference

Class to represent an Entry in the Dict.

```
#include <gdcmDictEntry.h>
```

Public Member Functions

- DictEntry (const char *name="", const char *keyword="", VR const &vr=VR::INVALID, VM const &vm=VM::VM0, bool ret=false)
- const char * GetKeyword () const

  same as GetName but without spaces...
- const char * GetName () const

  Set/Get Name.
- bool GetRetired () const

  Set/Get Retired flag.
- const VM & GetVM () const

  Set/Get VM.
- const VR & GetVR () const

  Set/Get VR.
- bool IsUnique () const
- void SetElementXX (bool v)

  Set whether element is shared in multiple elements (Source Image IDs typically).
- void SetGroupXX (bool v)

  Set whether element is shared in multiple groups (Curve/Overlay typically).
- void SetKeyword (const char *keyword)
- void SetName (const char *name)
- void SetRetired (bool retired)
- void SetVM (VM const &vm)
- void SetVR (const VR &vr)

Friends

- class Dict
- std::ostream & operator<< (std::ostream &_os, const DictEntry &_val)

12.87.1 Detailed Description

Class to represent an Entry in the Dict.

Does not really exist within the DICOM definition, just a way to minimize storage and have a mapping from gdcm::Tag to the needed information

Note

bla TODO FIXME: Need a PublicDictEntry...indeed DictEntry has a notion of retired which does not exist in PrivateDictEntry...

See also

gdcm::Dict

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, PublicDict.cxx, and TraverseModules.cxx.

12.87.2 Constructor & Destructor Documentation

12.87.2.1 DictEntry()

```
gdcm::DictEntry::DictEntry (
            const char * name = "",
            const char * keyword = "",
            VR const & vr = VR::INVALID,
            VM const & vm = VM::VM0,
            bool ret = false)  [inline]
```

References gdcm::VR::INVALID, and gdcm::VM::VM0.

Referenced by operator<<.

12.87.3 Member Function Documentation

12.87.3.1 GetKeyword()

```
const char * gdcm::DictEntry::GetKeyword () const  [inline]
```

same as GetName but without spaces...

12.87.3.2 GetName()

```
const char * gdcm::DictEntry::GetName () const  [inline]
```

Set/Get Name.

Referenced by gdcm::PrivateDict::PrintXML().

12.87.3.3 GetRetired()

```
bool gdcm::DictEntry::GetRetired () const  [inline]
```

Set/Get Retired flag.

Examples

GenAllVR.cxx.

12.87.3.4 GetVM()

```
const VM & gdcm::DictEntry::GetVM () const  [inline]
```

Set/Get VM.

Referenced by gdcm::PrivateDict::AddDictEntry(), and gdcm::PrivateDict::PrintXML().

12.87.3.5 GetVR()

```
const VR & gdcm::DictEntry::GetVR () const  [inline]
```

Set/Get VR.

Examples

GenAllVR.cxx, and GenFakeIdentifyFile.cxx.

Referenced by gdcm::PrivateDict::AddDictEntry(), and gdcm::PrivateDict::PrintXML().

12.87.3.6 IsUnique()

```
bool gdcm::DictEntry::IsUnique () const  [inline]
```

Return whether the name of the DataElement can be considered to be unique. As of 2008 all elements name were unique (except the expclitely 'XX' ones)

12.87.3.7 SetElementXX()

```
void gdcm::DictEntry::SetElementXX (
            bool v)  [inline]
```

Set whether element is shared in multiple elements (Source Image IDs typically).

12.87.3.8 SetGroupXX()

```
void gdcm::DictEntry::SetGroupXX (
            bool v)  [inline]
```

Set whether element is shared in multiple groups (Curve/Overlay typically).

12.87.3.9 SetKeyword()

```
void gdcm::DictEntry::SetKeyword (
            const char * keyword)  [inline]
```

12.87.3.10 SetName()

```
void gdcm::DictEntry::SetName (
            const char * name)  [inline]
```

12.87.3.11 SetRetired()

```
void gdcm::DictEntry::SetRetired (
            bool retired)  [inline]
```

12.87.3.12 SetVM()

```
void gdcm::DictEntry::SetVM (
            VM const & vm)  [inline]
```

Referenced by gdcm::PrivateDict::AddDictEntry().

12.87.3.13 SetVR()

```
void gdcm::DictEntry::SetVR (
            const VR & vr)  [inline]
```

Referenced by gdcm::PrivateDict::AddDictEntry().

12.87.4 Friends And Related Symbol Documentation

12.87.4.1 Dict

```
friend class Dict  [friend]
```

References Dict.

Referenced by Dict.

12.87.4.2 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const DictEntry & _val)  [friend]
```

References DictEntry().

The documentation for this class was generated from the following file:

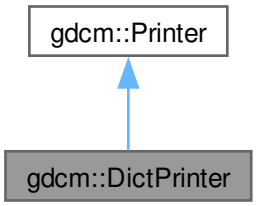
- gdcmDictEntry.h

12.88 gdcm::DictPrinter Class Reference

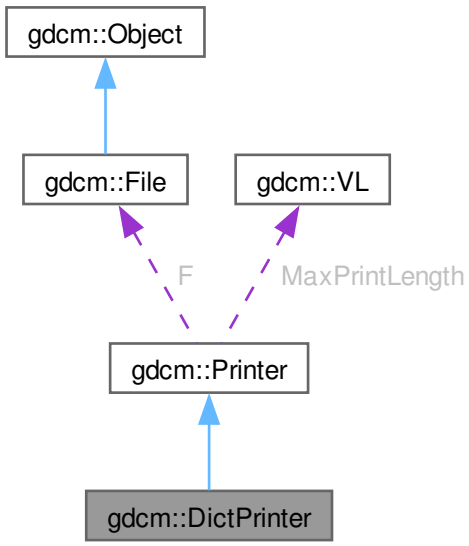
DictPrinter class.

```
#include <gdcmDictPrinter.h>
```

Inheritance diagram for gdcm::DictPrinter:



Collaboration diagram for gdcm::DictPrinter:



Public Member Functions

- DictPrinter ()
- ~DictPrinter ()=default
- void Print (std::ostream &os)

Public Member Functions inherited from gdcm::Printer

- Printer ()
- ~Printer ()=default
- PrintStyles GetPrintStyle () const

  Get PrintStyle value.
- void Print (std::ostream &os)

  Print.
- void PrintDataSet (const DataSet &ds, std::ostream &os, const std::string &s="")

  Print an individual dataset.
- void SetColor (bool c)

  Set color mode or not.
- void SetFile (File const &f)

  Set file.
- void SetStyle (PrintStyles ps)

  Set PrintStyle value.

Protected Member Functions

- void PrintDataElement2 (std::ostream &os, const DataSet &ds, const DataElement &ide)
- void PrintDataSet2 (std::ostream &os, const DataSet &ds)

Protected Member Functions inherited from gdcm::Printer

- VR PrintDataElement (std::ostringstream &os, const Dicts &dicts, const DataSet &ds, const DataElement &de, std::ostream &out, std::string const &indent)
- void PrintSQ (const SequenceOfItems *sqi, std::ostream &os, std::string const &indent)

Additional Inherited Members

Public Types inherited from gdcm::Printer

- enum PrintStyles {
  VERBOSE_STYLE = 0 ,
  CONDENSED_STYLE ,
  XML ,
  CXX }

Protected Attributes inherited from gdcm::Printer

- const File * F
- VL MaxPrintLength
- PrintStyles PrintStyle

12.88.1 Detailed Description

DictPrinter class.

12.88.2 Constructor & Destructor Documentation

12.88.2.1 DictPrinter()

```
gdcm::DictPrinter::DictPrinter ()
```

12.88.2.2 ~DictPrinter()

```
gdcm::DictPrinter::~DictPrinter ()  [default]
```

12.88.3 Member Function Documentation

12.88.3.1 Print()

```
void gdcm::DictPrinter::Print (
            std::ostream & os)
```

12.88.3.2 PrintDataElement2()

```
void gdcm::DictPrinter::PrintDataElement2 (
            std::ostream & os,
            const DataSet & ds,
            const DataElement & ide)  [protected]
```

12.88.3.3 PrintDataSet2()

```
void gdcm::DictPrinter::PrintDataSet2 (
            std::ostream & os,
            const DataSet & ds)  [protected]
```

The documentation for this class was generated from the following file:

- gdcmDictPrinter.h

12.89 gdcm::Dicts Class Reference

Class to manipulate the sum of knowledge (all the dict user load).

`#include <gdcmDicts.h>`

Public Member Functions

- Dicts ()
- Dicts (const Dicts &_val)=delete
- ~Dicts ()
- const CSAHeaderDict & GetCSAHeaderDict () const
- const DictEntry & GetDictEntry (const PrivateTag &tag) const
- const DictEntry & GetDictEntry (const Tag &tag, const char *owner=nullptr) const

  THREAD SAFE.
- PrivateDict & GetPrivateDict ()
- const PrivateDict & GetPrivateDict () const
- const Dict & GetPublicDict () const
- bool IsEmpty () const
- Dicts & operator= (const Dicts &_val)=delete

Protected Types

- enum ConstructorType {
  PHILIPS ,
  GEMS ,
  SIEMENS }

Protected Member Functions

- void LoadDefaults ()

Static Protected Member Functions

- static const char * GetConstructorString (ConstructorType type)

Friends

- class Global
- std::ostream & operator<< (std::ostream &_os, const Dicts &d)

12.89.1 Detailed Description

Class to manipulate the sum of knowledge (all the dict user load).

Note

bla

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, PublicDict.cxx, ReadAndPrintAttributes.cxx, and TraverseModules.cxx.

12.89.2 Member Enumeration Documentation

12.89.2.1 ConstructorType

```
enum gdcm::Dicts::ConstructorType  [protected]
```

Enumerator

PHILIPS	
GEMS	

SIEMENS

12.89.3 Constructor & Destructor Documentation

12.89.3.1 Dicts() [1/2]

```
gdcm::Dicts::Dicts ()
```

Referenced by Dicts(), operator<<, and operator=().

12.89.3.2 ~Dicts()

```
gdcm::Dicts::~Dicts ()
```

12.89.3.3 Dicts() [2/2]

```
gdcm::Dicts::Dicts (
            const Dicts & _val)  [delete]
```

References Dicts().

12.89.4 Member Function Documentation

12.89.4.1 GetConstructorString()

```
const char * gdcm::Dicts::GetConstructorString (
            ConstructorType type)  [static], [protected]
```

12.89.4.2 GetCSAHeaderDict()

```
const CSAHeaderDict & gdcm::Dicts::GetCSAHeaderDict () const
```

Examples

MrProtocol.cxx.

12.89.4.3 GetDictEntry() [1/2]

```
const DictEntry & gdcm::Dicts::GetDictEntry (
            const PrivateTag & tag) const
```

12.89.4.4 GetDictEntry() [2/2]

```
const DictEntry & gdcm::Dicts::GetDictEntry (
            const Tag & tag,
            const char * owner = nullptr) const
```

THREAD SAFE.

works for both public and private dicts: owner is null for public dict

Warning

owner need to be set to appropriate owner for call to work. see

Examples

PublicDict.cxx, and TraverseModules.cxx.

12.89.4.5 GetPrivateDict() [1/2]

```
PrivateDict & gdcm::Dicts::GetPrivateDict ()
```

12.89.4.6 GetPrivateDict() [2/2]

```
const PrivateDict & gdcm::Dicts::GetPrivateDict () const
```

12.89.4.7 GetPublicDict()

```
const Dict & gdcm::Dicts::GetPublicDict () const
```

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, PublicDict.cxx, and ReadAndPrintAttributes.cxx.

Referenced by IsEmpty().

12.89.4.8 IsEmpty()

```
bool gdcm::Dicts::IsEmpty () const  [inline]
```

References GetPublicDict().

12.89.4.9 LoadDefaults()

```
void gdcm::Dicts::LoadDefaults ()  [protected]
```

12.89.4.10 operator=()

```
Dicts & gdcm::Dicts::operator= (
            const Dicts & _val)  [delete]
```

References Dicts().

12.89.5 Friends And Related Symbol Documentation

12.89.5.1 Global

```
friend class Global  [friend]
```

References Global.

Referenced by Global.

12.89.5.2 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Dicts & d)  [friend]
```

References Dicts().

The documentation for this class was generated from the following file:

- gdcmDicts.h

12.90 gdcm::network::DIMSE Class Reference

DIMSE.

```
#include <gdcmDIMSE.h>
```

Public Types

- enum CommandTypes {
  C_STORE_RQ = 0x0001 ,
  C_STORE_RSP = 0x8001 ,
  C_GET_RQ = 0x0010 ,
  C_GET_RSP = 0x8010 ,
  C_FIND_RQ = 0x0020 ,
  C_FIND_RSP = 0x8020 ,
  C_MOVE_RQ = 0x0021 ,
  C_MOVE_RSP = 0x8021 ,
  C_ECHO_RQ = 0x0030 ,
  C_ECHO_RSP = 0x8030 ,
  N_EVENT_REPORT_RQ = 0x0100 ,
  N_EVENT_REPORT_RSP = 0x8100 ,
  N_GET_RQ = 0x0110 ,
  N_GET_RSP = 0x8110 ,
  N_SET_RQ = 0x0120 ,
  N_SET_RSP = 0x8120 ,
  N_ACTION_RQ = 0x0130 ,
  N_ACTION_RSP = 0x8130 ,
  N_CREATE_RQ = 0x0140 ,
  N_CREATE_RSP = 0x8140 ,
  N_DELETE_RQ = 0x0150 ,
  N_DELETE_RSP = 0x8150 ,
  C_CANCEL_RQ = 0x0FFF }

12.90.1 Detailed Description

DIMSE.

PS 3.7 - 2009 Annex E Command Dictionary (Normative) E.1 REGISTRY OF DICOM COMMAND ELEMENTS Table E.1-1 COMMAND FIELDS (PART 1)

12.90.2 Member Enumeration Documentation

12.90.2.1 CommandTypes

`enum gdcm::network::DIMSE::CommandTypes`

Enumerator

C_STORE_RQ	
C_STORE_RSP	
C_GET_RQ	
C_GET_RSP	
C_FIND_RQ	

C_FIND_RSP	
C_MOVE_RQ	
C_MOVE_RSP	
C_ECHO_RQ	
C_ECHO_RSP	
N_EVENT_REPORT_RQ	
N_EVENT_REPORT_RSP	
N_GET_RQ	
N_GET_RSP	
N_SET_RQ	
N_SET_RSP	
N_ACTION_RQ	
N_ACTION_RSP	
N_CREATE_RQ	
N_CREATE_RSP	
N_DELETE_RQ	
N_DELETE_RSP	
C_CANCEL_RQ	

The documentation for this class was generated from the following file:

- gdcmDIMSE.h

12.91 gdcm::DirectionCosines Class Reference

class to handle DirectionCosines

`#include <gdcmDirectionCosines.h>`

Public Member Functions

- DirectionCosines ()
- DirectionCosines (const double dircos[6])
- ~DirectionCosines ()
- double ComputeDistAlongNormal (const double ipp[3]) const

  Compute the distance along the normal.
- void Cross (double z[3]) const

  Compute Cross product.
- double CrossDot (DirectionCosines const &dc) const

  Compute the Dot product of the two cross vector of both DirectionCosines object.
- double Dot () const

Compute Dot.

- bool IsValid () const

  Return whether or not this is a valid direction cosines.
- void Normalize ()

  Normalize in-place.
- operator const double * () const

  *Make the class behave like a const double *.*
- void Print (std::ostream &) const

  Print.
- bool SetFromString (const char *str)

Static Public Member Functions

- static double Dot (const double x[3], const double y[3])

  Compute Dot.
- static double Norm (const double v[3])

  Return norm of the vector.
- static void Normalize (double v[3])

  Normalize in-place.

12.91.1 Detailed Description

class to handle DirectionCosines

Examples

DiscriminateVolume.cxx.

12.91.2 Constructor & Destructor Documentation

12.91.2.1 DirectionCosines() [1/2]

```
gdcm::DirectionCosines::DirectionCosines ()
```

Referenced by CrossDot().

12.91.2.2 DirectionCosines() [2/2]

```
gdcm::DirectionCosines::DirectionCosines (
            const double dircos[6])
```

12.91.2.3 ~DirectionCosines()

```
gdcm::DirectionCosines::~DirectionCosines ()
```

12.91.3 Member Function Documentation

12.91.3.1 ComputeDistAlongNormal()

```
double gdcm::DirectionCosines::ComputeDistAlongNormal (
            const double ipp[3]) const
```

Compute the distance along the normal.

12.91.3.2 Cross()

```
void gdcm::DirectionCosines::Cross (
            double z[3]) const
```

Compute Cross product.

12.91.3.3 CrossDot()

```
double gdcm::DirectionCosines::CrossDot (
            DirectionCosines const & dc) const
```

Compute the Dot product of the two cross vector of both DirectionCosines object.

Examples

DiscriminateVolume.cxx.

References DirectionCosines().

12.91.3.4 Dot() [1/2]

```
double gdcm::DirectionCosines::Dot () const
```

Compute Dot.

12.91.3.5 Dot() [2/2]

```
double gdcm::DirectionCosines::Dot (
            const double x[3],
            const double y[3])  [static]
```

Compute Dot.

12.91.3.6 IsValid()

```
bool gdcm::DirectionCosines::IsValid () const
```

Return whether or not this is a valid direction cosines.

12.91.3.7 Norm()

```
double gdcm::DirectionCosines::Norm (
            const double v[3])  [static]
```

Return norm of the vector.

12.91.3.8 Normalize() [1/2]

```
void gdcm::DirectionCosines::Normalize ()
```

Normalize in-place.

12.91.3.9 Normalize() [2/2]

```
void gdcm::DirectionCosines::Normalize (
            double v[3])  [static]
```

Normalize in-place.

12.91.3.10 operator const double *()

```
gdcm::DirectionCosines::operator const double * () const  [inline]
```

Make the class behave like a const double *.

12.91.3.11 Print()

```
void gdcm::DirectionCosines::Print (
            std::ostream & ) const
```

Print.

12.91.3.12 SetFromString()

```
bool gdcm::DirectionCosines::SetFromString (
            const char * str)
```

Initialize from string str. It requires 6 floating point separated by a backslash character.

Examples

DiscriminateVolume.cxx.

The documentation for this class was generated from the following file:

- gdcmDirectionCosines.h

12.92 gdcm::Directory Class Reference

Class for manipulation directories.

`#include <gdcmDirectory.h>`

Public Types

- typedef std::vector< FilenameType > FilenamesType
- typedef std::string FilenameType

Public Member Functions

- Directory ()=default
- ~Directory ()=default
- FilenamesType const & GetDirectories () const

  Return the Directories traversed.
- FilenamesType const & GetFilenames () const

  Set/Get the file names within the directory.
- FilenameType const & GetToplevel () const

  Get the name of the toplevel directory.
- unsigned int Load (FilenameType const &name, bool recursive=false)
- void Print (std::ostream &os=std::cout) const

  Print.

Protected Member Functions

- unsigned int Explore (FilenameType const &name, bool recursive)

  Return number of file found when 'recursive'ly exploring directory `name`.

Friends

- std::ostream & operator<< (std::ostream &_os, const Directory &d)

12.92.1 Detailed Description

Class for manipulation directories.

Note

This implementation provide a cross platform implementation for manipulating directories: basically traversing directories and harvesting files

will not take into account unix type hidden file recursive option will not look into UNIX type hidden directory (those starting with a '.')

Since python or C# provide there own equivalent implementation, in which case gdcm::Directory does not make much sense.

Examples

DecompressImageMultiframe.cs, DiscriminateVolume.cxx, DumpToSQLITE3.cxx, DumpVisusChange.cxx, GenerateDICOMDIR.cs, GenerateRTSTRUCT.cxx, ReadUTF8QtDir.cxx, ScanDirectory.cs, SortImage.cxx, StandardizeFiles.cs, VolumeSorter.cxx, gdcmorthoplanes.cxx, and threadgdcm.cxx.

12.92.2 Member Typedef Documentation

12.92.2.1 FilenamesType

```
typedef std::vector<FilenameType> gdcm::Directory::FilenamesType
```

Examples

CStoreQtProgress.cxx, DumpVisusChange.cxx, GenerateRTSTRUCT.cxx, ReadUTF8QtDir.cxx, SimpleScanner.cxx, VolumeSorter.cxx, gdcmorthoplanes.cxx, reslicesphere.cxx, and threadgdcm.cxx.

12.92.2.2 FilenameType

```
typedef std::string gdcm::Directory::FilenameType
```

12.92.3 Constructor & Destructor Documentation

12.92.3.1 Directory()

```
gdcm::Directory::Directory () [default]
```

Referenced by operator<<.

12.92.3.2 ~Directory()

```
gdcm::Directory::~Directory ()  [default]
```

12.92.4 Member Function Documentation

12.92.4.1 Explore()

```
unsigned int gdcm::Directory::Explore (
            FilenameType const & name,
            bool recursive)  [protected]
```

Return number of file found when 'recursive'ly exploring directory `name`.

12.92.4.2 GetDirectories()

```
FilenamesType const & gdcm::Directory::GetDirectories () const  [inline]
```

Return the Directories traversed.

12.92.4.3 GetFilenames()

```
FilenamesType const & gdcm::Directory::GetFilenames () const  [inline]
```

Set/Get the file names within the directory.

Examples

ClinicalTrialIdentificationWorkflow.cs, DecompressImageMultiframe.cs, DiscriminateVolume.cxx, DumpToSQLITE3.cxx, DumpVisusChange.cxx, GenerateDICOMDIR.cs, GenerateRTSTRUCT.cxx, ReadUTF8QtDir.cxx, ScanDirectory.cs, SortImage.cxx, StandardizeFiles.cs, VolumeSorter.cxx, gdcmorthoplanes.cxx, reslicesphere.cxx, and threadgdcm.cxx.

12.92.4.4 GetToplevel()

```
FilenameType const & gdcm::Directory::GetToplevel () const  [inline]
```

Get the name of the toplevel directory.

12.92.4.5 Load()

```
unsigned int gdcm::Directory::Load (
            FilenameType const & name,
            bool recursive = false)
```

construct a list of filenames and subdirectory beneath directory: name

Warning

: hidden file and hidden directory are not loaded.

Examples

ClinicalTrialIdentificationWorkflow.cs, DecompressImageMultiframe.cs, DiscriminateVolume.cxx, DumpToSQLITE3.cxx, DumpVisusChange.cxx, GenerateDICOMDIR.cs, GenerateRTSTRUCT.cxx, ReadUTF8QtDir.cxx, ScanDirectory.cs, SortImage.cxx, StandardizeFiles.cs, VolumeSorter.cxx, gdcmorthoplanes.cxx, reslicesphere.cxx, and threadgdcm.cxx.

12.92.4.6 Print()

```
void gdcm::Directory::Print (
            std::ostream & os = std::cout) const
```

Print.

Examples

SortImage.cxx.

Referenced by operator<<.

12.92.5 Friends And Related Symbol Documentation

12.92.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Directory & d)  [friend]
```

References Directory(), and Print().

The documentation for this class was generated from the following file:

- gdcmDirectory.h

12.93 gdcm::DirectoryHelper Class Reference

DirectoryHelper.

```
#include <gdcmDirectoryHelper.h>
```

Static Public Member Functions

- static Directory::FilenamesType GetCTImageSeriesUIDs (const std::string &inDirectory)
- static Directory::FilenamesType GetFilenamesFromSeriesUIDs (const std::string &inDirectory, const std::string &inSeriesUID)
- static std::string GetFrameOfReference (const std::vector< DataSet > &inDS)
- static Directory::FilenamesType GetMRImageSeriesUIDs (const std::string &inDirectory)
- static Directory::FilenamesType GetRTStructSeriesUIDs (const std::string &inDirectory)
- static Directory::FilenamesType GetSeriesUIDsBySOPClassUID (const std::string &inDirectory, const std::string &inSOPClassUID)
- static std::string GetSOPClassUID (const std::vector< DataSet > &inDS)
- static std::string GetStringValueFromTag (const Tag &t, const DataSet &ds)
- static std::vector< DataSet > LoadImageFromFiles (const std::string &inDirectory, const std::string &inSeriesUID)
- static std::string RetrieveSOPInstanceUIDFromIndex (int inIndex, const std::vector< DataSet > &inDS)
- static std::string RetrieveSOPInstanceUIDFromZPosition (double inZPos, const std::vector< DataSet > &inDS)

12.93.1 Detailed Description

DirectoryHelper.

this class is designed to help mitigate some of the commonly performed operations on directories. namely: 1) the ability to determine the number of series in a directory by what type of series is present 2) the ability to find all ct series in a directory 3) the ability to find all mr series in a directory 4) to load a set of DataSets from a series that's already been sorted by the IPP sorter 5) For rtstruct stuff, you need to know the sopinstanceuid of each z plane, so there's a retrieval function for that 6) then a few other functions for rtstruct writeouts

12.93.2 Member Function Documentation

12.93.2.1 GetCTImageSeriesUIDs()

```
Directory::FilenamesType gdcm::DirectoryHelper::GetCTImageSeriesUIDs (
            const std::string & inDirectory)  [static]
```

12.93.2.2 GetFilenamesFromSeriesUIDs()

```
Directory::FilenamesType gdcm::DirectoryHelper::GetFilenamesFromSeriesUIDs (
            const std::string & inDirectory,
            const std::string & inSeriesUID)  [static]
```

Examples

GenerateRTSTRUCT.cxx.

12.93.2.3 GetFrameOfReference()

```
std::string gdcm::DirectoryHelper::GetFrameOfReference (
            const std::vector< DataSet > & inDS)  [static]
```

12.93.2.4 GetMRImageSeriesUIDs()

```
Directory::FilenamesType gdcm::DirectoryHelper::GetMRImageSeriesUIDs (
            const std::string & inDirectory)  [static]
```

12.93.2.5 GetRTStructSeriesUIDs()

```
Directory::FilenamesType gdcm::DirectoryHelper::GetRTStructSeriesUIDs (
            const std::string & inDirectory)  [static]
```

Examples

GenerateRTSTRUCT.cxx.

12.93.2.6 GetSeriesUIDsBySOPClassUID()

```
Directory::FilenamesType gdcm::DirectoryHelper::GetSeriesUIDsBySOPClassUID (
            const std::string & inDirectory,
            const std::string & inSOPClassUID)  [static]
```

12.93.2.7 GetSOPClassUID()

```
std::string gdcm::DirectoryHelper::GetSOPClassUID (
            const std::vector< DataSet > & inDS)  [static]
```

12.93.2.8 GetStringValueFromTag()

```
std::string gdcm::DirectoryHelper::GetStringValueFromTag (
            const Tag & t,
            const DataSet & ds)  [static]
```

12.93.2.9 LoadImageFromFiles()

```
std::vector< DataSet > gdcm::DirectoryHelper::LoadImageFromFiles (
            const std::string & inDirectory,
            const std::string & inSeriesUID)  [static]
```

12.93.2.10 RetrieveSOPInstanceUIDFromIndex()

```
std::string gdcm::DirectoryHelper::RetrieveSOPInstanceUIDFromIndex (
            int inIndex,
            const std::vector< DataSet > & inDS)  [static]
```

12.93.2.11 RetrieveSOPInstanceUIDFromZPosition()

```
std::string gdcm::DirectoryHelper::RetrieveSOPInstanceUIDFromZPosition (
            double inZPos,
            const std::vector< DataSet > & inDS)  [static]
```

The documentation for this class was generated from the following file:

- gdcmDirectoryHelper.h

12.94 gdcm::DPath Class Reference

class to handle a DICOM path While supp 118 did introduced a notion of XPath for XML Native model this convention is too XML-centric. Instead prefer DCMTK style notation `https://groups.google.com/g/comp.protocols.dicom/c/IyIH0IOBMPA`

`#include <gdcmDPath.h>`

Public Member Functions

- DPath ()
- ~DPath ()
- bool ConstructFromString (const char *path)
- bool Match (DPath const &other) const

  Return whether or not 'other' match the template DPath.
- bool operator< (const DPath &rhs) const
- void Print (std::ostream &) const

Static Public Member Functions

- static bool IsValid (const char *path)

  Return if path is valid or not.

Friends

- std::ostream & operator<< (std::ostream &_os, const DPath &_val)

12.94.1 Detailed Description

class to handle a DICOM path While supp 118 did introduced a notion of XPath for XML Native model this convention is too XML-centric. Instead prefer DCMTK style notation `https://groups.google.com/g/comp.protocols.dicom/c/IyIH0IOBMPA`

12.94.2 Constructor & Destructor Documentation

12.94.2.1 DPath()

```
gdcm::DPath::DPath ()
```

Referenced by Match(), operator<(), and operator<<.

12.94.2.2 ~DPath()

```
gdcm::DPath::~DPath ()
```

12.94.3 Member Function Documentation

12.94.3.1 ConstructFromString()

```
bool gdcm::DPath::ConstructFromString (
            const char * path)
```

Examples

Cleaner.cs.

12.94.3.2 IsValid()

```
bool gdcm::DPath::IsValid (
            const char * path)  [static]
```

Return if path is valid or not.

12.94.3.3 Match()

```
bool gdcm::DPath::Match (
            DPath const & other) const
```

Return whether or not 'other' match the template DPath.

References DPath().

12.94.3.4 operator<()

```
bool gdcm::DPath::operator< (
            const DPath & rhs) const
```

References DPath().

12.94.3.5 Print()

```
void gdcm::DPath::Print (
            std::ostream & ) const
```

12.94.4 Friends And Related Symbol Documentation

12.94.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const DPath & _val)  [friend]
```

References DPath().

The documentation for this class was generated from the following file:

- gdcmDPath.h

12.95 gdcm::DummyValueGenerator Class Reference

Class for generating dummy value.

`#include <gdcmDummyValueGenerator.h>`

Static Public Member Functions

- static const char * Generate (const char *input)

12.95.1 Detailed Description

Class for generating dummy value.

See also

Anonymizer

12.95.2 Member Function Documentation

12.95.2.1 Generate()

```
const char * gdcm::DummyValueGenerator::Generate (
            const char * input)  [static]
```

Generate a dummy value from an input value. This is guarantee to always return the same output value when input is identical. Return an array of bytes that can be used for anonymization purpose, return NULL on error NOT THREAD SAFE

The documentation for this class was generated from the following file:

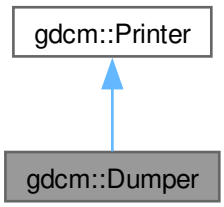
- gdcmDummyValueGenerator.h

12.96 gdcm::Dumper Class Reference

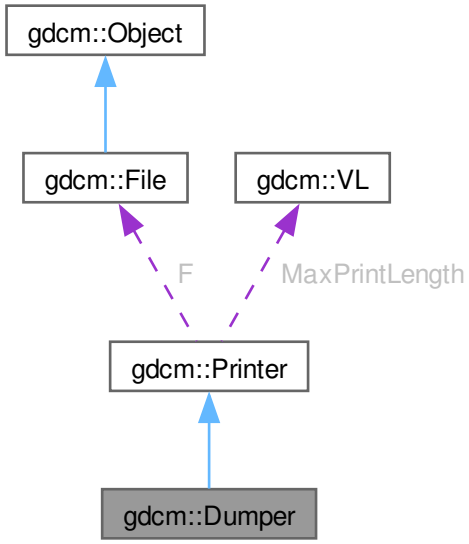
Codec class.

```
#include <gdcmDumper.h>
```

Inheritance diagram for gdcm::Dumper:



Collaboration diagram for gdcm::Dumper:



Public Member Functions

- Dumper ()
- ~Dumper ()=default

Public Member Functions inherited from gdcm::Printer

- Printer ()
- ~Printer ()=default
- PrintStyles GetPrintStyle () const

  Get PrintStyle value.
- void Print (std::ostream &os)

  Print.
- void PrintDataSet (const DataSet &ds, std::ostream &os, const std::string &s="")

  Print an individual dataset.
- void SetColor (bool c)

  Set color mode or not.
- void SetFile (File const &f)

  Set file.
- void SetStyle (PrintStyles ps)

  Set PrintStyle value.

Additional Inherited Members

Public Types inherited from gdcm::Printer

- enum PrintStyles {
  VERBOSE_STYLE = 0 ,
  CONDENSED_STYLE ,
  XML ,
  CXX }

Protected Member Functions inherited from gdcm::Printer

- VR PrintDataElement (std::ostringstream &os, const Dicts &dicts, const DataSet &ds, const DataElement &de, std::ostream &out, std::string const &indent)
- void PrintSQ (const SequenceOfItems *sqi, std::ostream &os, std::string const &indent)

Protected Attributes inherited from gdcm::Printer

- const File * F
- VL MaxPrintLength
- PrintStyles PrintStyle

12.96.1 Detailed Description

Codec class.

Note

Use it to simply dump value read from the file. No interpretation is done. But it is real fast ! Almost no overhead

12.96.2 Constructor & Destructor Documentation

12.96.2.1 Dumper()

```
gdcm::Dumper::Dumper ()  [inline]
```

References gdcm::Printer::CONDENSED_STYLE, and gdcm::Printer::PrintStyle.

12.96.2.2 ~Dumper()

```
gdcm::Dumper::~Dumper ()  [default]
```

The documentation for this class was generated from the following file:

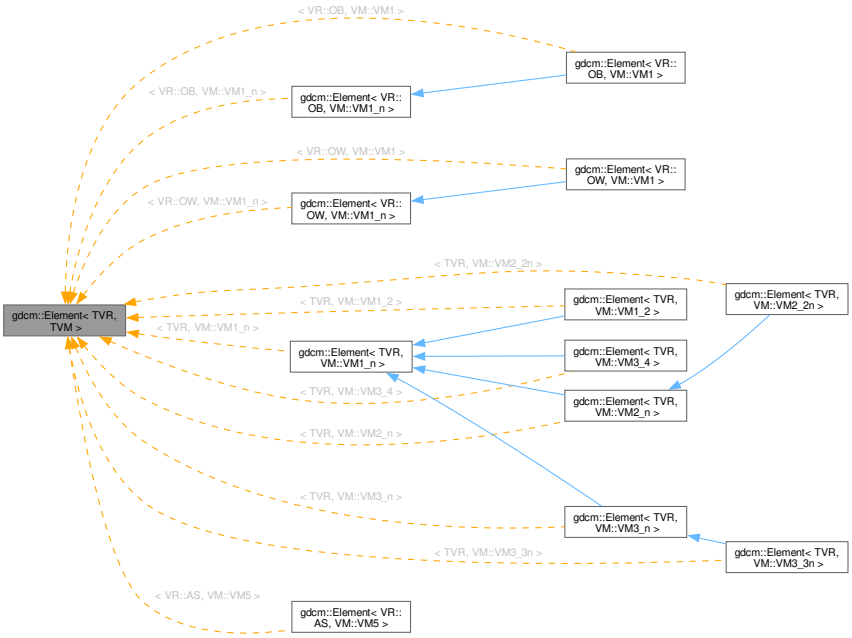
- gdcmDumper.h

12.97 gdcm::Element< TVR, TVM > Class Template Reference

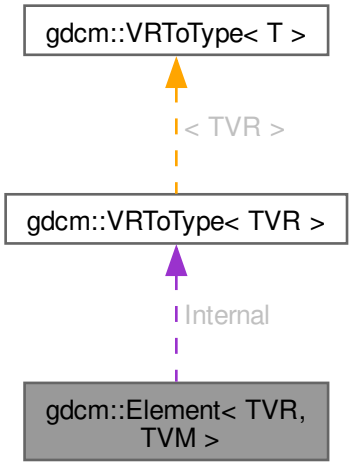
Element class.

`#include <gdcmElement.h>`

Inheritance diagram for gdcm::Element< TVR, TVM >:



Collaboration diagram for gdcm::Element< TVR, TVM >:



Public Types

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

12.97.1 Detailed Description

template<long long TVR, int TVM>
class gdcm::Element< TVR, TVM >

Element class.

Note

TODO

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, GetSubSequenceData.cxx, csa2img.cxx, and iU22tomultisc.cxx.

12.97.2 Member Typedef Documentation

12.97.2.1 Type

```
template<long long TVR, int TVM>
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.97.3 Member Function Documentation

12.97.3.1 GetAsDataElement()

```
template<long long TVR, int TVM>
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

Examples

Extracting_All_Resolution.cxx, and Fake_Image_Using_Stream_Image_Writer.cxx.

References GetLength(), gdcm::DataElement::GetVR(), GetVR(), Internal, gdcm::DataElement::SetByteValue(), gdcm::DataElement::SetVR(), gdcm::VR::SQ, gdcm::VR::UI, gdcm::VR::VRASCII, and Write().

12.97.3.2 GetLength()

```
template<long long TVR, int TVM>
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

Examples

DumpGEMSMovieGroup.cxx.

Referenced by GetAsDataElement(), Read(), Set(), SetNoSwap(), and Write().

12.97.3.3 GetValue() [1/2]

```
template<long long TVR, int TVM>
VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0)  [inline]
```

References Internal.

12.97.3.4 GetValue() [2/2]

```
template<long long TVR, int TVM>
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, GetSubSequenceData.cxx, and csa2img.cxx.

References Internal.

Referenced by operator[ ]().

12.97.3.5 GetValues()

```
template<long long TVR, int TVM>
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

References Internal.

12.97.3.6 GetVM()

```
template<long long TVR, int TVM>
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.97.3.7 GetVR()

```
template<long long TVR, int TVM>
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

Referenced by GetAsDataElement().

12.97.3.8 operator[]()

```
template<long long TVR, int TVM>
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

References GetValue().

12.97.3.9 Print()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

Examples

DumpGEMSMovieGroup.cxx.

References Internal.

12.97.3.10 Read()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

References GetLength(), Internal, and Read().

Referenced by Read(), and Set().

12.97.3.11 Set()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

Examples

csa2img.cxx.

References gdcm::ByteValue::GetLength(), GetLength(), gdcm::ByteValue::GetPointer(), Internal, and Read().

Referenced by SetFromDataElement().

12.97.3.12 SetFromDataElement()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< TVR, TVM > const & de)  [inline]
```

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, GetSubSequenceData.cxx, and iU22tomultisc.cxx.

References gdcm::DataElement::GetByteValue(), gdcm::DataElement::GetValue(), gdcm::DataElement::GetVR(), gdcm::VR::INVALID, Set(), SetNoSwap(), and gdcm::VR::UN.

12.97.3.13 SetNoSwap()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

References gdcm::ByteValue::GetLength(), GetLength(), gdcm::ByteValue::GetPointer(), and Internal.

Referenced by SetFromDataElement().

12.97.3.14 SetValue()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

Examples

Extracting_All_Resolution.cxx, and Fake_Image_Using_Stream_Image_Writer.cxx.

References Internal.

12.97.3.15 Write()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

References GetLength(), Internal, and Write().

Referenced by GetAsDataElement(), and Write().

12.97.4 Member Data Documentation

12.97.4.1 Internal

```
template<long long TVR, int TVM>
VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

Referenced by GetAsDataElement(), GetValue(), GetValue(), GetValues(), Print(), Read(), Set(), SetNoSwap(), SetValue(), and Write().

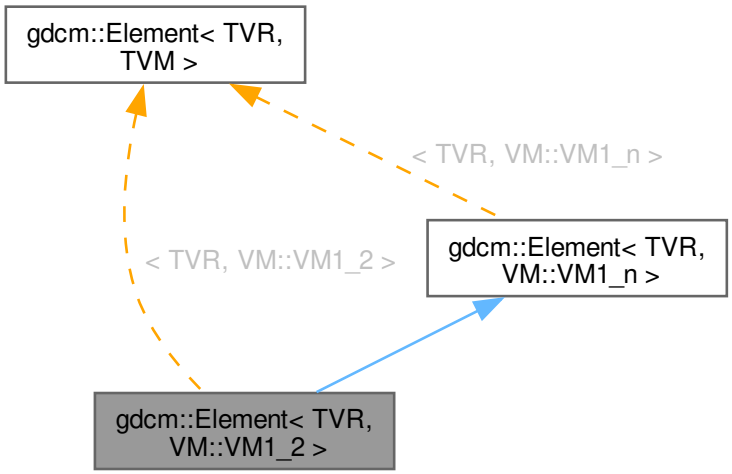
The documentation for this class was generated from the following file:

- gdcmElement.h

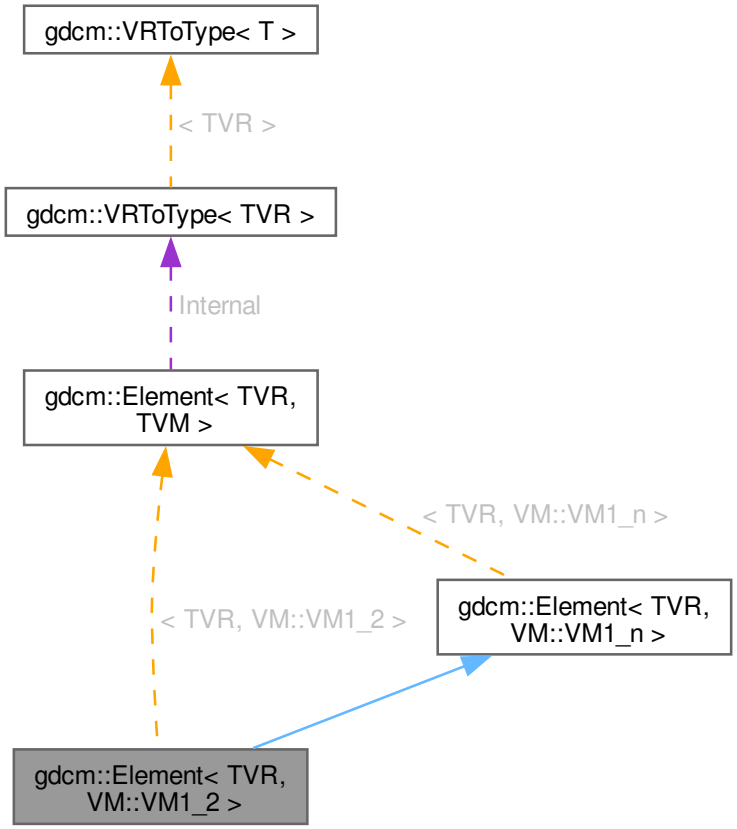
12.98 gdcm::Element< TVR, VM::VM1_2 > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM1_2 >:



Collaboration diagram for gdcm::Element< TVR, VM::VM1_2 >:



Public Types

- typedef Element< TVR, VM::VM1_n > Parent
- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const

- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetLength (int len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

12.98.1 Member Typedef Documentation

12.98.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM1_n> gdcm::Element< TVR, VM::VM1_2 >::Parent
```

12.98.1.2 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.98.2 Member Function Documentation

12.98.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.98.2.2 GetLength()

```
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

12.98.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.98.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.98.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.98.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.98.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.98.2.8 Print()

```
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

12.98.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.98.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.98.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< TVR, VM::VM1_2 > const & de)  [inline]
```

12.98.2.12 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_2 >::SetLength (
            int len)  [inline]
```

References gdcm::Element< TVR, VM::VM1_n >::SetLength().

12.98.2.13 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

12.98.2.14 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

12.98.2.15 Write()

```
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

12.98.3 Member Data Documentation

12.98.3.1 Internal

```
VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

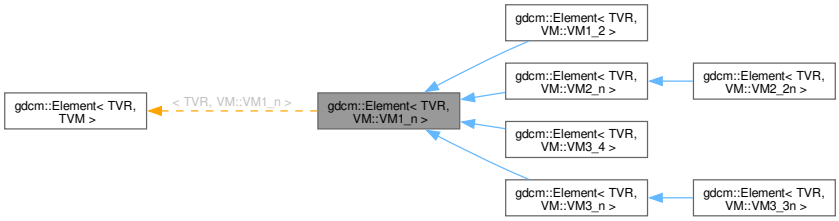
The documentation for this class was generated from the following file:

- gdcmElement.h

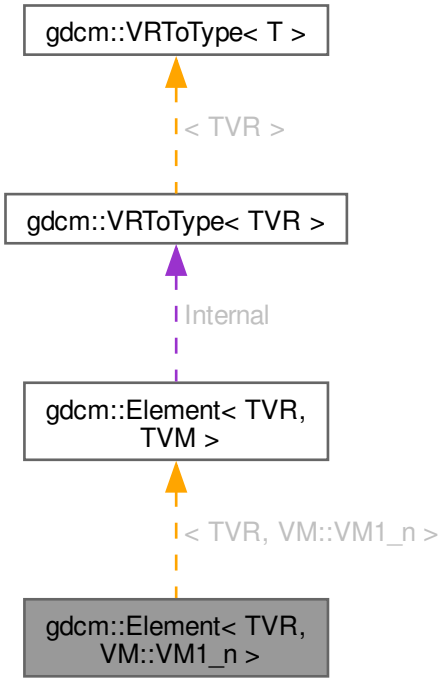
12.99 gdcm::Element< TVR, VM::VM1_n > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM1_n >:



Collaboration diagram for gdcm::Element< TVR, VM::VM1_n >:



Public Types

- typedef VRToType< TVR >::Type Type

Public Member Functions

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)

- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Protected Member Functions

- void SetNoSwap (Value const &v)

12.99.1 Member Typedef Documentation

12.99.1.1 Type

```
template<long long TVR>
typedef VRToType<TVR>::Type gdcm::Element< TVR, VM::VM1_n >::Type
```

12.99.2 Constructor & Destructor Documentation

12.99.2.1 Element() [1/2]

```
template<long long TVR>
gdcm::Element< TVR, VM::VM1_n >::Element ()  [inline], [explicit]
```

Referenced by Element(), and operator=().

12.99.2.2 ~Element()

```
template<long long TVR>
gdcm::Element< TVR, VM::VM1_n >::~Element ()  [inline]
```

12.99.2.3 Element() [2/2]

```
template<long long TVR>
gdcm::Element< TVR, VM::VM1_n >::Element (
            const Element< TVR, VM::VM1_n > & _val)  [inline]
```

References Element().

12.99.3 Member Function Documentation

12.99.3.1 GetAsDataElement()

```
template<long long TVR>
DataElement gdcm::Element< TVR, VM::VM1_n >::GetAsDataElement () const  [inline]
```

References GetLength(), gdcm::DataElement::GetVR(), GetVR(), gdcm::DataElement::SetByteValue(), gdcm::DataElement::SetVR(), gdcm::VR::SQ, gdcm::VR::UI, gdcm::VR::VRASCII, and Write().

12.99.3.2 GetLength()

```
template<long long TVR>
unsigned long gdcm::Element< TVR, VM::VM1_n >::GetLength () const  [inline]
```

Referenced by GetAsDataElement(), Print(), Read(), Set(), SetNoSwap(), Write(), and WriteASCII().

12.99.3.3 GetValue() [1/2]

```
template<long long TVR>
VRToType< TVR >::Type & gdcm::Element< TVR, VM::VM1_n >::GetValue (
            unsigned int idx = 0)  [inline]
```

12.99.3.4 GetValue() [2/2]

```
template<long long TVR>
const VRToType< TVR >::Type & gdcm::Element< TVR, VM::VM1_n >::GetValue (
            unsigned int idx = 0) const  [inline]
```

Referenced by operator[]().

12.99.3.5 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.99.3.6 GetVM()

```
template<long long TVR>
VM gdcm::Element< TVR, VM::VM1_n >::GetVM ()  [inline], [static]
```

References gdcm::VM::VM1_n.

12.99.3.7 GetVR()

```
template<long long TVR>
VR gdcm::Element< TVR, VM::VM1_n >::GetVR ()  [inline], [static]
```

Referenced by GetAsDataElement().

12.99.3.8 operator=()

```
template<long long TVR>
Element & gdcm::Element< TVR, VM::VM1_n >::operator= (
            const Element< TVR, VM::VM1_n > & _val)  [inline]
```

References Element(), and SetArray().

12.99.3.9 operator[]()

```
template<long long TVR>
VRToType< TVR >::Type gdcm::Element< TVR, VM::VM1_n >::operator[] (
            unsigned int idx) const  [inline]
```

References GetValue().

12.99.3.10 Print()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::Print (
            std::ostream & _os) const  [inline]
```

References GetLength().

12.99.3.11 Read()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::Read (
            std::istream & _is)  [inline]
```

References GetLength(), and Read().

Referenced by Read(), and Set().

12.99.3.12 Set()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::Set (
            Value const & v)  [inline]
```

References gdcm::ByteValue::GetLength(), GetLength(), gdcm::ByteValue::GetPointer(), gdcm::ByteValue::GetVoidPointer(), Read(), SetArray(), and gdcm::VR::VRBINARY.

Referenced by SetFromDataElement().

12.99.3.13 SetArray()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::SetArray (
            const Type * array,
            unsigned long len,
            bool save = false)  [inline]
```

References SetLength().

Referenced by operator=(), Set(), and SetNoSwap().

12.99.3.14 SetFromDataElement()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::SetFromDataElement (
            DataElement< TVR, VM::VM1_n > const & de)  [inline]
```

References gdcm::DataElement::GetByteValue(), gdcm::DataElement::GetValue(), gdcm::DataElement::GetVR(), gdcm::VR::INVALID, Set(), SetNoSwap(), and gdcm::VR::UN.

12.99.3.15 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::SetLength (
            unsigned long len)  [inline]
```

Referenced by SetArray(), gdcm::Element< TVR, VM::VM1_2 >::SetLength(), gdcm::Element< TVR, VM::VM2_n >::SetLength(), gdcm::Element< TVR, VM::VM3_4 >::SetLength(), and gdcm::Element< TVR, VM::VM3_n >::SetLength().

12.99.3.16 SetNoSwap()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

References gdcm::ByteValue::GetLength(), GetLength(), gdcm::ByteValue::GetPointer(), SetArray(), and gdcm::VR::VRBINARY.

Referenced by SetFromDataElement().

12.99.3.17 SetValue()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::SetValue (
             typename VRToType< TVR >::Type v,
             unsigned int idx = 0)  [inline]
```

12.99.3.18 Write()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::Write (
             std::ostream & _os) const  [inline]
```

References GetLength(), and Write().

Referenced by GetAsDataElement(), and Write().

12.99.3.19 WriteASCII()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::WriteASCII (
             std::ostream & os) const  [inline]
```

References GetLength().

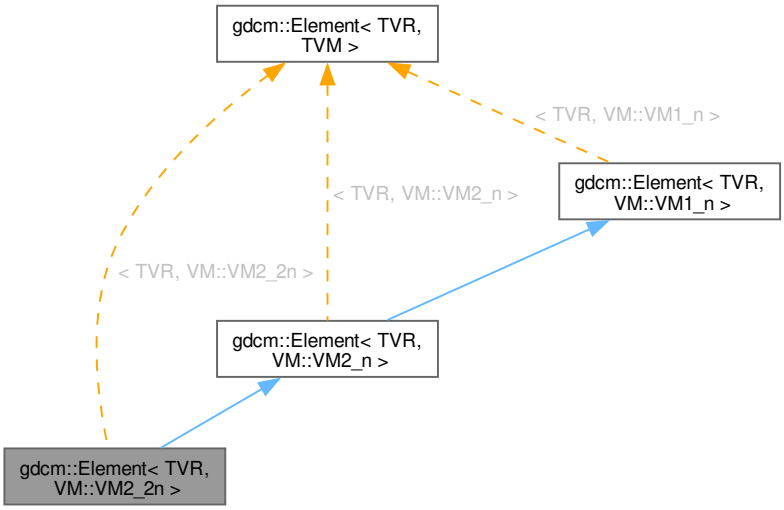
The documentation for this class was generated from the following file:

- gdcmElement.h

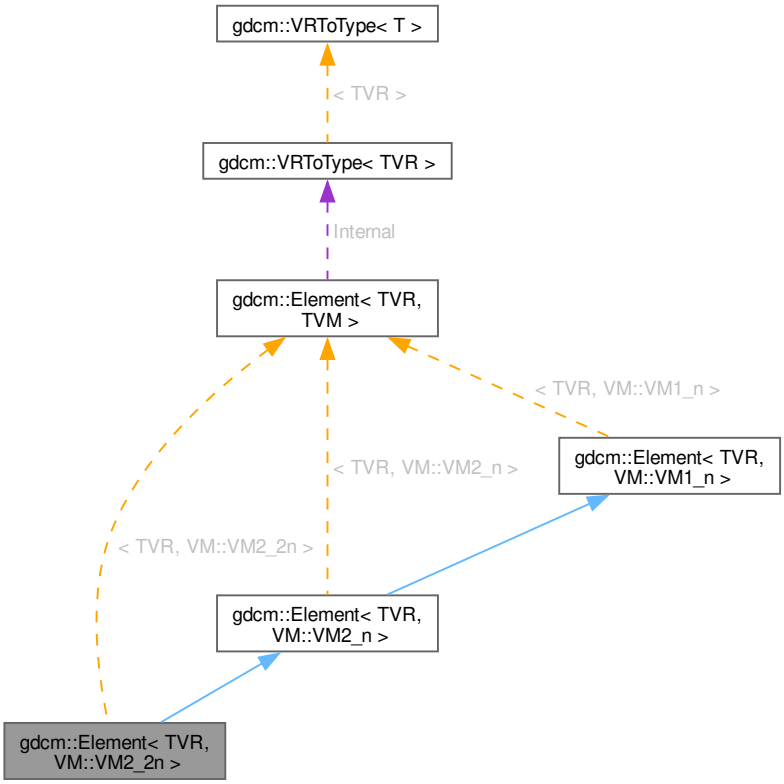
12.100 gdcm::Element< TVR, VM::VM2_2n > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM2_2n >:



Collaboration diagram for gdcm::Element< TVR, VM::VM2_2n >:



Public Types

- typedef Element< TVR, VM::VM2_n > Parent
- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< TVR, VM::VM2_n >

- typedef Element< TVR, VM::VM1_n > Parent
- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetLength (int len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< TVR, VM::VM2_n >

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetLength (int len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM2_n >

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Public Attributes inherited from gdcm::Element< TVR, VM::VM2_n >

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM2_n >

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

12.100.1 Member Typedef Documentation

12.100.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM2_n> gdcm::Element< TVR, VM::VM2_2n >::Parent
```

12.100.1.2 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.100.2 Member Function Documentation

12.100.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.100.2.2 GetLength()

```
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

12.100.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.100.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.100.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.100.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.100.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.100.2.8 Print()

```
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

12.100.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.100.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.100.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< TVR, VM::VM2_2n > const & de)  [inline]
```

12.100.2.12 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM2_2n >::SetLength (
            int len)  [inline]
```

References gdcm::Element< TVR, VM::VM2_n >::SetLength().

12.100.2.13 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

12.100.2.14 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

12.100.2.15 Write()

```
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

12.100.3 Member Data Documentation

12.100.3.1 Internal

```
VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

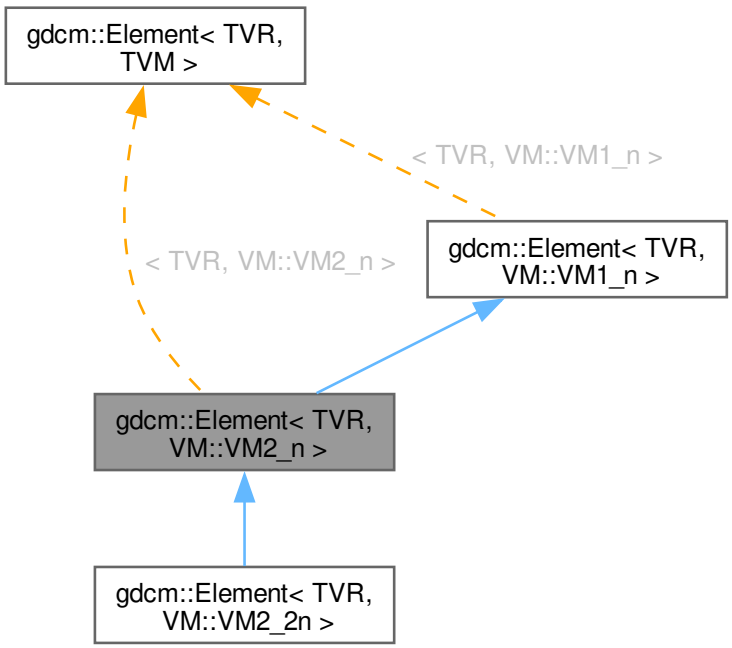
The documentation for this class was generated from the following file:

- gdcmElement.h

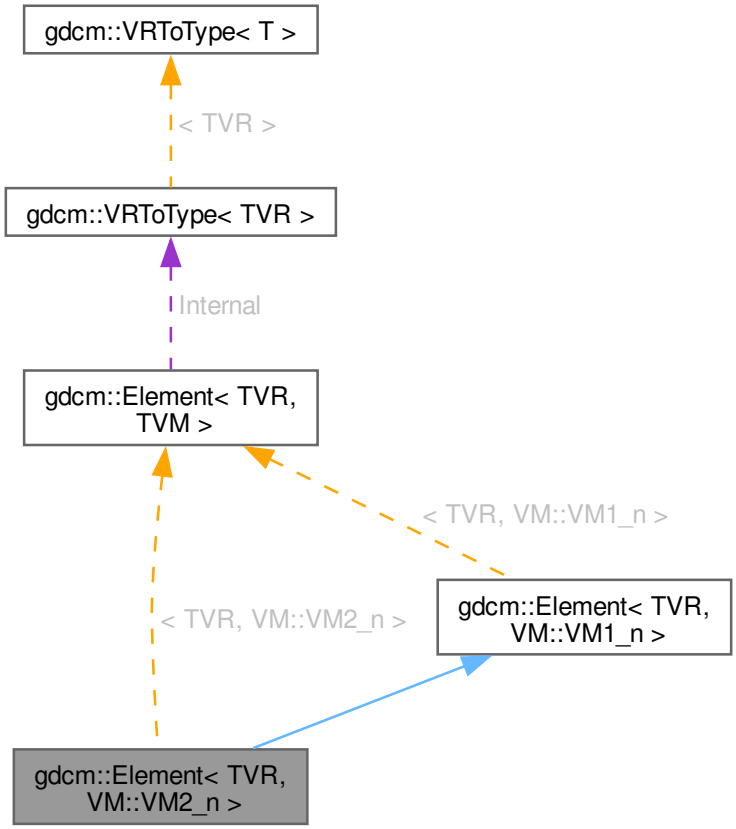
12.101 gdcm::Element< TVR, VM::VM2_n > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM2_n >:



Collaboration diagram for gdcm::Element< TVR, VM::VM2_n >:



Public Types

- typedef Element< TVR, VM::VM1_n > Parent
- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const

- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetLength (int len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

12.101.1 Member Typedef Documentation

12.101.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM1_n> gdcm::Element< TVR, VM::VM2_n >::Parent
```

12.101.1.2 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.101.2 Member Function Documentation

12.101.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.101.2.2 GetLength()

```
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

12.101.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.101.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.101.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.101.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.101.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.101.2.8 Print()

```
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

12.101.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.101.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.101.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< TVR, VM::VM2_n > const & de)  [inline]
```

12.101.2.12 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM2_n >::SetLength (
            int len)  [inline]
```

References gdcm::Element< TVR, VM::VM1_n >::SetLength().

Referenced by gdcm::Element< TVR, VM::VM2_2n >::SetLength().

12.101.2.13 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

12.101.2.14 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

12.101.2.15 Write()

```
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

12.101.3 Member Data Documentation

12.101.3.1 Internal

```
VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

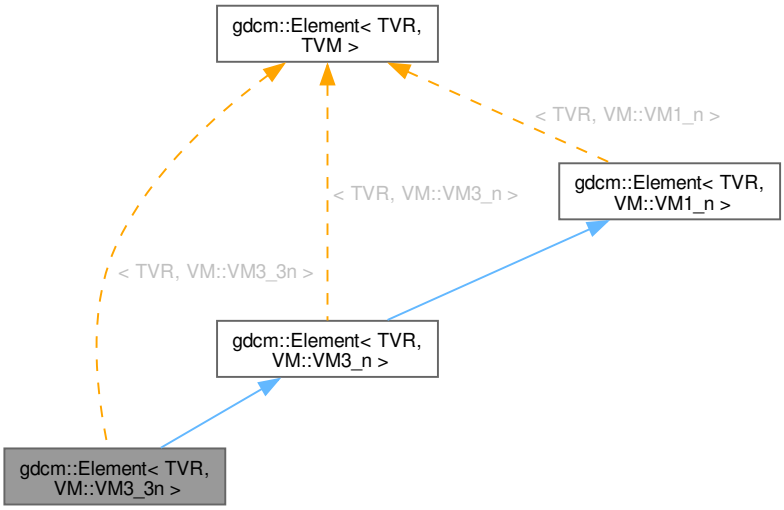
The documentation for this class was generated from the following file:

- gdcmElement.h

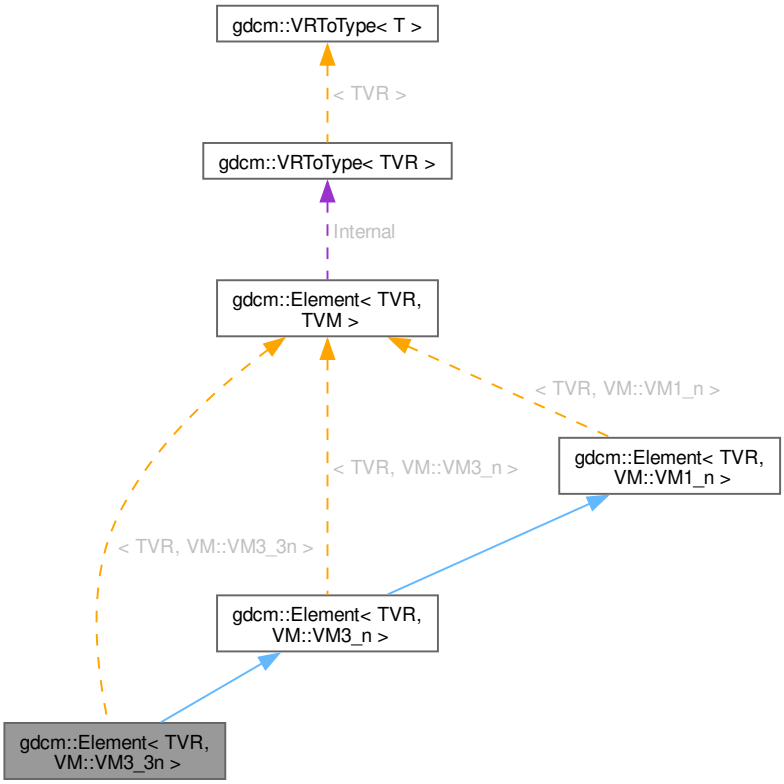
12.102 gdcm::Element< TVR, VM::VM3_3n > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM3_3n >:



Collaboration diagram for gdcm::Element< TVR, VM::VM3_3n >:



Public Types

- typedef Element< TVR, VM::VM3_n > Parent
- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< TVR, VM::VM3_n >

- typedef Element< TVR, VM::VM1_n > Parent
- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetLength (int len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< TVR, VM::VM3_n >

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetLength (int len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM3_n >

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Public Attributes inherited from gdcm::Element< TVR, VM::VM3_n >

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM3_n >

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

12.102.1 Member Typedef Documentation

12.102.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM3_n> gdcm::Element< TVR, VM::VM3_3n >::Parent
```

12.102.1.2 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.102.2 Member Function Documentation

12.102.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.102.2.2 GetLength()

```
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

12.102.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.102.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.102.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.102.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.102.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.102.2.8 Print()

```
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

12.102.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.102.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.102.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< TVR, VM::VM3_3n > const & de)  [inline]
```

12.102.2.12 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM3_3n >::SetLength (
            int len)  [inline]
```

References gdcm::Element< TVR, VM::VM3_n >::SetLength().

12.102.2.13 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

12.102.2.14 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

12.102.2.15 Write()

```
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

12.102.3 Member Data Documentation

12.102.3.1 Internal

`VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]`

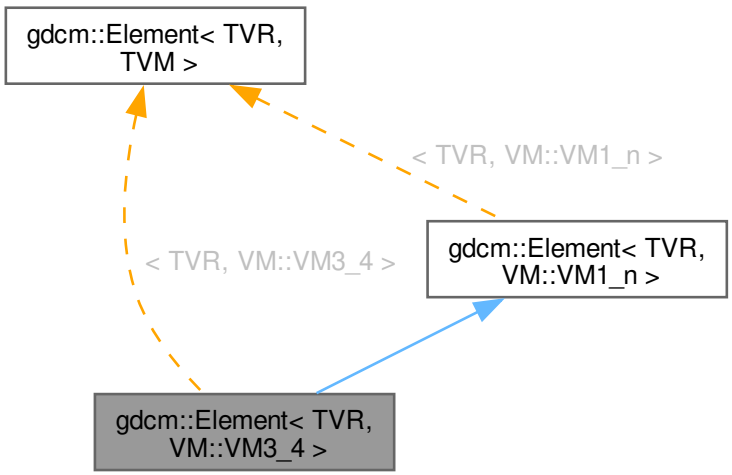
The documentation for this class was generated from the following file:

- gdcmElement.h

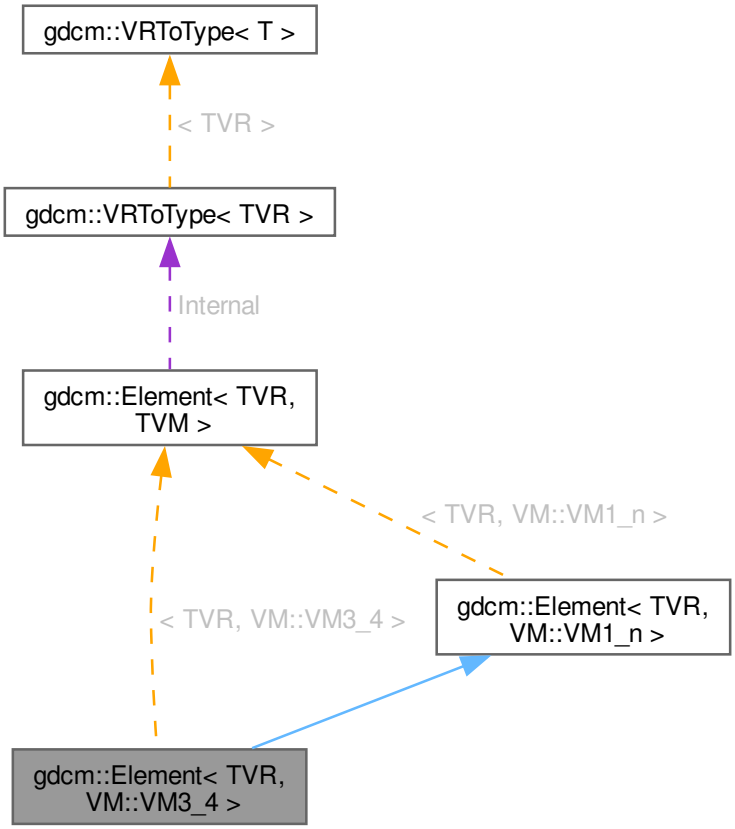
12.103 gdcm::Element< TVR, VM::VM3_4 > Class Template Reference

`#include <gdcmElement.h>`

Inheritance diagram for gdcm::Element< TVR, VM::VM3_4 >:



Collaboration diagram for gdcm::Element< TVR, VM::VM3_4 >:



Public Types

- typedef Element< TVR, VM::VM1_n > Parent
- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const

- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetLength (int len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

12.103.1 Member Typedef Documentation

12.103.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM1_n> gdcm::Element< TVR, VM::VM3_4 >::Parent
```

12.103.1.2 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.103.2 Member Function Documentation

12.103.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.103.2.2 GetLength()

```
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

12.103.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.103.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.103.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.103.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.103.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.103.2.8 Print()

```
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

12.103.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.103.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.103.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< TVR, VM::VM3_4 > const & de)  [inline]
```

12.103.2.12 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM3_4 >::SetLength (
            int len)  [inline]
```

References gdcm::Element< TVR, VM::VM1_n >::SetLength().

12.103.2.13 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

12.103.2.14 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

12.103.2.15 Write()

```
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

12.103.3 Member Data Documentation

12.103.3.1 Internal

```
VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

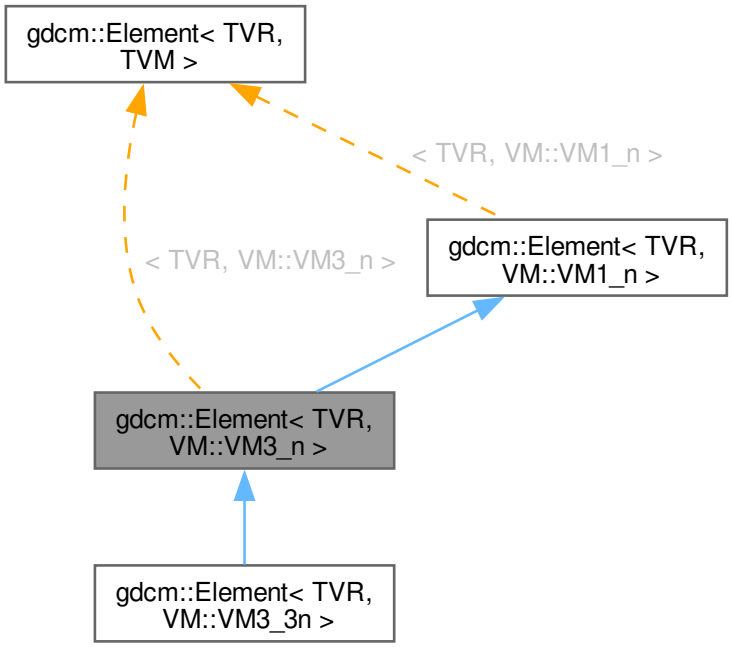
The documentation for this class was generated from the following file:

- gdcmElement.h

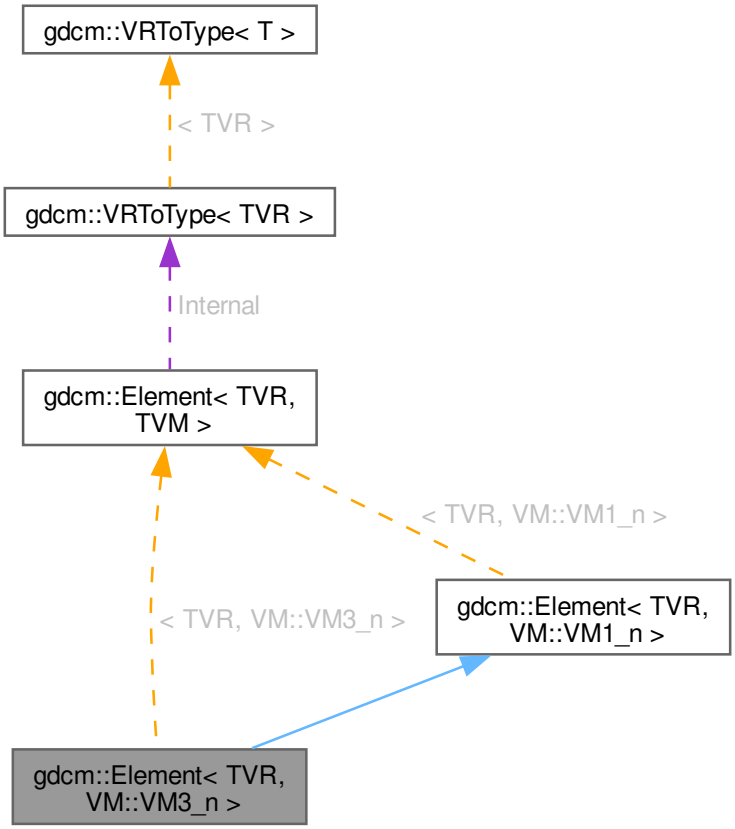
12.104 gdcm::Element< TVR, VM::VM3_n > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM3_n >:



Collaboration diagram for gdcm::Element< TVR, VM::VM3_n >:



Public Types

- typedef Element< TVR, VM::VM1_n > Parent
- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const

- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetLength (int len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

12.104.1 Member Typedef Documentation

12.104.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM1_n> gdcm::Element< TVR, VM::VM3_n >::Parent
```

12.104.1.2 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.104.2 Member Function Documentation

12.104.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.104.2.2 GetLength()

```
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

12.104.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.104.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.104.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.104.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.104.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.104.2.8 Print()

```
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

12.104.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.104.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.104.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< TVR, VM::VM3_n > const & de)  [inline]
```

12.104.2.12 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM3_n >::SetLength (
            int len)  [inline]
```

References gdcm::Element< TVR, VM::VM1_n >::SetLength().

Referenced by gdcm::Element< TVR, VM::VM3_3n >::SetLength().

12.104.2.13 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
             Value const & v)  [inline], [protected]
```

12.104.2.14 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
             typename VRToType< TVR >::Type v,
             unsigned int idx = 0)  [inline]
```

12.104.2.15 Write()

```
void gdcm::Element< TVR, TVM >::Write (
             std::ostream & _os) const  [inline]
```

12.104.3 Member Data Documentation

12.104.3.1 Internal

```
VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

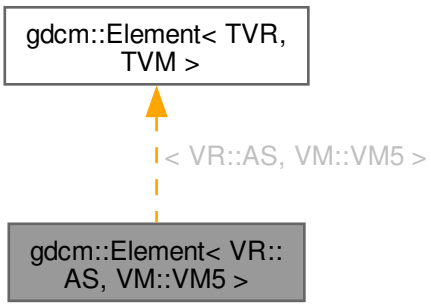
The documentation for this class was generated from the following file:

- gdcmElement.h

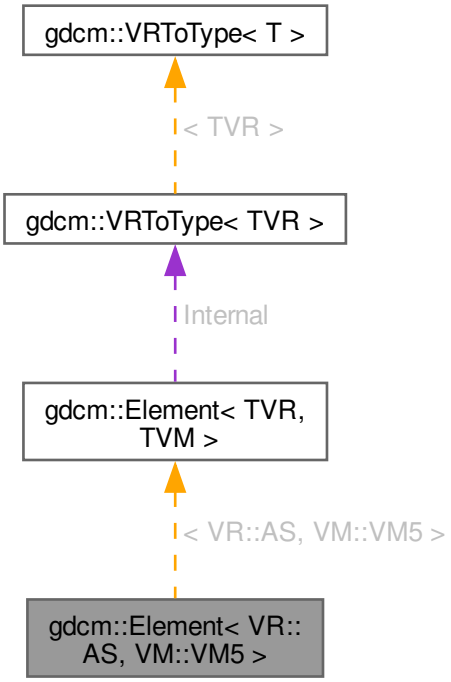
12.105 gdcm::Element< VR::AS, VM::VM5 > Class Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< VR::AS, VM::VM5 >:



Collaboration diagram for gdcm::Element< VR::AS, VM::VM5 >:



Public Types

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- char Internal [VMToLength< VM::VM5 >::Length *sizeof(VRToType< VR::AS >::Type)]

Protected Member Functions

- void SetNoSwap (Value const &v)

12.105.1 Member Typedef Documentation

12.105.1.1 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.105.2 Member Function Documentation

12.105.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.105.2.2 GetLength()

```
unsigned long gdcm::Element< VR::AS, VM::VM5 >::GetLength () const  [inline]
```

12.105.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.105.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.105.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.105.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.105.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.105.2.8 Print()

```
void gdcm::Element< VR::AS, VM::VM5 >::Print (
            std::ostream & _os) const  [inline]
```

References Internal.

12.105.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.105.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.105.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< VR::AS, VM::VM5 > const & de)  [inline]
```

12.105.2.12 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

12.105.2.13 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

12.105.2.14 Write()

```
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

12.105.3 Member Data Documentation

12.105.3.1 Internal

```
char gdcm::Element< VR::AS, VM::VM5 >::Internal[VMToLength< VM::VM5 >::Length *sizeof(VRToType<
VR::AS >::Type)]
```

Referenced by Print().

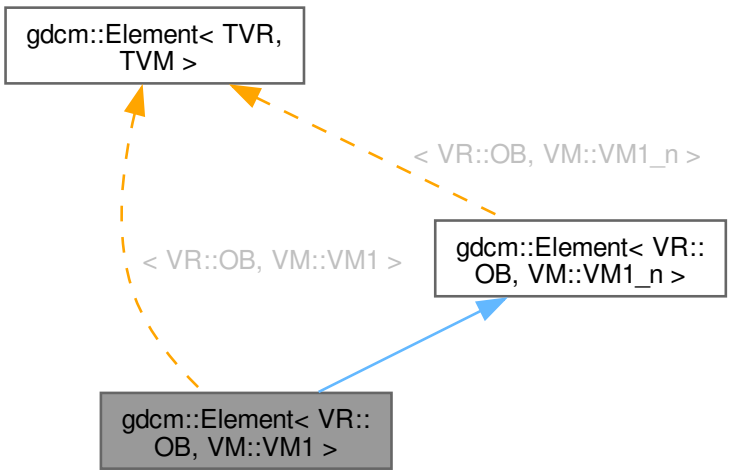
The documentation for this class was generated from the following file:

- gdcmElement.h

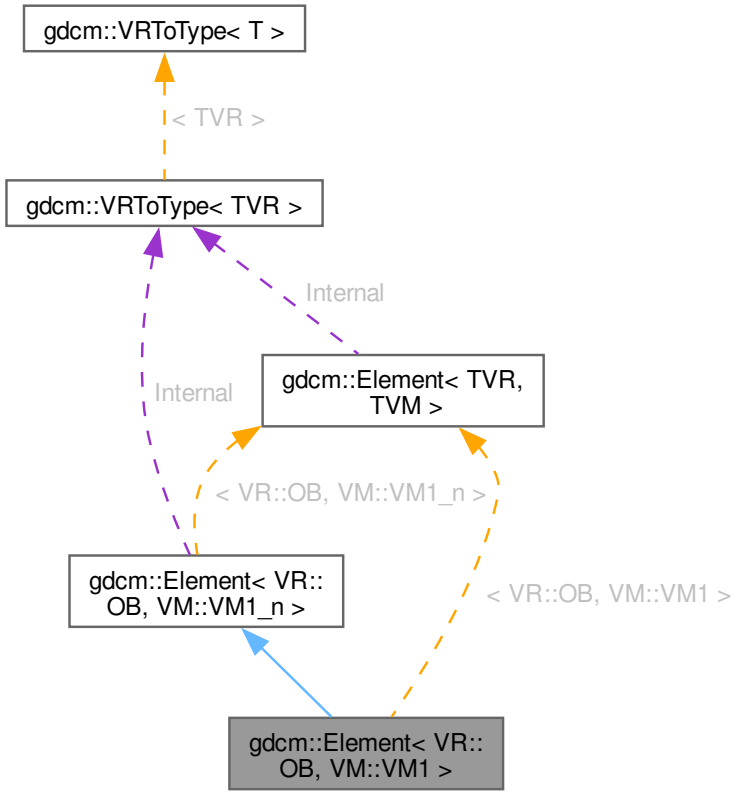
12.106 gdcm::Element< VR::OB, VM::VM1 > Class Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< VR::OB, VM::VM1 >:



Collaboration diagram for gdcm::Element< VR::OB, VM::VM1 >:



Public Types

- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< VR::OB, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const

- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< VR::OB, VM::VM1_n >

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< VR::OB, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Public Attributes inherited from gdcm::Element< VR::OB, VM::VM1_n >

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< VR::OB, VM::VM1_n >

- void SetNoSwap (Value const &v)

12.106.1 Member Typedef Documentation

12.106.1.1 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.106.2 Member Function Documentation

12.106.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.106.2.2 GetLength()

```
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

12.106.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.106.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.106.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.106.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.106.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.106.2.8 Print()

```
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

12.106.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.106.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.106.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< VR::OB, VM::VM1 > const & de)  [inline]
```

12.106.2.12 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

12.106.2.13 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

12.106.2.14 Write()

```
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

12.106.3 Member Data Documentation

12.106.3.1 Internal

```
VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

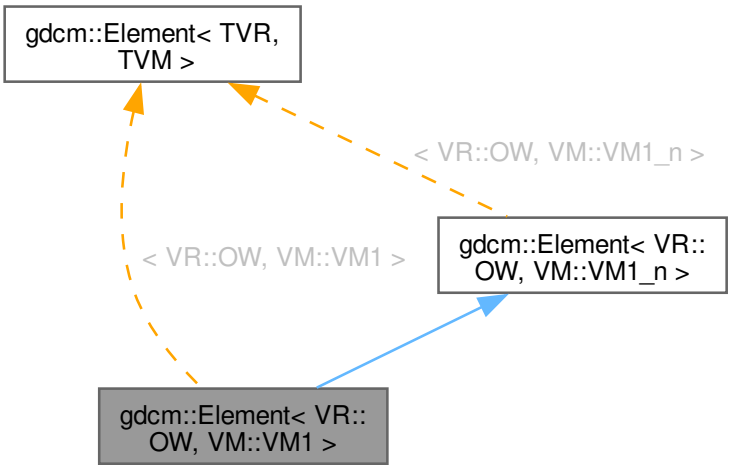
The documentation for this class was generated from the following file:

- gdcmElement.h

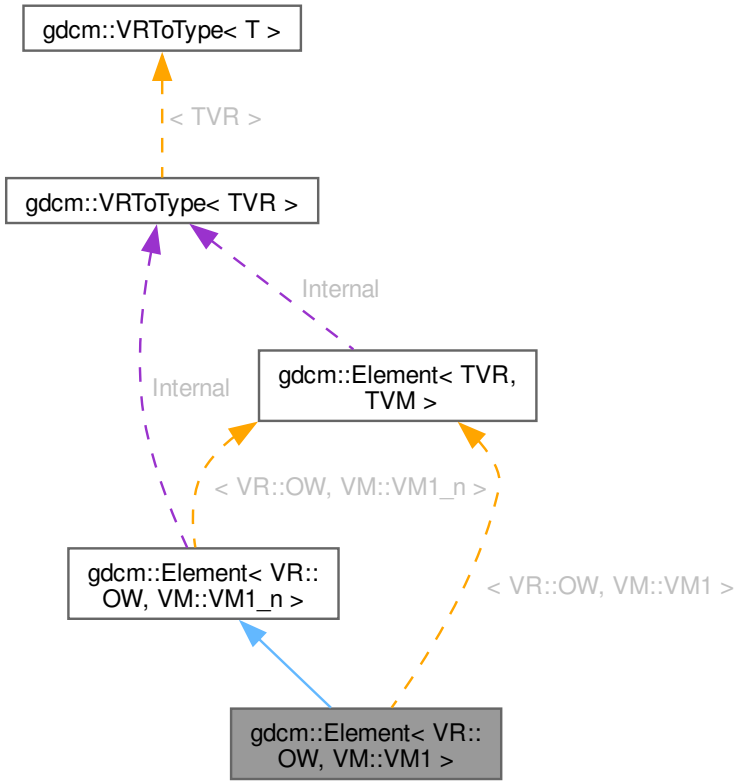
12.107 gdcm::Element< VR::OW, VM::VM1 > Class Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< VR::OW, VM::VM1 >:



Collaboration diagram for gdcm::Element< VR::OW, VM::VM1 >:



Public Types

- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< VR::OW, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const

- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< VR::OW, VM::VM1_n >

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< VR::OW, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Public Attributes inherited from gdcm::Element< VR::OW, VM::VM1_n >

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< VR::OW, VM::VM1_n >

- void SetNoSwap (Value const &v)

12.107.1 Member Typedef Documentation

12.107.1.1 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.107.2 Member Function Documentation

12.107.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.107.2.2 GetLength()

```
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

12.107.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.107.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.107.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.107.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.107.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.107.2.8 Print()

```
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

12.107.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.107.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.107.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< VR::OW, VM::VM1 > const & de)  [inline]
```

12.107.2.12 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

12.107.2.13 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

12.107.2.14 Write()

```
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

12.107.3 Member Data Documentation

12.107.3.1 Internal

```
VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

The documentation for this class was generated from the following file:

- gdcmElement.h

12.108 gdcm::ElementDisableCombinations< TVR, TVM > Class Template Reference

A class which is used to produce compile errors for an invalid combination of template parameters.

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::ElementDisableCombinations< TVR, TVM >:

12.108.1 Detailed Description

template<long long TVR, int TVM>
class gdcm::ElementDisableCombinations< TVR, TVM >

A class which is used to produce compile errors for an invalid combination of template parameters.

Invalid combinations have specialized declarations with no definition.

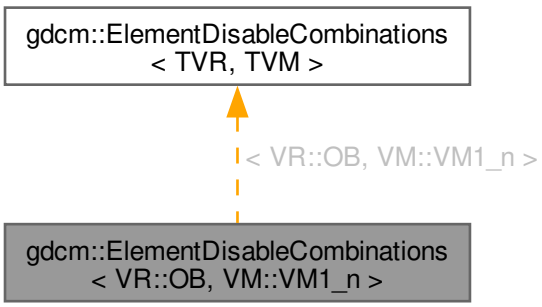
The documentation for this class was generated from the following file:

- gdcmElement.h

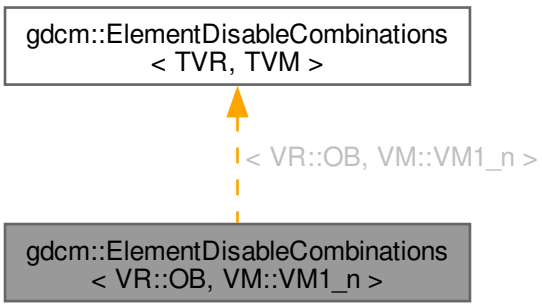
12.109 gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n > Class Reference

`#include <gdcmElement.h>`

Inheritance diagram for gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n >:



Collaboration diagram for gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n >:



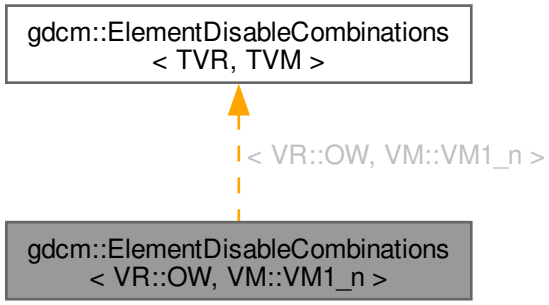
The documentation for this class was generated from the following file:

- gdcmElement.h

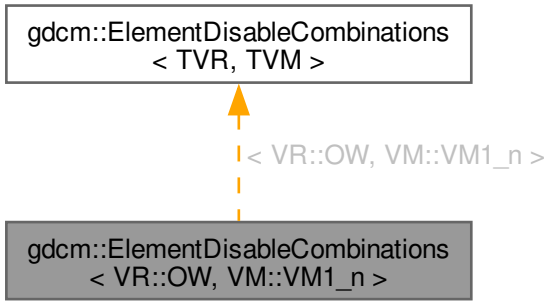
12.110 gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n > Class Reference

`#include <gdcmElement.h>`

Inheritance diagram for gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n >:



Collaboration diagram for gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n >:



The documentation for this class was generated from the following file:

- gdcmElement.h

12.111 gdcm::EmptyMaskGenerator Class Reference

EmptyMaskGenerator Main class to generate a Empty Mask Series from an input Series. This class takes an input folder and generates a series of DICOM files in the specified output directory. This class handles multiples DICOM Series within the same input directory.

`#include <gdcmEmptyMaskGenerator.h>`

Public Types

- enum SOPClassUIDMode {
  UseOriginalSOPClassUID = 0 ,
  UseGrayscaleSecondaryImageStorage }

Public Member Functions

- EmptyMaskGenerator ()
- ~EmptyMaskGenerator ()
- bool Execute ()
  Main loop.
- void SetInputDirectory (const char *dirname)
  Specify input directory.
- void SetOutputDirectory (const char *dirname)
  Specify output directory.
- void SetSOPClassUIDMode (SOPClassUIDMode mode)

12.111.1 Detailed Description

EmptyMaskGenerator Main class to generate a Empty Mask Series from an input Series. This class takes an input folder and generates a series of DICOM files in the specified output directory. This class handles multiples DICOM Series within the same input directory.

The class allow two mode of operations:

- UseOriginalSOPClassUID
- UseGrayscaleSecondaryImageStorage

UseOriginalSOPClassUID is the mode where original attributes are copied from the original DICOM instance.

UseGrayscaleSecondaryImageStorage is the mode where attributes are generated so as to create a Multiframe↩ GrayscaleByteSecondaryCaptureImageStorage (MultiframeGrayscaleWordSecondaryCaptureImageStorage) instance.

In both mode:

- the Study references (StudyInstanceUID and StudyID) are preserved.
- the PatientID reference is preserved.
- the Image Type attribute will be setup so that the fourth element is set to 'MASK'.
- a new Series Instance UID is generated. It is thus required to run the process over all files using the same input Series Instance UID so that a proper mapping from the old Series UID is done to the new one. Since a new Series Instance UID is generated, there is no sense to preserve the original Frame of Reference UID, although it would have made sense here.

Examples

EmptyMask.cxx.

12.111.2 Member Enumeration Documentation

12.111.2.1 SOPClassUIDMode

```
enum gdcm::EmptyMaskGenerator::SOPClassUIDMode
```

Enumerator

UseOriginalSOPClassUID	
UseGrayscaleSecondaryImageStorage	

12.111.3 Constructor & Destructor Documentation

12.111.3.1 EmptyMaskGenerator()

```
gdcm::EmptyMaskGenerator::EmptyMaskGenerator ()
```

12.111.3.2 ~EmptyMaskGenerator()

```
gdcm::EmptyMaskGenerator::~EmptyMaskGenerator ()
```

12.111.4 Member Function Documentation

12.111.4.1 Execute()

```
bool gdcm::EmptyMaskGenerator::Execute ()
```

Main loop.

Examples

EmptyMask.cxx.

12.111.4.2 SetInputDirectory()

```
void gdcm::EmptyMaskGenerator::SetInputDirectory (
            const char * dirname)
```

Specify input directory.

Examples

EmptyMask.cxx.

12.111.4.3 SetOutputDirectory()

```
void gdcm::EmptyMaskGenerator::SetOutputDirectory (
            const char * dirname)
```

Specify output directory.

Examples

EmptyMask.cxx.

12.111.4.4 SetSOPClassUIDMode()

```
void gdcm::EmptyMaskGenerator::SetSOPClassUIDMode (
            SOPClassUIDMode mode)
```

Select generation of SOP Class UID method: Default is UseOriginalSOPClassUID

Examples

EmptyMask.cxx.

The documentation for this class was generated from the following file:

- gdcmEmptyMaskGenerator.h

12.112 gdcm::EncapsulatedDocument Class Reference

EncapsulatedDocument.

`#include <gdcmEncapsulatedDocument.h>`

Public Member Functions

- EncapsulatedDocument ()=default

12.112.1 Detailed Description

EncapsulatedDocument.

12.112.2 Constructor & Destructor Documentation

12.112.2.1 EncapsulatedDocument()

```
gdcm::EncapsulatedDocument::EncapsulatedDocument () [default]
```

The documentation for this class was generated from the following file:

- gdcmEncapsulatedDocument.h

12.113 gdcm::EncodingImplementation< T > Class Template Reference

EncodingImplementation.

Inheritance diagram for gdcm::EncodingImplementation< T >:

12.113.1 Detailed Description

template<long long T>
class gdcm::EncodingImplementation< T >

EncodingImplementation.

Note

TODO

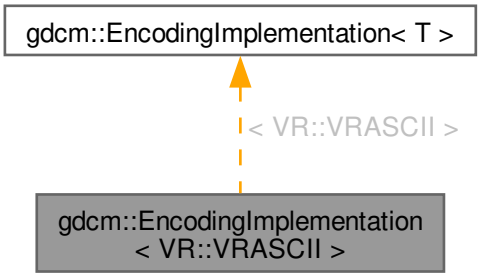
The documentation for this class was generated from the following file:

- gdcmElement.h

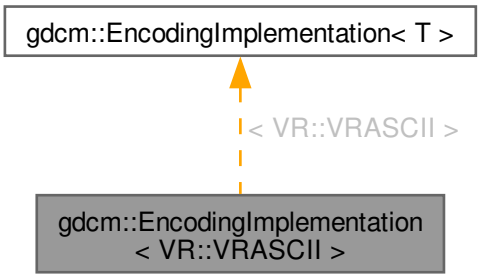
12.114 gdcm::EncodingImplementation< VR::VRASCII > Class Reference

`#include <gdcmElement.h>`

Inheritance diagram for gdcm::EncodingImplementation< VR::VRASCII >:



Collaboration diagram for gdcm::EncodingImplementation< VR::VRASCII >:



Public Member Functions

- template<> void Write (const double *data, unsigned long length, std::ostream &_os)

Static Public Member Functions

- template<typename T>
  static void Read (T *data, unsigned long length, std::istream &_is)
- template<typename T>
  static void ReadComputeLength (T *data, unsigned int &length, std::istream &_is)
- template<typename T>
  static void ReadNoSwap (T *data, unsigned long length, std::istream &_is)
- template<typename T>
  static void Write (const T *data, unsigned long length, std::ostream &_os)

12.114.1 Member Function Documentation

12.114.1.1 Read()

```
template<typename T>
void gdcm::EncodingImplementation< VR::VRASCII >::Read (
            T * data,
            unsigned long length,
            std::istream & _is)  [inline], [static]
```

Referenced by ReadNoSwap().

12.114.1.2 ReadComputeLength()

```
template<typename T>
void gdcm::EncodingImplementation< VR::VRASCII >::ReadComputeLength (
            T * data,
            unsigned int & length,
            std::istream & _is)  [inline], [static]
```

References gdcm::backslash().

12.114.1.3 ReadNoSwap()

```
template<typename T>
void gdcm::EncodingImplementation< VR::VRASCII >::ReadNoSwap (
            T * data,
            unsigned long length,
            std::istream & _is)  [inline], [static]
```

References Read().

12.114.1.4 Write() [1/2]

```
template<>
void gdcm::EncodingImplementation< VR::VRASCII >::Write (
             const double * data,
             unsigned long length,
             std::ostream & _os)  [inline]
```

References gdcm::x16printf().

12.114.1.5 Write() [2/2]

```
template<typename T>
void gdcm::EncodingImplementation< VR::VRASCII >::Write (
             const T * data,
             unsigned long length,
             std::ostream & _os)  [inline], [static]
```

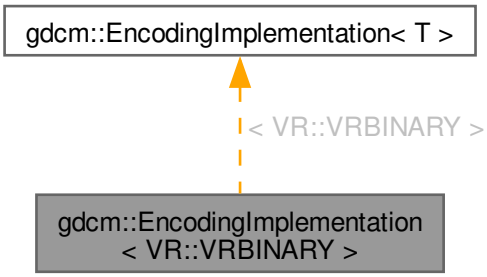
The documentation for this class was generated from the following file:

- gdcmElement.h

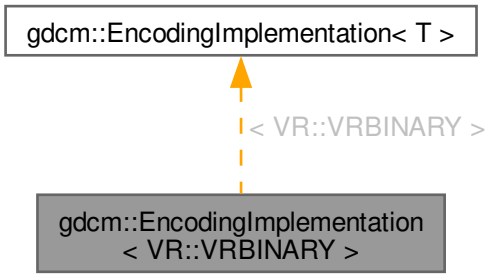
12.115 gdcm::EncodingImplementation< VR::VRBINARY > Class Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::EncodingImplementation< VR::VRBINARY >:



Collaboration diagram for gdcm::EncodingImplementation< VR::VRBINARY >:



Static Public Member Functions

- template<typename T>
  static void Read (T *data, unsigned long length, std::istream &_is)
- template<typename T>
  static void ReadComputeLength (T *data, unsigned int &length, std::istream &_is)
- template<typename T>
  static void ReadNoSwap (T *data, unsigned long length, std::istream &_is)
- template<typename T>
  static void Write (const T *data, unsigned long length, std::ostream &_os)

12.115.1 Member Function Documentation

12.115.1.1 Read()

```
template<typename T>
void gdcm::EncodingImplementation< VR::VRBINARY >::Read (
            T * data,
            unsigned long length,
            std::istream & _is)  [inline], [static]
```

References gdcm::SwapperNoOp::SwapArray().

12.115.1.2 ReadComputeLength()

```
template<typename T>
void gdcm::EncodingImplementation< VR::VRBINARY >::ReadComputeLength (
            T * data,
            unsigned int & length,
            std::istream & _is)  [inline], [static]
```

12.115.1.3 ReadNoSwap()

```
template<typename T>
void gdcm::EncodingImplementation< VR::VRBINARY >::ReadNoSwap (
             T * data,
             unsigned long length,
             std::istream & _is)  [inline], [static]
```

12.115.1.4 Write()

```
template<typename T>
void gdcm::EncodingImplementation< VR::VRBINARY >::Write (
             const T * data,
             unsigned long length,
             std::ostream & _os)  [inline], [static]
```

References gdcm::SwapperNoOp::Swap().

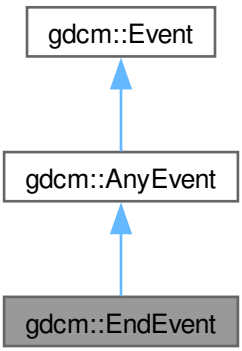
The documentation for this class was generated from the following file:

- gdcmElement.h

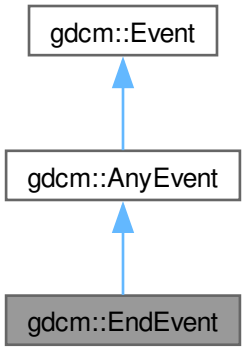
12.116 gdcm::EndEvent Class Reference

`#include <gdcmEvent.h>`

Inheritance diagram for gdcm::EndEvent:



Collaboration diagram for gdcm::EndEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

12.117 gdcm::EnumeratedValues Class Reference

Element. A Data Element with Enumerated Values that does not have a Value equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note:

`#include <gdcmEnumeratedValues.h>`

Public Member Functions

- EnumeratedValues ()=default

12.117.1 Detailed Description

Element. A Data Element with Enumerated Values that does not have a Value equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note:

1. Patient Sex (0010, 0040) is an example of a Data Element having Enumerated Values. It is defined to have a Value that is either "M", "F", or "O" (see PS 3.3). No other Value shall be given to this Data Element.
2. Future modifications of this standard may add to the set of allowed values for Data Elements with Enumerated Values. Such additions by themselves may or may not require a change in SOP Class UIDs, depending on the semantics of the Data Element.

12.117.2 Constructor & Destructor Documentation

12.117.2.1 EnumeratedValues()

```
gdcm::EnumeratedValues::EnumeratedValues () [default]
```

The documentation for this class was generated from the following file:

- gdcmEnumeratedValues.h

12.118 gdcm::EquipmentManufacturer Class Reference

```
#include <gdcmEquipmentManufacturer.h>
```

Public Types

- enum Type {
  UNKNOWN = 0 ,
  FUJI ,
  GEMS ,
  HITACHI ,
  KODAK ,
  MARCONI ,
  PMS ,
  SIEMENS ,
  TOSHIBA ,
  AGFA ,
  SAMSUNG ,
  UIH }

Static Public Member Functions

- static Type Compute (DataSet const &ds)
- static const char * TypeToString (Type type)

12.118.1 Detailed Description

The intent is for private tags handling. This class is not meant to handle all possible vendors in the world, simply those well known where we intend to read private tags afterwards (typically SIEMENS+CSA, GEMS+PDB ...)

12.118.2 Member Enumeration Documentation

12.118.2.1 Type

```
enum gdcm::EquipmentManufacturer::Type
```

Enumerator

UNKNOWN	
FUJI	
GEMS	
HITACHI	
KODAK	
MARCONI	
PMS	
SIEMENS	
TOSHIBA	
AGFA	
SAMSUNG	
UIH	

12.118.3 Member Function Documentation

12.118.3.1 Compute()

```
Type gdcm::EquipmentManufacturer::Compute (
            DataSet const & ds)  [static]
```

12.118.3.2 TypeToString()

```
const char * gdcm::EquipmentManufacturer::TypeToString (
            Type type)  [static]
```

The documentation for this class was generated from the following file:

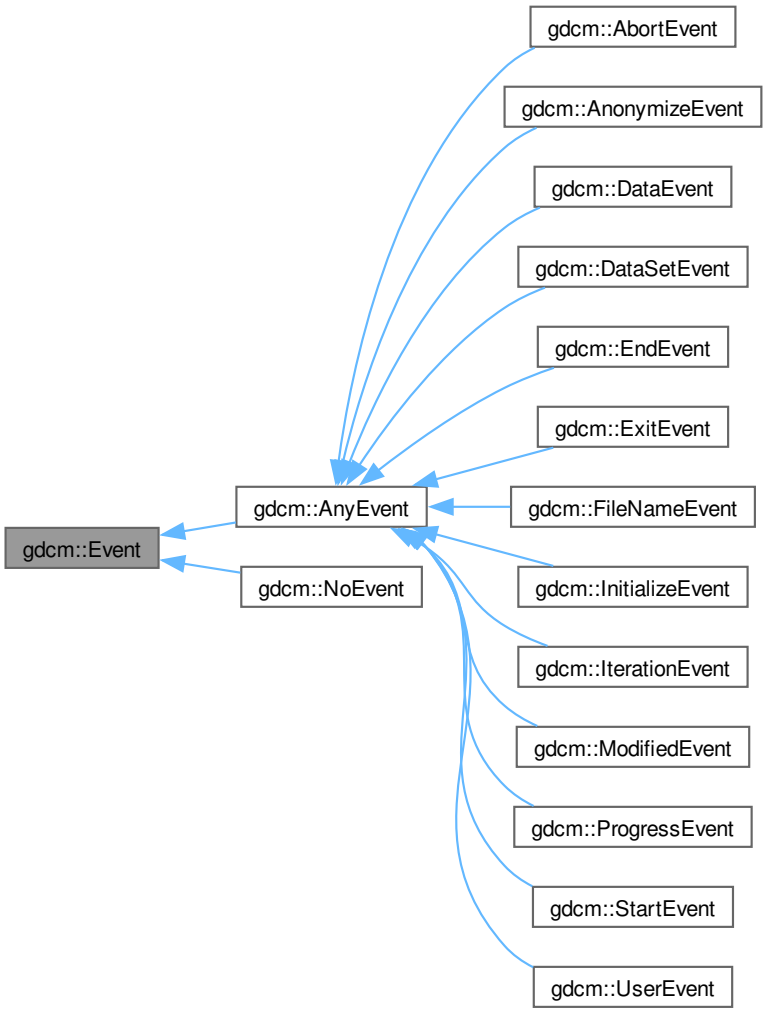
- gdcmEquipmentManufacturer.h

12.119 gdcm::Event Class Reference

superclass for callback/observer methods

`#include <gdcmEvent.h>`

Inheritance diagram for gdcm::Event:



Public Member Functions

- Event ()
- Event (const Event &)
- virtual ~Event ()

- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

12.119.1 Detailed Description

superclass for callback/observer methods

See also

Command Subject

Examples

BasicAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, ScanDirectory.cs, and SimpleScanner.cxx.

12.119.2 Constructor & Destructor Documentation

12.119.2.1 Event() [1/2]

```
gdcm::Event::Event ()
```

Referenced by Event(), CheckEvent(), MakeObject(), and operator=().

12.119.2.2 ~Event()

```
virtual gdcm::Event::~Event ()  [virtual]
```

12.119.2.3 Event() [2/2]

```
gdcm::Event::Event (
            const Event & )
```

References Event().

12.119.3 Member Function Documentation

12.119.3.1 CheckEvent()

```
virtual bool gdcm::Event::CheckEvent (
            const Event * ) const  [pure virtual]
```

Check if given event matches or derives from this event.

References Event().

12.119.3.2 GetEventName()

```
virtual const char * gdcm::Event::GetEventName () const  [pure virtual]
```

Return the StringName associated with the event.

Implemented in gdcm::AnonymizeEvent, gdcm::DataEvent, gdcm::DataSetEvent, gdcm::FileNameEvent, and gdcm::ProgressEvent.

Examples

BasicAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, and ScanDirectory.cs.

12.119.3.3 MakeObject()

```
virtual Event * gdcm::Event::MakeObject () const  [pure virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implemented in gdcm::AnonymizeEvent, gdcm::DataEvent, gdcm::DataSetEvent, gdcm::FileNameEvent, and gdcm::ProgressEvent.

References Event().

12.119.3.4 operator=()

```
void gdcm::Event::operator= (
            const Event & )  [delete]
```

References Event().

12.119.3.5 Print()

```
virtual void gdcm::Event::Print (
            std::ostream & os) const  [virtual]
```

Print Event information. This method can be overridden by specific Event subtypes. The default is to print out the type of the event.

Referenced by gdcm::operator<<().

The documentation for this class was generated from the following file:

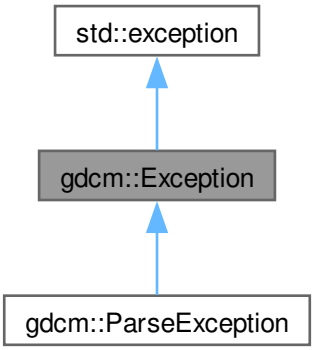
- gdcmEvent.h

12.120 gdcm::Exception Class Reference

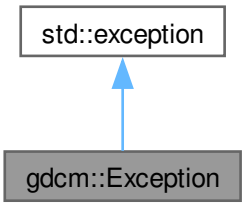
Exception.

`#include <gdcmException.h>`

Inheritance diagram for gdcm::Exception:



Collaboration diagram for gdcm::Exception:



Public Member Functions

- Exception (const char *desc="None", const char *file=__FILE__, unsigned int lineNumber=__LINE__, const char *func="")
- ~Exception () override throw ()
- const char * GetDescription () const

  Return the Description.
- const char * what () const override throw ()

  what implementation

12.120.1 Detailed Description

Exception.

Standard exception handling object.

Note

Its copy-constructor and assignment operator are generated by the compiler.

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, FileChangeTS.cs, and FileChangeTSLossy.cs.

12.120.2 Constructor & Destructor Documentation

12.120.2.1 Exception()

```
gdcm::Exception::Exception (
            const char * desc = "None",
            const char * file = __FILE__,
            unsigned int lineNumber = __LINE__,
            const char * func = "")  [inline], [explicit]
```

Explicit constructor, initializing the description and the text returned by what().

Note

The last parameter is ignored for the time being. It may be used to specify the function where the exception was thrown.

Referenced by gdcm::ParseException::ParseException().

12.120.2.2 ~Exception()

```
gdcm::Exception::~Exception () throw ( )   [inline], [override]
```

12.120.3 Member Function Documentation

12.120.3.1 GetDescription()

```
const char * gdcm::Exception::GetDescription () const  [inline]
```

Return the Description.

Referenced by gdcm::SequenceOfItems::Read().

12.120.3.2 what()

```
const char * gdcm::Exception::what () const throw ( )   [inline], [override]
```

what implementation

Referenced by gdcm::SequenceOfFragments::ReadValue().

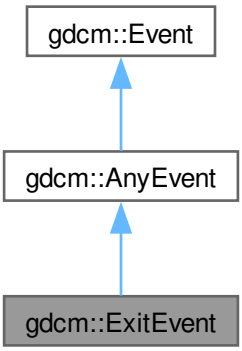
The documentation for this class was generated from the following file:

- gdcmException.h

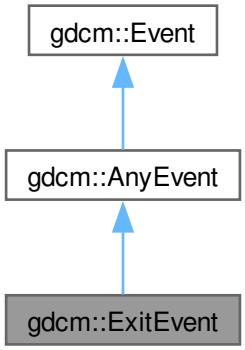
12.121 gdcm::ExitEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::ExitEvent:



Collaboration diagram for gdcm::ExitEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

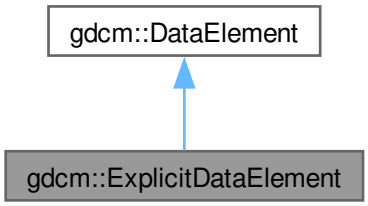
- gdcmEvent.h

12.122 gdcm::ExplicitDataElement Class Reference

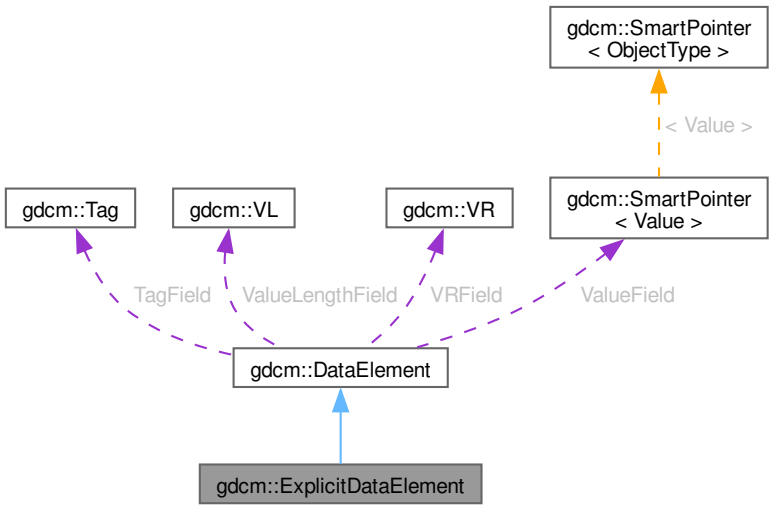
Class to read/write a DataElement as Explicit Data Element.

```
#include <gdcmExplicitDataElement.h>
```

Inheritance diagram for gdcm::ExplicitDataElement:



Collaboration diagram for gdcm::ExplicitDataElement:



Public Member Functions

- VL GetLength () const
- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- template<typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.122.1 Detailed Description

Class to read/write a DataElement as Explicit Data Element.

Note

bla

Examples

DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, and ReadAndDumpDICOMDIR2.cxx.

12.122.2 Member Function Documentation

12.122.2.1 GetLength()

```
VL gdcm::ExplicitDataElement::GetLength () const
```

12.122.2.2 Read()

```
template<typename TSwap>
std::istream & gdcm::ExplicitDataElement::Read (
            std::istream & is)
```

12.122.2.3 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::ExplicitDataElement::ReadPreValue (
             std::istream & is)
```

12.122.2.4 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::ExplicitDataElement::ReadValue (
             std::istream & is,
             bool readvalues = true)
```

12.122.2.5 ReadWithLength()

```
template<typename TSwap>
std::istream & gdcm::ExplicitDataElement::ReadWithLength (
             std::istream & is,
             VL & length)
```

12.122.2.6 Write()

```
template<typename TSwap>
const std::ostream & gdcm::ExplicitDataElement::Write (
             std::ostream & os) const
```

The documentation for this class was generated from the following file:

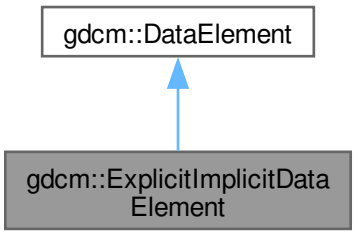
- gdcmExplicitDataElement.h

12.123 gdcm::ExplicitImplicitDataElement Class Reference

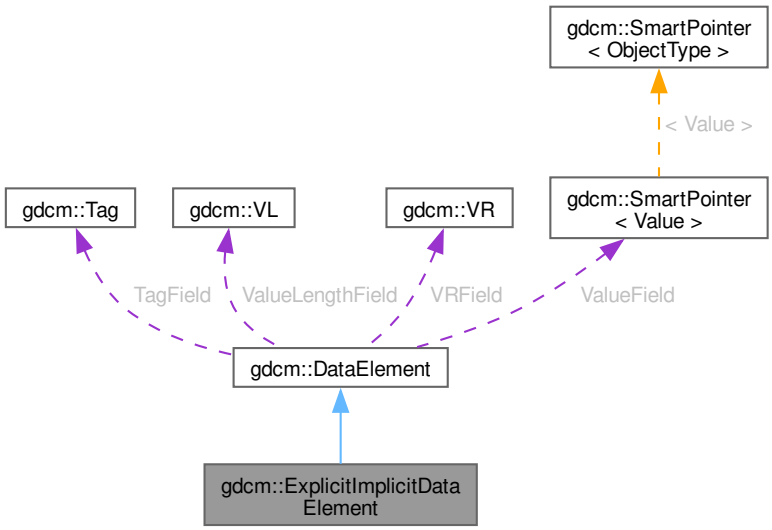
Class to read/write a DataElement as ExplicitImplicit Data Element.

`#include <gdcmExplicitImplicitDataElement.h>`

Inheritance diagram for gdcm::ExplicitImplicitDataElement:



Collaboration diagram for gdcm::ExplicitImplicitDataElement:



Public Member Functions

- VL GetLength () const
- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.123.1 Detailed Description

Class to read/write a DataElement as ExplicitImplicit Data Element.

Note

This only happen for some Philips images Should I derive from ExplicitDataElement instead ? This is the class that is the closest the GDCM1.x parser. At each element we try first to read it as explicit, if this fails, then we try again as an implicit element.

12.123.2 Member Function Documentation

12.123.2.1 GetLength()

```
VL gdcm::ExplicitImplicitDataElement::GetLength () const
```

12.123.2.2 Read()

```
template<typename TSwap>
std::istream & gdcm::ExplicitImplicitDataElement::Read (
            std::istream & is)
```

Referenced by ReadWithLength().

12.123.2.3 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::ExplicitImplicitDataElement::ReadPreValue (
             std::istream & is)
```

12.123.2.4 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::ExplicitImplicitDataElement::ReadValue (
             std::istream & is,
             bool readvalues = true)
```

12.123.2.5 ReadWithLength()

```
template<typename TSwap>
std::istream & gdcm::ExplicitImplicitDataElement::ReadWithLength (
             std::istream & is,
             VL & length)  [inline]
```

References Read().

The documentation for this class was generated from the following file:

- gdcmExplicitImplicitDataElement.h

12.124 gdcm::Fiducials Class Reference

Fiducials.

```
#include <gdcmFiducials.h>
```

Public Member Functions

- Fiducials ()=default

12.124.1 Detailed Description

Fiducials.

12.124.2 Constructor & Destructor Documentation

12.124.2.1 Fiducials()

```
gdcm::Fiducials::Fiducials () [default]
```

The documentation for this class was generated from the following file:

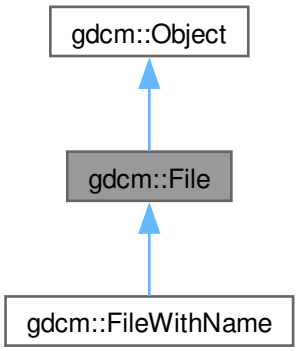
- gdcmFiducials.h

12.125 gdcm::File Class Reference

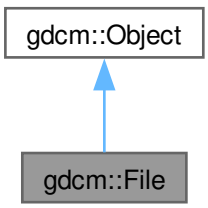
a DICOM File

```
#include <gdcmFile.h>
```

Inheritance diagram for gdcm::File:



Collaboration diagram for gdcm::File:



Public Member Functions

- File ()
- ~File () override
- DataSet & GetDataSet ()

  Get Data Set.
- const DataSet & GetDataSet () const

  Get Data Set.
- FileMetaInformation & GetHeader ()

  Get File Meta Information.
- const FileMetaInformation & GetHeader () const

  Get File Meta Information.
- std::istream & Read (std::istream &is)

  Read.
- void SetDataSet (const DataSet &ds)

  Set Data Set.
- void SetHeader (const FileMetaInformation &fmi)

  Set File Meta Information.
- std::ostream const & Write (std::ostream &os) const

  Write.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Friends

- std::ostream & operator<< (std::ostream &os, const File &val)

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.125.1 Detailed Description

a DICOM File

See PS 3.10 File: A File is an ordered string of zero or more bytes, where the first byte is at the beginning of the file and the last byte at the end of the File. Files are identified by a unique File ID and may by written, read and/or deleted.

See also

Reader Writer

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CompressLossyJPEG.cs, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DeriveSeries.cxx, DiffFile.cxx, DumpCSA.cs, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, EncapsulateFileInRawData.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cx FileChangeTS.cs, FileChangeTSLossy.cs, FixBrokenJ2K.cxx, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, MpegVideoInfo.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndPrintAttributes.cxx, ReadGEMSSDO.cxx, SimplePrint.cs, SimplePrintPatientName.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, and iU22tomultisc.cxx.

12.125.2 Constructor & Destructor Documentation

12.125.2.1 File()

```
gdcm::File::File ()
```

Referenced by gdcm::FileWithName::FileWithName(), ~File(), and operator<<.

12.125.2.2 ~File()

```
gdcm::File::~File ()  [override]
```

References File(), and operator<<.

12.125.3 Member Function Documentation

12.125.3.1 GetDataSet() [1/2]

```
DataSet & gdcm::File::GetDataSet ()  [inline]
```

Get Data Set.

12.125.3.2 GetDataSet() [2/2]

```
const DataSet & gdcm::File::GetDataSet () const  [inline]
```

Get Data Set.

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CompressLossyJPEG.cs, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DecompressImage.cs, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FileChangeTS.cs, FileChangeTSLossy.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MergeTwoFiles.cxx, MrProtocol.cxx, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, SimplePrint.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.125.3.3 GetHeader() [1/2]

```
FileMetaInformation & gdcm::File::GetHeader ()  [inline]
```

Get File Meta Information.

12.125.3.4 GetHeader() [2/2]

```
const FileMetaInformation & gdcm::File::GetHeader () const  [inline]
```

Get File Meta Information.

Examples

CreateJPIPDataSet.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FixJAIBugJPEGLS.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GetJPEGSamplePrecision.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReformatFile.cs, StandardizeFiles.cs, StreamImageReaderTest.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

Referenced by operator<<.

12.125.3.5 Read()

```
std::istream & gdcm::File::Read (
            std::istream & is)
```

Read.

12.125.3.6 SetDataSet()

```
void gdcm::File::SetDataSet (
            const DataSet & ds)  [inline]
```

Set Data Set.

12.125.3.7 SetHeader()

```
void gdcm::File::SetHeader (
            const FileMetaInformation & fmi)  [inline]
```

Set File Meta Information.

12.125.3.8 Write()

```
std::ostream const & gdcm::File::Write (
            std::ostream & os) const
```

Write.

12.125.4 Friends And Related Symbol Documentation

12.125.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const File & val)  [friend]
```

References File(), GetHeader(), and operator<<.

Referenced by ~File(), and operator<<.

The documentation for this class was generated from the following file:

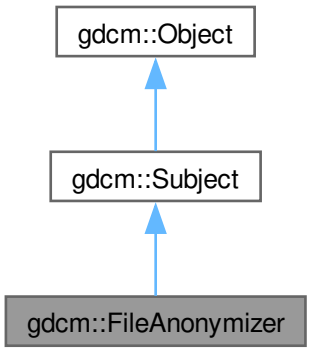
- gdcmFile.h

12.126 gdcm::FileAnonymizer Class Reference

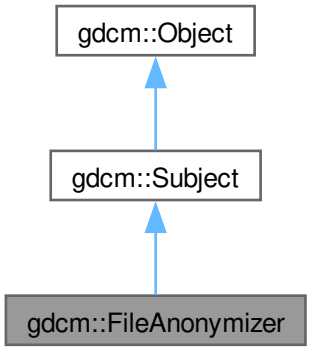
FileAnonymizer.

`#include <gdcmFileAnonymizer.h>`

Inheritance diagram for gdcm::FileAnonymizer:



Collaboration diagram for gdcm::FileAnonymizer:



Public Member Functions

- FileAnonymizer ()
- ~FileAnonymizer () override
- void Empty (Tag const &t)
- void Remove (Tag const &t)

  remove a tag (even a SQ can be removed)
- void Replace (Tag const &t, const char *value_data, VL const &vl)
- void Replace (Tag const &t, const char *value_str)
- void SetInputFileName (const char *filename_native)

  Set input filename.
- void SetOutputFileName (const char *filename_native)

  Set output filename.
- bool Write ()

  Write the output file.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.126.1 Detailed Description

FileAnonymizer.

This Anonymizer is a file-based Anonymizer. It requires a valid DICOM file and will use the Value Length to skip over any information.

It will not load the DICOM dataset taken from SetInputFileName() into memory and should consume much less memory than Anonymizer.

Warning

: Each time you call Replace() with a value. This value will copied, and stored in memory. The behavior is not ideal for extremely large data (larger than memory size). This class is really meant to take a large DICOM input file and then only changed some small attribute.

caveats:

- This class will NOT work with unordered attributes in a DICOM File,
- This class does neither recompute nor update the Group Length element,
- This class currently does not update the File Meta Information header.
- Only strict inplace Replace operation is supported when input and output file are the same.

Examples

FileAnonymize.cs, and MakeTemplate.cxx.

12.126.2 Constructor & Destructor Documentation

12.126.2.1 FileAnonymizer()

```
gdcm::FileAnonymizer::FileAnonymizer ()
```

12.126.2.2 ~FileAnonymizer()

```
gdcm::FileAnonymizer::~FileAnonymizer ()  [override]
```

12.126.3 Member Function Documentation

12.126.3.1 Empty()

```
void gdcm::FileAnonymizer::Empty (
            Tag const & t)
```

Make Tag t empty Warning: does not handle SQ element

Examples

FileAnonymize.cs, and MakeTemplate.cxx.

12.126.3.2 Remove()

```
void gdcm::FileAnonymizer::Remove (
            Tag const & t)
```

remove a tag (even a SQ can be removed)

Examples

FileAnonymize.cs.

12.126.3.3 Replace() [1/2]

```
void gdcm::FileAnonymizer::Replace (
            Tag const & t,
            const char * value_data,
            VL const & vl)
```

when the value contains \0, it is a good idea to specify the length. This function is required when dealing with VRBINARY tag

12.126.3.4 Replace() [2/2]

```
void gdcm::FileAnonymizer::Replace (
            Tag const & t,
            const char * value_str)
```

Replace tag with another value, if tag is not found it will be created: WARNING: this function can only execute if tag is a VRASCII WARNING: Do not ever try to write a value in a SQ Data Element !

Examples

FileAnonymize.cs.

12.126.3.5 SetInputFileName()

```
void gdcm::FileAnonymizer::SetInputFileName (
            const char * filename_native)
```

Set input filename.

Examples

FileAnonymize.cs, and MakeTemplate.cxx.

12.126.3.6 SetOutputFileName()

```
void gdcm::FileAnonymizer::SetOutputFileName (
            const char * filename_native)
```

Set output filename.

Examples

FileAnonymize.cs, and MakeTemplate.cxx.

12.126.3.7 Write()

```
bool gdcm::FileAnonymizer::Write ()
```

Write the output file.

Examples

FileAnonymize.cs, and MakeTemplate.cxx.

The documentation for this class was generated from the following file:

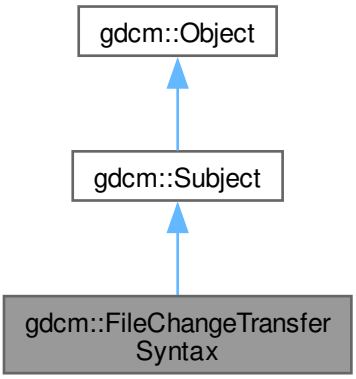
- gdcmFileAnonymizer.h

12.127 gdcm::FileChangeTransferSyntax Class Reference

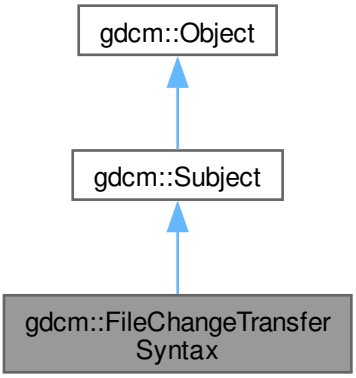
FileChangeTransferSyntax.

```
#include <gdcmFileChangeTransferSyntax.h>
```

Inheritance diagram for gdcm::FileChangeTransferSyntax:



Collaboration diagram for gdcm::FileChangeTransferSyntax:



Public Member Functions

- FileChangeTransferSyntax ()
- ~FileChangeTransferSyntax () override
- bool Change ()

  Change the transfer syntax.
- ImageCodec * GetCodec ()
- void SetInputFileName (const char *filename_native)

  Set input filename (raw DICOM).
- void SetOutputFileName (const char *filename_native)

  Set output filename (target compressed DICOM).
- void SetTransferSyntax (TransferSyntax const &ts)

  Specify the Target Transfer Syntax.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< FileChangeTransferSyntax > New ()

  for wrapped language: instantiate a reference counted object

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.127.1 Detailed Description

FileChangeTransferSyntax.

This class is a file-based (limited) replacement of the in-memory ImageChangeTransferSyntax.

This class provide a file-based compression-only mechanism. It will take in an uncompressed DICOM image file (Pixel Data element). Then produced as output a compressed DICOM file (Transfer Syntax will be updated).

Currently it supports the following transfer syntax:

- JPEGLosslessProcess14_1

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

12.127.2 Constructor & Destructor Documentation

12.127.2.1 FileChangeTransferSyntax()

```
gdcm::FileChangeTransferSyntax::FileChangeTransferSyntax ()
```

Referenced by New().

12.127.2.2 ~FileChangeTransferSyntax()

```
gdcm::FileChangeTransferSyntax::~FileChangeTransferSyntax ()  [override]
```

12.127.3 Member Function Documentation

12.127.3.1 Change()

```
bool gdcm::FileChangeTransferSyntax::Change ()
```

Change the transfer syntax.

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

12.127.3.2 GetCodec()

```
ImageCodec * gdcm::FileChangeTransferSyntax::GetCodec ()
```

Retrieve the actual codec (valid after calling SetTransferSyntax) Only advanced users should call this function.

Examples

FileChangeTSLossy.cs.

12.127.3.3 New()

```
SmartPointer< FileChangeTransferSyntax > gdcm::FileChangeTransferSyntax::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

References FileChangeTransferSyntax().

12.127.3.4 SetInputFileName()

```
void gdcm::FileChangeTransferSyntax::SetInputFileName (
            const char * filename_native)
```

Set input filename (raw DICOM).

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

12.127.3.5 SetOutputFileName()

```
void gdcm::FileChangeTransferSyntax::SetOutputFileName (
            const char * filename_native)
```

Set output filename (target compressed DICOM).

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

12.127.3.6 SetTransferSyntax()

```
void gdcm::FileChangeTransferSyntax::SetTransferSyntax (
            TransferSyntax const & ts)
```

Specify the Target Transfer Syntax.

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

The documentation for this class was generated from the following file:

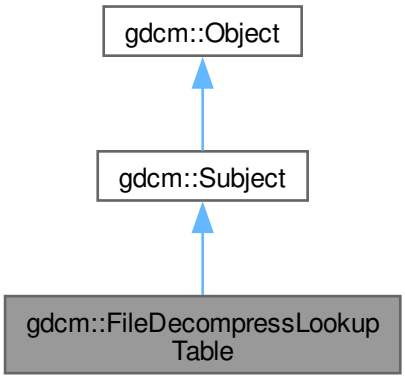
- gdcmFileChangeTransferSyntax.h

12.128 gdcm::FileDecompressLookupTable Class Reference

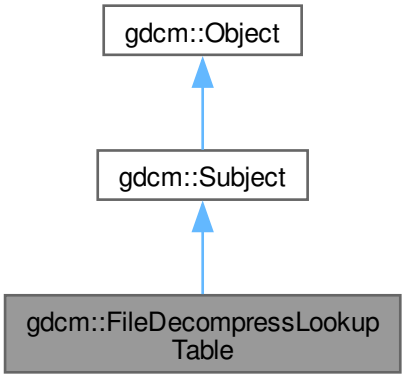
FileDecompressLookupTable class.

`#include <gdcmFileDecompressLookupTable.h>`

Inheritance diagram for gdcm::FileDecompressLookupTable:



Collaboration diagram for gdcm::FileDecompressLookupTable:



Public Member Functions

- FileDecompressLookupTable ()=default
- ~FileDecompressLookupTable () override=default
- bool Change ()

  Decompress.
- File & GetFile ()
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const
- void SetFile (const File &f)

  Set/Get File.
- void SetPixmap (Pixmap const &img)

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.128.1 Detailed Description

FileDecompressLookupTable class.

It decompress the segmented LUT into linearized one (only PALETTE_COLOR images) Output will be a PhotometricInterpretation=RGB image

12.128.2 Constructor & Destructor Documentation

12.128.2.1 FileDecompressLookupTable()

```
gdcm::FileDecompressLookupTable::FileDecompressLookupTable ()  [default]
```

12.128.2.2 ~FileDecompressLookupTable()

```
gdcm::FileDecompressLookupTable::~FileDecompressLookupTable ()  [override], [default]
```

12.128.3 Member Function Documentation

12.128.3.1 Change()

```
bool gdcm::FileDecompressLookupTable::Change ()
```

Decompress.

12.128.3.2 GetFile()

```
File & gdcm::FileDecompressLookupTable::GetFile ()  [inline]
```

12.128.3.3 GetPixmap() [1/2]

```
Pixmap & gdcm::FileDecompressLookupTable::GetPixmap ()  [inline]
```

12.128.3.4 GetPixmap() [2/2]

```
const Pixmap & gdcm::FileDecompressLookupTable::GetPixmap () const  [inline]
```

12.128.3.5 SetFile()

```
void gdcm::FileDecompressLookupTable::SetFile (
            const File & f)  [inline]
```

Set/Get File.

12.128.3.6 SetPixmap()

```
void gdcm::FileDecompressLookupTable::SetPixmap (
            Pixmap const & img)  [inline]
```

The documentation for this class was generated from the following file:

- gdcmFileDecompressLookupTable.h

12.129 gdcm::FileDerivation Class Reference

FileDerivation class.

```
#include <gdcmFileDerivation.h>
```

Public Member Functions

- FileDerivation ()
- ~FileDerivation ()
- bool AddReference (const char *referencedsopclassuid, const char *referencedsopinstanceuid)
- bool Derive ()

  Change.
- File & GetFile ()
- const File & GetFile () const
- void SetAppendDerivationHistory (bool b)
- void SetDerivationCodeSequenceCodeValue (unsigned int codevalue)

  Specify the Derivation Code Sequence Code Value. Eg 113040.
- void SetDerivationDescription (const char *dd)

  Specify the Derivation Description. Eg "lossy conversion".
- void SetFile (const File &f)

  Set/Get File.
- void SetPurposeOfReferenceCodeSequenceCodeValue (unsigned int codevalue)

  Specify the Purpose Of Reference Code Value. Eg. 121320.

Protected Member Functions

- bool AddDerivationDescription ()
- bool AddPurposeOfReferenceCodeSequence (DataSet &ds)
- bool AddSourceImageSequence ()

12.129.1 Detailed Description

FileDerivation class.

See PS 3.16 - 2008 For the list of Code Value that can be used for in Derivation Code Sequence

URL: `http://medical.nema.org/medical/dicom/2008/08_16pu.pdf`

DICOM Part 16 has two Context Groups CID 7202 and CID 7203 which contain a set of codes defining reason for a source image reference (ie. reason code for referenced image sequence) and a coded description of the deriation applied to the new image data from the original. Both these context groups are extensible.

File Derivation is compulsory when creating a lossy derived image.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

12.129.2 Constructor & Destructor Documentation

12.129.2.1 FileDerivation()

```
gdcm::FileDerivation::FileDerivation ()
```

12.129.2.2 ~FileDerivation()

```
gdcm::FileDerivation::~FileDerivation ()
```

12.129.3 Member Function Documentation

12.129.3.1 AddDerivationDescription()

```
bool gdcm::FileDerivation::AddDerivationDescription ()  [protected]
```

12.129.3.2 AddPurposeOfReferenceCodeSequence()

```
bool gdcm::FileDerivation::AddPurposeOfReferenceCodeSequence (
            DataSet & ds)  [protected]
```

12.129.3.3 AddReference()

```
bool gdcm::FileDerivation::AddReference (
            const char * referencedsopclassuid,
            const char * referencedsopinstanceuid)
```

Create the proper reference. Need to pass the original SOP Class UID and the original SOP Instance UID, so that those value can be used as Reference.

Warning

referencedsopclassuid and referencedsopinstanceuid needs to be \0 padded. This is not compatible with how ByteValue->GetPointer works.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

12.129.3.4 AddSourceImageSequence()

```
bool gdcm::FileDerivation::AddSourceImageSequence ()  [protected]
```

12.129.3.5 Derive()

```
bool gdcm::FileDerivation::Derive ()
```

Change.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

12.129.3.6 GetFile() [1/2]

```
File & gdcm::FileDerivation::GetFile ()  [inline]
```

Examples

GenFakeImage.cxx, and ReformatFile.cs.

12.129.3.7 GetFile() [2/2]

```
const File & gdcm::FileDerivation::GetFile () const  [inline]
```

12.129.3.8 SetAppendDerivationHistory()

```
void gdcm::FileDerivation::SetAppendDerivationHistory (
            bool b)
```

Specify if Derivation history should be appended (default false) When false, this is an error if input already has a derivation history When true, both Purpose of Reference Code Value and Derivation Code Sequence Code Value can have their history appended.

12.129.3.9 SetDerivationCodeSequenceCodeValue()

```
void gdcm::FileDerivation::SetDerivationCodeSequenceCodeValue (
            unsigned int codevalue)
```

Specify the Derivation Code Sequence Code Value. Eg 113040.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

12.129.3.10 SetDerivationDescription()

```
void gdcm::FileDerivation::SetDerivationDescription (
            const char * dd)
```

Specify the Derivation Description. Eg "lossy conversion".

12.129.3.11 SetFile()

```
void gdcm::FileDerivation::SetFile (
            const File & f)  [inline]
```

Set/Get File.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

12.129.3.12 SetPurposeOfReferenceCodeSequenceCodeValue()

```
void gdcm::FileDerivation::SetPurposeOfReferenceCodeSequenceCodeValue (
            unsigned int codevalue)
```

Specify the Purpose Of Reference Code Value. Eg. 121320.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

The documentation for this class was generated from the following file:

- gdcmFileDerivation.h

12.130 gdcm::FileExplicitFilter Class Reference

FileExplicitFilter class.

```
#include <gdcmFileExplicitFilter.h>
```

Public Member Functions

- FileExplicitFilter ()
- ~FileExplicitFilter ()=default
- bool Change ()

  Set FMI Transfer Syntax.
- File & GetFile ()
- void SetChangePrivateTags (bool b)

  Decide whether or not to VR'ify private tags.
- void SetFile (const File &f)

  Set/Get File.
- void SetRecomputeItemLength (bool b)

  By default set Sequence & Item length to Undefined to avoid recomputing length:
- void SetRecomputeSequenceLength (bool b)
- void SetUseVRUN (bool b)

  When VR=16bits in explicit but Implicit has a 32bits length, use VR=UN.

Protected Member Functions

- bool ChangeFMI ()
- bool ProcessDataSet (DataSet &ds, Dicts const &dicts)

12.130.1 Detailed Description

FileExplicitFilter class.

After changing a file from Implicit to Explicit representation (see ImageChangeTransferSyntax) one operation is to make sure the VR of each DICOM attribute are accurate and do match the one from PS 3.6. Indeed when a file is written in Implicit representation, the VR is not stored directly in the file.

Warning

changing an implicit dataset to an explicit dataset is NOT a trivial task of simply changing the VR to the dict one:

- One has to make sure SQ is properly set
- One has to recompute the explicit length SQ
- One has to make sure that VR is valid for the encoding
- One has to make sure that VR 16bits can store the original value length

Examples

GenAllVR.cxx, and LargeVRDSExplicit.cxx.

12.130.2 Constructor & Destructor Documentation

12.130.2.1 FileExplicitFilter()

```
gdcm::FileExplicitFilter::FileExplicitFilter ()  [inline]
```

12.130.2.2 ~FileExplicitFilter()

```
gdcm::FileExplicitFilter::~FileExplicitFilter ()  [default]
```

12.130.3 Member Function Documentation

12.130.3.1 Change()

```
bool gdcm::FileExplicitFilter::Change ()
```

Set FMI Transfer Syntax.

Change

Examples

GenAllVR.cxx, and LargeVRDSExplicit.cxx.

12.130.3.2 ChangeFMI()

```
bool gdcm::FileExplicitFilter::ChangeFMI ()  [protected]
```

12.130.3.3 GetFile()

```
File & gdcm::FileExplicitFilter::GetFile ()  [inline]
```

12.130.3.4 ProcessDataSet()

```
bool gdcm::FileExplicitFilter::ProcessDataSet (
            DataSet & ds,
            Dicts const & dicts)  [protected]
```

12.130.3.5 SetChangePrivateTags()

```
void gdcm::FileExplicitFilter::SetChangePrivateTags (
            bool b)  [inline]
```

Decide whether or not to VR'ify private tags.

12.130.3.6 SetFile()

```
void gdcm::FileExplicitFilter::SetFile (
            const File & f)  [inline]
```

Set/Get File.

Examples

GenAllVR.cxx, and LargeVRDSExplicit.cxx.

12.130.3.7 SetRecomputeItemLength()

```
void gdcm::FileExplicitFilter::SetRecomputeItemLength (
            bool b)
```

By default set Sequence & Item length to Undefined to avoid recomputing length:

12.130.3.8 SetRecomputeSequenceLength()

```
void gdcm::FileExplicitFilter::SetRecomputeSequenceLength (
            bool b)
```

12.130.3.9 SetUseVRUN()

```
void gdcm::FileExplicitFilter::SetUseVRUN (
            bool b)  [inline]
```

When VR=16bits in explicit but Implicit has a 32bits length, use VR=UN.

The documentation for this class was generated from the following file:

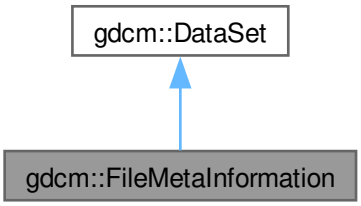
- gdcmFileExplicitFilter.h

12.131 gdcm::FileMetaInformation Class Reference

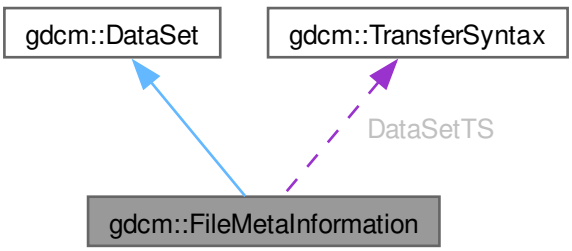
Class to represent a File Meta Information.

```
#include <gdcmFileMetaInformation.h>
```

Inheritance diagram for gdcm::FileMetaInformation:



Collaboration diagram for gdcm::FileMetaInformation:



Public Member Functions

- FileMetaInformation ()
- FileMetaInformation (FileMetaInformation const &fmi)=default
- ~FileMetaInformation ()
- void FillFromDataSet (DataSet const &ds)

  Construct a FileMetaInformation from an already existing DataSet:
- const TransferSyntax & GetDataSetTransferSyntax () const
- VL GetFullLength () const
- MediaStorage GetMediaStorage () const
- std::string GetMediaStorageAsString () const
- TransferSyntax::NegociatedType GetMetaInformationTS () const
- Preamble & GetPreamble ()
- const Preamble & GetPreamble () const

  Get Preamble.
- void Insert (const DataElement &de)
- bool IsValid () const
- FileMetaInformation & operator= (const FileMetaInformation &fmi)=default
- std::istream & Read (std::istream &is)

  Read.
- std::istream & ReadCompat (std::istream &is)
- void Replace (const DataElement &de)
- void SetDataSetTransferSyntax (const TransferSyntax &ts)
- void SetPreamble (const Preamble &p)
- std::ostream & Write (std::ostream &os) const

  Write.

Public Member Functions inherited from gdcm::DataSet

- Iterator Begin ()
- ConstIterator Begin () const
- void Clear ()
- template<typename TDE>
  unsigned int ComputeGroupLength (Tag const &tag) const
- Iterator End ()
- ConstIterator End () const
- bool FindDataElement (const PrivateTag &t) const

  Look up if private tag 't' is present in the dataset:
- bool FindDataElement (const Tag &t) const
- const DataElement & FindNextDataElement (const Tag &t) const
- const DataElement & GetDataElement (const PrivateTag &t) const

  Return the dataelement.
- const DataElement & GetDataElement (const Tag &t) const
- DataElementSet & GetDES ()
- const DataElementSet & GetDES () const
- template<typename TDE>
  VL GetLength () const
- MediaStorage GetMediaStorage () const
- std::string GetPrivateCreator (const Tag &t) const

- PrivateTag GetPrivateTag (const Tag &t) const

  Return the private tag of the private tag 't', private creator will be set to empty if not found.
- void Insert (const DataElement &de)
- bool IsEmpty () const

  Returns if the dataset is empty.
- const DataElement & operator() (uint16_t group, uint16_t element) const
- DataSet & operator= (DataSet const &)=default
- const DataElement & operator[ ] (const Tag &t) const
- void Print (std::ostream &os, std::string const &indent="") const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadNested (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedPrivateTags (std::istream &is, const std::set< PrivateTag > &tags, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedPrivateTagsWithLength (std::istream &is, const std::set< PrivateTag > &tags, VL &length, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedTags (std::istream &is, const std::set< Tag > &tags, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedTagsWithLength (std::istream &is, const std::set< Tag > &tags, VL &length, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadUpToTag (std::istream &is, const Tag &t, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadUpToTagWithLength (std::istream &is, const Tag &t, std::set< Tag > const &skiptags, VL &length)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- SizeType Remove (const Tag &tag)

  Completely remove a dataelement from the dataset.
- void Replace (const DataElement &de)

  Replace a dataelement with another one.
- void ReplaceEmpty (const DataElement &de)

  Only replace a DICOM attribute when it is missing or empty.
- SizeType Size () const
- template<typename TDE, typename TSwap>
  std::ostream const & Write (std::ostream &os) const

Static Public Member Functions

- static void AppendImplementationClassUID (const char *imp)
- static const char * GetImplementationClassUID ()
- static const char * GetImplementationVersionName ()
- static const char * GetSourceApplicationEntityTitle ()
- static void SetImplementationClassUID (const char *imp)

  Override the GDCM default values:
- static void SetImplementationVersionName (const char *version)
- static void SetSourceApplicationEntityTitle (const char *title)

Protected Member Functions

- void ComputeDataSetMediaStorageSOPClass ()
- void ComputeDataSetTransferSyntax ()
- void Default ()
- template<typename TSwap>
  std::istream & ReadCompatInternal (std::istream &is)

Protected Member Functions inherited from gdcm::DataSet

- Tag ComputeDataElement (const PrivateTag &t) const
- const DataElement & GetDEEnd () const
- void InsertDataElement (const DataElement &de)

Static Protected Member Functions

- static const char * GetFileMetaInformationVersion ()
- static const char * GetGDCMImplementationClassUID ()
- static const char * GetGDCMImplementationVersionName ()
- static const char * GetGDCMSourceApplicationEntityTitle ()

Protected Attributes

- MediaStorage::MSType DataSetMS
- TransferSyntax DataSetTS
- TransferSyntax::NegociatedType MetaInformationTS

Friends

- std::ostream & operator<< (std::ostream &_os, const FileMetaInformation &_val)

Additional Inherited Members

Public Types inherited from gdcm::DataSet

- typedef DataElementSet::const_iterator ConstIterator
- typedef std::set< DataElement > DataElementSet
- typedef DataElementSet::iterator Iterator
- typedef DataElementSet::size_type SizeType

12.131.1 Detailed Description

Class to represent a File Meta Information.

FileMetaInformation is a Explicit Structured Set. Whenever the file contains an ImplicitDataElement DataSet, a conversion will take place.

Definition: The File Meta Information includes identifying information on the encapsulated Data Set. This header consists of a 128 byte File Preamble, followed by a 4 byte DICOM prefix, followed by the File Meta Elements shown in Table 7.1-1. This header shall be present in every DICOM file.

See also

Writer Reader

Examples

DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ReadAndDumpDICOMDIR.cxx, ReformatFile.cs, and StandardizeFiles.cs.

12.131.2 Constructor & Destructor Documentation

12.131.2.1 FileMetaInformation() [1/2]

```
gdcm::FileMetaInformation::FileMetaInformation ()
```

Referenced by FileMetaInformation(), ~FileMetaInformation(), operator<<, and operator=().

12.131.2.2 ~FileMetaInformation()

```
gdcm::FileMetaInformation::~FileMetaInformation ()
```

References FileMetaInformation(), and operator<<.

12.131.2.3 FileMetaInformation() [2/2]

```
gdcm::FileMetaInformation::FileMetaInformation (
            FileMetaInformation const & fmi)  [default]
```

References FileMetaInformation().

12.131.3 Member Function Documentation

12.131.3.1 AppendImplementationClassUID()

```
void gdcm::FileMetaInformation::AppendImplementationClassUID (
            const char * imp)  [static]
```

12.131.3.2 ComputeDataSetMediaStorageSOPClass()

```
void gdcm::FileMetaInformation::ComputeDataSetMediaStorageSOPClass ()  [protected]
```

12.131.3.3 ComputeDataSetTransferSyntax()

```
void gdcm::FileMetaInformation::ComputeDataSetTransferSyntax ()  [protected]
```

12.131.3.4 Default()

```
void gdcm::FileMetaInformation::Default ()  [protected]
```

12.131.3.5 FillFromDataSet()

```
void gdcm::FileMetaInformation::FillFromDataSet (
            DataSet const & ds)
```

Construct a FileMetaInformation from an already existing DataSet:

12.131.3.6 GetDataSetTransferSyntax()

```
const TransferSyntax & gdcm::FileMetaInformation::GetDataSetTransferSyntax () const  [inline]
```

Examples

GetJPEGSamplePrecision.cxx, and MergeTwoFiles.cxx.

References DataSetTS.

12.131.3.7 GetFileMetaInformationVersion()

```
const char * gdcm::FileMetaInformation::GetFileMetaInformationVersion ()  [static], [protected]
```

12.131.3.8 GetFullLength()

```
VL gdcm::FileMetaInformation::GetFullLength () const  [inline]
```

References gdcm::DataSet::GetLength(), and gdcm::VL::GetLength().

12.131.3.9 GetGDCMImplementationClassUID()

```
const char * gdcm::FileMetaInformation::GetGDCMImplementationClassUID ()  [static], [protected]
```

12.131.3.10 GetGDCMImplementationVersionName()

```
const char * gdcm::FileMetaInformation::GetGDCMImplementationVersionName ()  [static], [protected]
```

12.131.3.11 GetGDCMSourceApplicationEntityTitle()

```
const char * gdcm::FileMetaInformation::GetGDCMSourceApplicationEntityTitle ()  [static], [protected]
```

12.131.3.12 GetImplementationClassUID()

```
const char * gdcm::FileMetaInformation::GetImplementationClassUID ()  [static]
```

12.131.3.13 GetImplementationVersionName()

```
const char * gdcm::FileMetaInformation::GetImplementationVersionName ()  [static]
```

12.131.3.14 GetMediaStorage()

```
MediaStorage gdcm::FileMetaInformation::GetMediaStorage () const
```

12.131.3.15 GetMediaStorageAsString()

```
std::string gdcm::FileMetaInformation::GetMediaStorageAsString () const
```

12.131.3.16 GetMetaInformationTS()

```
TransferSyntax::NegociatedType gdcm::FileMetaInformation::GetMetaInformationTS () const  [inline]
```

References MetaInformationTS.

12.131.3.17 GetPreamble() [1/2]

```
Preamble & gdcm::FileMetaInformation::GetPreamble ()  [inline]
```

12.131.3.18 GetPreamble() [2/2]

```
const Preamble & gdcm::FileMetaInformation::GetPreamble () const  [inline]
```

Get Preamble.

Referenced by operator<<.

12.131.3.19 GetSourceApplicationEntityTitle()

```
const char * gdcm::FileMetaInformation::GetSourceApplicationEntityTitle ()  [static]
```

12.131.3.20 Insert()

```
void gdcm::FileMetaInformation::Insert (
            const DataElement & de)  [inline]
```

References gdcmErrorMacro, gdcm::Tag::GetGroup(), gdcm::DataElement::GetTag(), and gdcm::DataSet::InsertDataElement().

Referenced by Replace().

12.131.3.21 IsValid()

```
bool gdcm::FileMetaInformation::IsValid () const  [inline]
```

12.131.3.22 operator=()

```
FileMetaInformation & gdcm::FileMetaInformation::operator= (
            const FileMetaInformation & fmi)  [default]
```

References FileMetaInformation().

12.131.3.23 Read()

```
std::istream & gdcm::FileMetaInformation::Read (
            std::istream & is)
```

Read.

12.131.3.24 ReadCompat()

```
std::istream & gdcm::FileMetaInformation::ReadCompat (
            std::istream & is)
```

12.131.3.25 ReadCompatInternal()

```
template<typename TSwap>
std::istream & gdcm::FileMetaInformation::ReadCompatInternal (
            std::istream & is)  [protected]
```

12.131.3.26 Replace()

```
void gdcm::FileMetaInformation::Replace (
            const DataElement & de)  [inline]
```

Examples

LargeVRDSExplicit.cxx.

References gdcm::DataElement::GetTag(), Insert(), and gdcm::DataSet::Remove().

12.131.3.27 SetDataSetTransferSyntax()

```
void gdcm::FileMetaInformation::SetDataSetTransferSyntax (
            const TransferSyntax & ts)
```

Examples

CreateJPIPDataSet.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FixJAIBugJPEGLS.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, MpegVideoInfo.cs, QIDO-RS.cxx, StreamImageReaderTest.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.131.3.28 SetImplementationClassUID()

```
void gdcm::FileMetaInformation::SetImplementationClassUID (
            const char * imp)  [static]
```

Override the GDCM default values:

12.131.3.29 SetImplementationVersionName()

```
void gdcm::FileMetaInformation::SetImplementationVersionName (
            const char * version)  [static]
```

12.131.3.30 SetPreamble()

```
void gdcm::FileMetaInformation::SetPreamble (
            const Preamble & p)  [inline]
```

12.131.3.31 SetSourceApplicationEntityTitle()

```
void gdcm::FileMetaInformation::SetSourceApplicationEntityTitle (
            const char * title)  [static]
```

Examples

FixJAIBugJPEGLS.cxx, GenerateDICOMDIR.cs, ReformatFile.cs, and StandardizeFiles.cs.

12.131.3.32 Write()

```
std::ostream & gdcm::FileMetaInformation::Write (
            std::ostream & os) const
```

Write.

12.131.4 Friends And Related Symbol Documentation

12.131.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const FileMetaInformation & _val)  [friend]
```

References FileMetaInformation(), GetPreamble(), operator<<, and gdcm::DataSet::Print().

Referenced by ~FileMetaInformation(), and operator<<.

12.131.5 Member Data Documentation

12.131.5.1 DataSetMS

```
MediaStorage::MSType gdcm::FileMetaInformation::DataSetMS  [protected]
```

12.131.5.2 DataSetTS

```
TransferSyntax gdcm::FileMetaInformation::DataSetTS  [protected]
```

Referenced by GetDataSetTransferSyntax().

12.131.5.3 MetaInformationTS

```
TransferSyntax::NegociatedType gdcm::FileMetaInformation::MetaInformationTS  [protected]
```

Referenced by GetMetaInformationTS().

The documentation for this class was generated from the following file:

- gdcmFileMetaInformation.h

12.132 gdcm::Filename Class Reference

Class to manipulate file name's.

```
#include <gdcmFilename.h>
```

Public Member Functions

- Filename (const char *filename="")
- bool EndWith (const char ending[]) const

  Does the filename ends with a particular string ?
- const char * GetExtension ()

  return only the extension part of a filename
- const char * GetFileName () const

  Return the full filename.
- const char * GetName ()

  return only the name part of a filename
- const char * GetPath ()

  Return only the path component of a filename.
- bool IsEmpty () const

  return whether the filename is empty
- bool IsIdentical (Filename const &fn) const
- operator const char * () const
- const char * ToUnixSlashes ()

  Convert backslash (windows style) to UNIX style slash.
- const char * ToWindowsSlashes ()

  Convert forward slash (UNIX style) to windows style slash.

Static Public Member Functions

- static const char * Join (const char *path, const char *filename)

12.132.1 Detailed Description

Class to manipulate file name's.

Note

OS independent representation of a filename (to query path, name and extension from a filename)

12.132.2 Constructor & Destructor Documentation

12.132.2.1 Filename()

```
gdcm::Filename::Filename (
            const char * filename = "")  [inline]
```

Referenced by IsIdentical().

12.132.3 Member Function Documentation

12.132.3.1 EndWith()

```
bool gdcm::Filename::EndWith (
            const char ending[]) const
```

Does the filename ends with a particular string ?

12.132.3.2 GetExtension()

```
const char * gdcm::Filename::GetExtension ()
```

return only the extension part of a filename

12.132.3.3 GetFileName()

```
const char * gdcm::Filename::GetFileName () const  [inline]
```

Return the full filename.

Referenced by operator const char *().

12.132.3.4 GetName()

```
const char * gdcm::Filename::GetName ()
```

return only the name part of a filename

12.132.3.5 GetPath()

```
const char * gdcm::Filename::GetPath ()
```

Return only the path component of a filename.

Examples

ClinicalTrialIdentificationWorkflow.cs.

12.132.3.6 IsEmpty()

```
bool gdcm::Filename::IsEmpty () const  [inline]
```

return whether the filename is empty

12.132.3.7 IsIdentical()

```
bool gdcm::Filename::IsIdentical (
            Filename const & fn) const
```

References Filename().

12.132.3.8 Join()

```
const char * gdcm::Filename::Join (
            const char * path,
            const char * filename)  [static]
```

Join two paths NOT THREAD SAFE

12.132.3.9 operator const char *()

```
gdcm::Filename::operator const char * () const  [inline]
```

Simple operator to allow Filename myfilename("..."); const char * s = myfilename;

References GetFileName().

12.132.3.10 ToUnixSlashes()

```
const char * gdcm::Filename::ToUnixSlashes ()
```

Convert backslash (windows style) to UNIX style slash.

12.132.3.11 ToWindowsSlashes()

```
const char * gdcm::Filename::ToWindowsSlashes ()
```

Convert forward slash (UNIX style) to windows style slash.

The documentation for this class was generated from the following file:

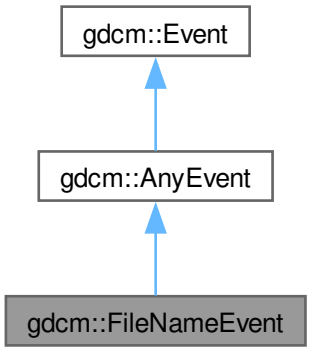
- gdcmFilename.h

12.133 gdcm::FileNameEvent Class Reference

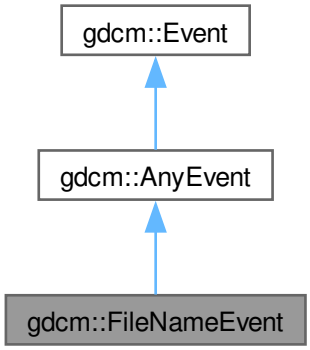
FileNameEvent.

```
#include <gdcmFileNameEvent.h>
```

Inheritance diagram for gdcm::FileNameEvent:



Collaboration diagram for gdcm::FileNameEvent:



Public Types

- typedef FileNameEvent Self
- typedef AnyEvent Superclass

Public Member Functions

- FileNameEvent (const char *s="")
- FileNameEvent (const Self &s)
- ~FileNameEvent () override=default
- bool CheckEvent (const ::gdcm::Event *e) const override
- const char * GetEventName () const override
- const char * GetFileName () const
- ::gdcm::Event * MakeObject () const override
- void operator= (const Self &)=delete
- void SetFileName (const char *f)

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

12.133.1 Detailed Description

FileNameEvent.

Special type of event triggered during processing of FileSet

See also

AnyEvent

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

12.133.2 Member Typedef Documentation

12.133.2.1 Self

```
typedef FileNameEvent gdcm::FileNameEvent::Self
```

12.133.2.2 Superclass

```
typedef AnyEvent gdcm::FileNameEvent::Superclass
```

12.133.3 Constructor & Destructor Documentation

12.133.3.1 FileNameEvent() [1/2]

```
gdcm::FileNameEvent::FileNameEvent (
            const char * s = "")  [inline]
```

12.133.3.2 ~FileNameEvent()

```
gdcm::FileNameEvent::~FileNameEvent ()  [override], [default]
```

12.133.3.3 FileNameEvent() [2/2]

```
gdcm::FileNameEvent::FileNameEvent (
            const Self & s)  [inline]
```

12.133.4 Member Function Documentation

12.133.4.1 CheckEvent()

```
bool gdcm::FileNameEvent::CheckEvent (
            const ::gdcm::Event * e) const  [inline], [override]
```

12.133.4.2 GetEventName()

```
const char * gdcm::FileNameEvent::GetEventName () const  [inline], [override], [virtual]
```

Return the StringName associated with the event.

Implements gdcm::Event.

12.133.4.3 GetFileName()

```
const char * gdcm::FileNameEvent::GetFileName () const  [inline]
```

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

12.133.4.4 MakeObject()

```
::gdcm::Event * gdcm::FileNameEvent::MakeObject () const  [inline], [override], [virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implements gdcm::Event.

12.133.4.5 operator=()

```
void gdcm::FileNameEvent::operator= (
            const Self & )  [delete]
```

12.133.4.6 SetFileName()

```
void gdcm::FileNameEvent::SetFileName (
            const char * f)  [inline]
```

The documentation for this class was generated from the following file:

- gdcmFileNameEvent.h

12.134 gdcm::FilenameGenerator Class Reference

FilenameGenerator.

```
#include <gdcmFilenameGenerator.h>
```

Public Types

- typedef std::vector< FilenameType > FilenamesType
- typedef std::string FilenameType
- typedef FilenamesType::size_type SizeType

Public Member Functions

- FilenameGenerator ()
- ~FilenameGenerator ()=default
- bool Generate ()

  Generate (return success).
- const char * GetFilename (SizeType n) const

  Get a particular filename (call after Generate).
- FilenamesType const & GetFilenames () const

  Return all filenames.
- SizeType GetNumberOfFilenames () const
- const char * GetPattern () const
- const char * GetPrefix () const
- void SetNumberOfFilenames (SizeType nfiles)

  Set/Get the number of filenames to generate.
- void SetPattern (const char *pattern)

  Set/Get pattern.
- void SetPrefix (const char *prefix)

  Set/Get prefix.

12.134.1 Detailed Description

FilenameGenerator.

class to generate filenames based on a pattern (C-style)

Output will be:

for i = 0, number of filenames: outfilename[i] = prefix + (pattern % i)

where pattern % i means C-style snprintf of Pattern using value 'i'

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

12.134.2 Member Typedef Documentation

12.134.2.1 FilenamesType

```
typedef std::vector<FilenameType> gdcm::FilenameGenerator::FilenamesType
```

12.134.2.2 FilenameType

```
typedef std::string gdcm::FilenameGenerator::FilenameType
```

12.134.2.3 SizeType

```
typedef FilenamesType::size_type gdcm::FilenameGenerator::SizeType
```

12.134.3 Constructor & Destructor Documentation

12.134.3.1 FilenameGenerator()

```
gdcm::FilenameGenerator::FilenameGenerator ()  [inline]
```

12.134.3.2 ~FilenameGenerator()

```
gdcm::FilenameGenerator::~FilenameGenerator ()  [default]
```

12.134.4 Member Function Documentation

12.134.4.1 Generate()

```
bool gdcm::FilenameGenerator::Generate ()
```

Generate (return success).

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

12.134.4.2 GetFilename()

```
const char * gdcm::FilenameGenerator::GetFilename (
            SizeType n) const
```

Get a particular filename (call after Generate).

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

12.134.4.3 GetFilenames()

```
FilenamesType const & gdcm::FilenameGenerator::GetFilenames () const  [inline]
```

Return all filenames.

12.134.4.4 GetNumberOfFilenames()

```
SizeType gdcm::FilenameGenerator::GetNumberOfFilenames () const
```

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

12.134.4.5 GetPattern()

```
const char * gdcm::FilenameGenerator::GetPattern () const  [inline]
```

12.134.4.6 GetPrefix()

```
const char * gdcm::FilenameGenerator::GetPrefix () const  [inline]
```

12.134.4.7 SetNumberOfFilenames()

```
void gdcm::FilenameGenerator::SetNumberOfFilenames (
            SizeType nfiles)
```

Set/Get the number of filenames to generate.

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

12.134.4.8 SetPattern()

```
void gdcm::FilenameGenerator::SetPattern (
            const char * pattern)  [inline]
```

Set/Get pattern.

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

12.134.4.9 SetPrefix()

```
void gdcm::FilenameGenerator::SetPrefix (
            const char * prefix)  [inline]
```

Set/Get prefix.

The documentation for this class was generated from the following file:

- gdcmFilenameGenerator.h

12.135 gdcm::FileSet Class Reference

```
#include <gdcmFileSet.h>
```

Public Types

- typedef std::vector< FileType > FilesType
- typedef std::string FileType

Public Member Functions

- FileSet ()
- bool AddFile (const char *filename)
- void AddFile (File const &)
- FilesType const & GetFiles () const
- void SetFiles (FilesType const &files)

Friends

- std::ostream & operator<< (std::ostream &_os, const FileSet &d)

12.135.1 Detailed Description

File-set: A File-set is a collection of DICOM Files (and possibly non-DICOM Files) that share a common naming space within which File IDs are unique.

12.135.2 Member Typedef Documentation

12.135.2.1 FilesType

```
typedef std::vector<FileType> gdcm::FileSet::FilesType
```

12.135.2.2 FileType

```
typedef std::string gdcm::FileSet::FileType
```

12.135.3 Constructor & Destructor Documentation

12.135.3.1 FileSet()

```
gdcm::FileSet::FileSet ()  [inline]
```

Referenced by operator<<.

12.135.4 Member Function Documentation

12.135.4.1 AddFile() [1/2]

```
bool gdcm::FileSet::AddFile (
            const char * filename)
```

Add a file 'filename' to the list of files. Return true on success, false in case filename could not be found on system.

12.135.4.2 AddFile() [2/2]

```
void gdcm::FileSet::AddFile (
            File const & )  [inline]
```

Deprecated . Does nothing

12.135.4.3 GetFiles()

```
FilesType const & gdcm::FileSet::GetFiles () const  [inline]
```

12.135.4.4 SetFiles()

```
void gdcm::FileSet::SetFiles (
            FilesType const & files)
```

12.135.5 Friends And Related Symbol Documentation

12.135.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const FileSet & d)  [friend]
```

References FileSet().

The documentation for this class was generated from the following file:

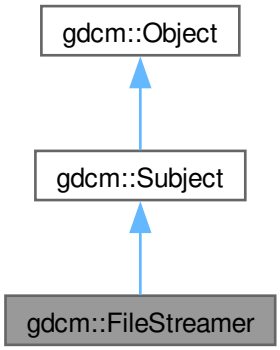
- gdcmFileSet.h

12.136 gdcm::FileStreamer Class Reference

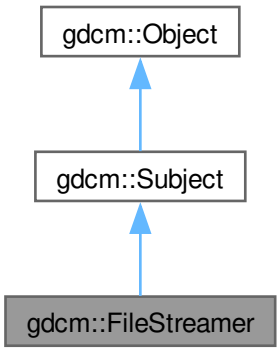
FileStreamer.

```
#include <gdcmFileStreamer.h>
```

Inheritance diagram for gdcm::FileStreamer:



Collaboration diagram for gdcm::FileStreamer:



Public Member Functions

- FileStreamer ()
- ~FileStreamer () override
- bool AppendToDataElement (const Tag &t, const char *array, size_t len)

  Append to previously started Tag t.
- bool AppendToGroupDataElement (const PrivateTag &pt, const char *array, size_t len)

  Append to previously started private creator.
- bool CheckDataElement (const Tag &t)
- void CheckTemplateFileName (bool check)
- bool ReserveDataElement (size_t len)
- bool ReserveGroupDataElement (unsigned short ndataelement)
- void SetOutputFileName (const char *filename_native)

  Set output filename (target file).
- void SetTemplateFileName (const char *filename_native)

  Set input DICOM template filename.
- bool StartDataElement (const Tag &t)
- bool StartGroupDataElement (const PrivateTag &pt, size_t maxsizede=0, uint8_t startoffset=0)
- bool StopDataElement (const Tag &t)

  Stop appending to tag t. This will compute the proper attribute length.
- bool StopGroupDataElement (const PrivateTag &pt)

  Stop appending to private creator.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)

- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< FileStreamer > New ()

  for wrapped language: instantiate a reference counted object

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.136.1 Detailed Description

FileStreamer.

This class let a user create a massive DICOM DataSet from a template DICOM file, by appending chunks of data.

This class support two mode of operation:

1. Creating a single DataElement by appending chunk after chunk of data.
2. Creating a set of DataElement within the same group, using a private creator for start. New DataElement are added any time the user defined maximum size for data element is reached.

Warning

any existing DataElement is removed, pick carefully which DataElement to add.

Examples

FileStreaming.cs.

12.136.2 Constructor & Destructor Documentation

12.136.2.1 FileStreamer()

```
gdcm::FileStreamer::FileStreamer ()
```

Referenced by New().

12.136.2.2 ~FileStreamer()

```
gdcm::FileStreamer::~FileStreamer ()  [override]
```

12.136.3 Member Function Documentation

12.136.3.1 AppendToDataElement()

```
bool gdcm::FileStreamer::AppendToDataElement (
            const Tag & t,
            const char * array,
            size_t len)
```

Append to previously started Tag t.

12.136.3.2 AppendToGroupDataElement()

```
bool gdcm::FileStreamer::AppendToGroupDataElement (
            const PrivateTag & pt,
            const char * array,
            size_t len)
```

Append to previously started private creator.

Examples

FileStreaming.cs.

12.136.3.3 CheckDataElement()

```
bool gdcm::FileStreamer::CheckDataElement (
            const Tag & t)
```

Decide to check the Data Element to be written (default: off) The implementation has default strategy for checking validity of DataElement. Currently it only support checking for the following tags:

- (7fe0,0010) Pixel Data

12.136.3.4 CheckTemplateFileName()

```
void gdcm::FileStreamer::CheckTemplateFileName (
            bool check)
```

Instead of simply blindly copying the input DICOM Template file, GDCM will be used to check the input file, and correct any issues recognized within the file. Only use if you do not have control over the input template file.

12.136.3.5 New()

```
SmartPointer< FileStreamer > gdcm::FileStreamer::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

References FileStreamer().

12.136.3.6 ReserveDataElement()

```
bool gdcm::FileStreamer::ReserveDataElement (
            size_t len)
```

Add a hint on the final size of the dataelement. When optimally chosen, this reduce the number of file in-place copying. Should be called before StartDataElement

12.136.3.7 ReserveGroupDataElement()

```
bool gdcm::FileStreamer::ReserveGroupDataElement (
            unsigned short ndataelement)
```

Optimisation: pre-allocate the number of dataelement within the private group (ndataelement <= 256). Should be called before StartGroupDataElement

12.136.3.8 SetOutputFileName()

```
void gdcm::FileStreamer::SetOutputFileName (
            const char * filename_native)
```

Set output filename (target file).

Examples

FileStreaming.cs.

12.136.3.9 SetTemplateFileName()

```
void gdcm::FileStreamer::SetTemplateFileName (
            const char * filename_native)
```

Set input DICOM template filename.

Examples

FileStreaming.cs.

12.136.3.10 StartDataElement()

```
bool gdcm::FileStreamer::StartDataElement (
            const Tag & t)
```

Start Single Data Element Operation This will delete any existing Tag t. Need to call it only once.

12.136.3.11 StartGroupDataElement()

```
bool gdcm::FileStreamer::StartGroupDataElement (
            const PrivateTag & pt,
            size_t maxsizede = 0,
            uint8_t startoffset = 0)
```

Start Private Group (multiple DataElement) Operation. Each newly added DataElement will have a length lower than

Parameters

maxsizede	. When not specified, maxsizede is set to maximum size allowed by DICOM (= 2^32). startoffset can be used to specify the very first element you want to start with (instead of the first possible). Value should be in [0x0, 0xff] This will find the first available private creator.

Bug maxsizede should be a value lower than the actual total size of the buffer to be copied

Examples

FileStreaming.cs.

12.136.3.12 StopDataElement()

```
bool gdcm::FileStreamer::StopDataElement (
            const Tag & t)
```

Stop appending to tag t. This will compute the proper attribute length.

12.136.3.13 StopGroupDataElement()

```
bool gdcm::FileStreamer::StopGroupDataElement (
            const PrivateTag & pt)
```

Stop appending to private creator.

Examples

FileStreaming.cs.

The documentation for this class was generated from the following file:

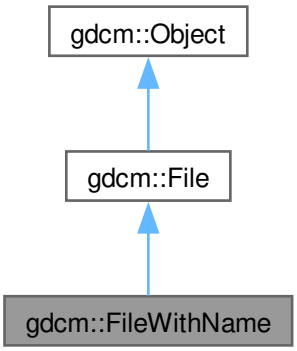
- gdcmFileStreamer.h

12.137 gdcm::FileWithName Class Reference

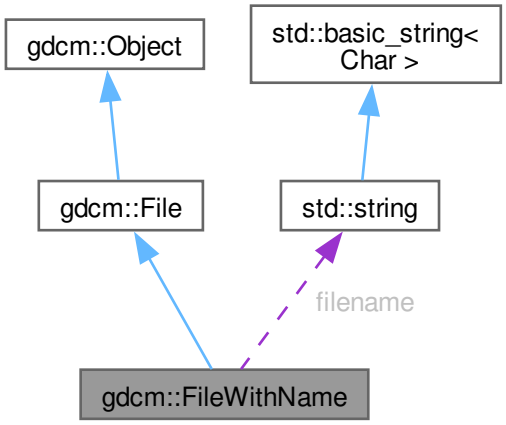
FileWithName.

```
#include <gdcmSerieHelper.h>
```

Inheritance diagram for gdcm::FileWithName:



Collaboration diagram for gdcm::FileWithName:



Public Member Functions

- FileWithName (File &f)

Public Member Functions inherited from gdcm::File

- File ()
- ~File () override
- DataSet & GetDataSet ()

  Get Data Set.
- const DataSet & GetDataSet () const

  Get Data Set.
- FileMetaInformation & GetHeader ()

  Get File Meta Information.
- const FileMetaInformation & GetHeader () const

  Get File Meta Information.
- std::istream & Read (std::istream &is)

  Read.
- void SetDataSet (const DataSet &ds)

  Set Data Set.
- void SetHeader (const FileMetaInformation &fmi)

  Set File Meta Information.
- std::ostream const & Write (std::ostream &os) const

  Write.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Public Attributes

- std::string filename

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.137.1 Detailed Description

FileWithName.

Backward only class do not use in newer code

12.137.2 Constructor & Destructor Documentation

12.137.2.1 FileWithName()

```
gdcm::FileWithName::FileWithName (
            File & f)  [inline]
```

References gdcm::File::File(), and filename.

12.137.3 Member Data Documentation

12.137.3.1 filename

```
std::string gdcm::FileWithName::filename
```

Referenced by FileWithName().

The documentation for this class was generated from the following file:

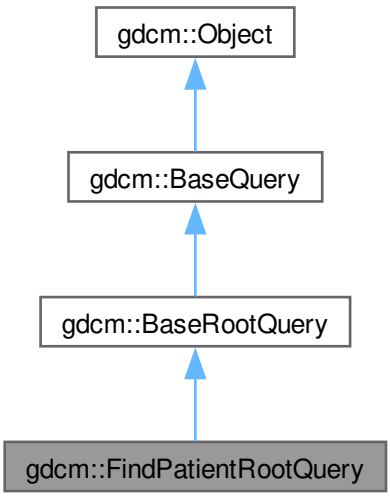
- gdcmSerieHelper.h

12.138 gdcm::FindPatientRootQuery Class Reference

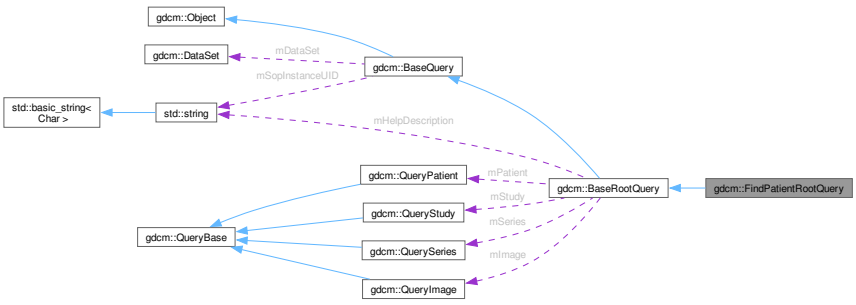
PatientRootQuery.

`#include <gdcmFindPatientRootQuery.h>`

Inheritance diagram for gdcm::FindPatientRootQuery:



Collaboration diagram for gdcm::FindPatientRootQuery:



Public Member Functions

- FindPatientRootQuery ()
- UIDs::TSName GetAbstractSyntaxUID () const override
- std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel) override
- void InitializeDataSet (const EQueryLevel &inQueryLevel) override
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseRootQuery

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Static Public Member Functions inherited from gdcm::BaseRootQuery

- static QueryBase * Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char *str)
- static const char * GetQueryLevelString (EQueryLevel ql)

Protected Member Functions inherited from gdcm::BaseRootQuery

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseRootQuery

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

12.138.1 Detailed Description

PatientRootQuery.

contains: the class which will produce a dataset for c-find with patient root

12.138.2 Constructor & Destructor Documentation

12.138.2.1 FindPatientRootQuery()

```
gdcm::FindPatientRootQuery::FindPatientRootQuery ()
```

12.138.3 Member Function Documentation

12.138.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::FindPatientRootQuery::GetAbstractSyntaxUID () const  [override], [virtual]
```

Implements gdcm::BaseQuery.

12.138.3.2 GetTagListByLevel()

```
std::vector< Tag > gdcm::FindPatientRootQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements gdcm::BaseRootQuery.

12.138.3.3 InitializeDataSet()

```
void gdcm::FindPatientRootQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implements gdcm::BaseRootQuery.

12.138.3.4 ValidateQuery()

```
bool gdcm::FindPatientRootQuery::ValidateQuery (
            bool inStrict = true) const  [override], [virtual]
```

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements gdcm::BaseRootQuery.

12.138.4 Friends And Related Symbol Documentation

12.138.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

The documentation for this class was generated from the following file:

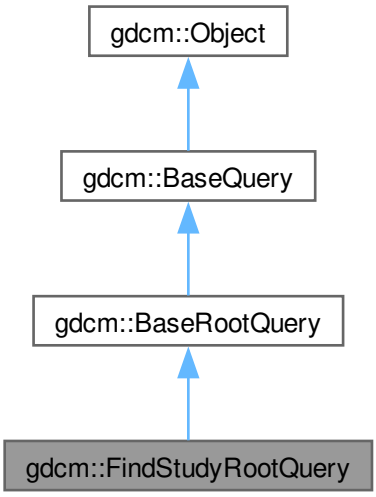
- gdcmFindPatientRootQuery.h

12.139 gdcm::FindStudyRootQuery Class Reference

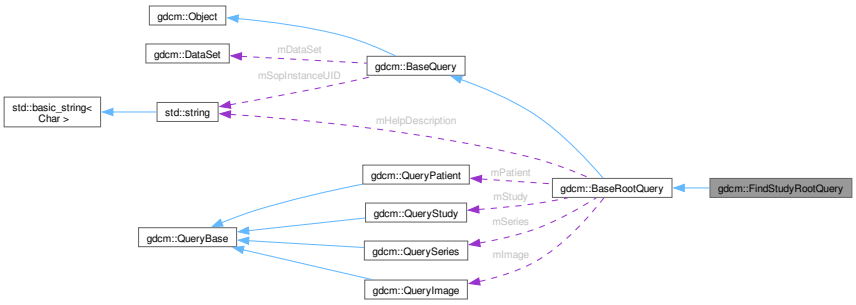
FindStudyRootQuery.

`#include <gdcmFindStudyRootQuery.h>`

Inheritance diagram for gdcm::FindStudyRootQuery:



Collaboration diagram for gdcm::FindStudyRootQuery:



Public Member Functions

- FindStudyRootQuery ()
- UIDs::TSName GetAbstractSyntaxUID () const override
- std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel) override
- void InitializeDataSet (const EQueryLevel &inQueryLevel) override
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseRootQuery

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Static Public Member Functions inherited from gdcm::BaseRootQuery

- static QueryBase * Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char *str)
- static const char * GetQueryLevelString (EQueryLevel ql)

Protected Member Functions inherited from gdcm::BaseRootQuery

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseRootQuery

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

12.139.1 Detailed Description

FindStudyRootQuery.

contains: the class which will produce a dataset for C-FIND with study root

12.139.2 Constructor & Destructor Documentation

12.139.2.1 FindStudyRootQuery()

```
gdcm::FindStudyRootQuery::FindStudyRootQuery ()
```

12.139.3 Member Function Documentation

12.139.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::FindStudyRootQuery::GetAbstractSyntaxUID () const  [override], [virtual]
```

Implements gdcm::BaseQuery.

12.139.3.2 GetTagListByLevel()

```
std::vector< Tag > gdcm::FindStudyRootQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements gdcm::BaseRootQuery.

12.139.3.3 InitializeDataSet()

```
void gdcm::FindStudyRootQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implements gdcm::BaseRootQuery.

12.139.3.4 ValidateQuery()

```
bool gdcm::FindStudyRootQuery::ValidateQuery (
            bool inStrict = true) const  [override], [virtual]
```

have to be able to ensure that (0008,0052) is set that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional)

Implements gdcm::BaseRootQuery.

12.139.4 Friends And Related Symbol Documentation

12.139.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

The documentation for this class was generated from the following file:

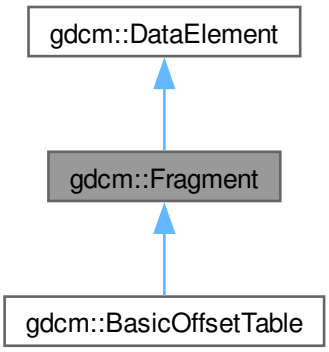
- gdcmFindStudyRootQuery.h

12.140 gdcm::Fragment Class Reference

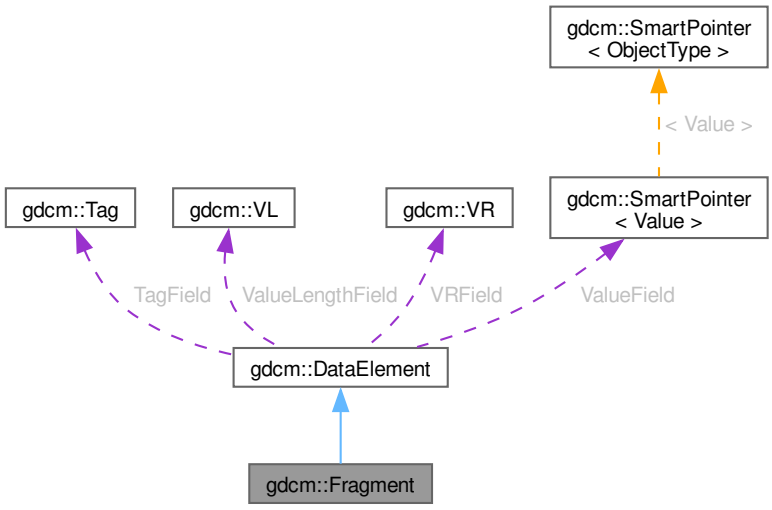
Class to represent a Fragment.

`#include <gdcmFragment.h>`

Inheritance diagram for gdcm::Fragment:



Collaboration diagram for gdcm::Fragment:



Public Member Functions

- Fragment ()
- VL ComputeLength () const
- VL GetLength () const
- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadBacktrack (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is)
- template<typename TSwap>
  std::ostream & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)

- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Friends

- std::ostream & operator<< (std::ostream &os, const Fragment &val)

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.140.1 Detailed Description

Class to represent a Fragment.

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, and MpegVideoInfo.cs.

12.140.2 Constructor & Destructor Documentation

12.140.2.1 Fragment()

```
gdcm::Fragment::Fragment ()  [inline]
```

References gdcm::DataElement::DataElement().

Referenced by gdcm::BasicOffsetTable::BasicOffsetTable(), and operator<<.

12.140.3 Member Function Documentation

12.140.3.1 ComputeLength()

```
VL gdcm::Fragment::ComputeLength () const
```

12.140.3.2 GetLength()

```
VL gdcm::Fragment::GetLength () const
```

12.140.3.3 Read()

```
template<typename TSwap>
std::istream & gdcm::Fragment::Read (
             std::istream & is)  [inline]
```

References ReadPreValue(), and ReadValue().

Referenced by gdcm::SequenceOfFragments::ReadValue().

12.140.3.4 ReadBacktrack()

```
template<typename TSwap>
std::istream & gdcm::Fragment::ReadBacktrack (
             std::istream & is)  [inline]
```

References gdcmErrorMacro, gdcmWarningMacro, gdcm::ParseException::SetLastElement(), gdcm::DataElement::TagField, gdcm::DataElement::ValueField, and gdcm::DataElement::ValueLengthField.

Referenced by gdcm::SequenceOfFragments::ReadValue().

12.140.3.5 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::Fragment::ReadPreValue (
             std::istream & is)  [inline]
```

References gdcm::DataElement::TagField, and gdcm::DataElement::ValueLengthField.

Referenced by Read().

12.140.3.6 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::Fragment::ReadValue (
             std::istream & is)  [inline]
```

References gdcmWarningMacro, gdcm::ParseException::SetLastElement(), gdcm::DataElement::ValueField, and gdcm::DataElement::ValueLengthField.

Referenced by Read().

12.140.3.7 Write()

```
template<typename TSwap>
std::ostream & gdcm::Fragment::Write (
             std::ostream & os) const  [inline]
```

References gdcm::ByteValue::ComputeLength(), gdcm::DataElement::GetByteValue(), gdcm::ByteValue::GetLength(), gdcm::DataElement::IsEmpty(), gdcm::DataElement::TagField, gdcm::DataElement::ValueLengthField, gdcm::ByteValue::Write(), and gdcm::VL::Write().

12.140.4 Friends And Related Symbol Documentation

12.140.4.1 operator<<

```
std::ostream & operator<< (
             std::ostream & os,
             const Fragment & val)  [friend]
```

References Fragment(), operator<<, gdcm::DataElement::TagField, gdcm::DataElement::ValueField, and gdcm::DataElement::ValueLeng

Referenced by operator<<.

The documentation for this class was generated from the following file:

- gdcmFragment.h

12.141 gdcm::Global Class Reference

Global.

`#include <gdcmGlobal.h>`

Public Member Functions

- Global ()
- Global (const Global &_val)=delete
- ~Global ()
- bool Append (const char *path)
- Defs const & GetDefs () const
- Dicts & GetDicts ()
- Dicts const & GetDicts () const
- bool LoadResourcesFiles ()
- Global & operator= (const Global &_val)=delete
- bool Prepend (const char *path)

Static Public Member Functions

- static Global & GetInstance ()

  return the singleton instance

Protected Member Functions

- const char * Locate (const char *resfile) const

  Locate a resource file.

Friends

- std::ostream & operator<< (std::ostream &_os, const Global &g)

12.141.1 Detailed Description

Global.

Note

Global should be included in any translation unit that will use Dict or that implements the singleton pattern. It makes sure that the Dict singleton is created before and destroyed after all other singletons in GDCM.

Examples

BasicAnonymizer.cs, Cleaner.cs, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenerateStandardSOPClasses.cxx, PublicDict.cxx, ReadAndPrintAttributes.cxx, and TraverseModules.cxx.

12.141.2 Constructor & Destructor Documentation

12.141.2.1 Global() [1/2]

```
gdcm::Global::Global ()
```

Referenced by Global(), GetInstance(), operator<<, and operator=().

12.141.2.2 ~Global()

```
gdcm::Global::~Global ()
```

12.141.2.3 Global() [2/2]

```
gdcm::Global::Global (
            const Global & _val)  [delete]
```

References Global().

12.141.3 Member Function Documentation

12.141.3.1 Append()

```
bool gdcm::Global::Append (
            const char * path)
```

Append path at the end of the path list

Warning

not thread safe !

12.141.3.2 GetDefs()

```
Defs const & gdcm::Global::GetDefs () const
```

retrieve the default/internal (Part 3) You need to explicitly call LoadResourcesFiles before

Examples

GenerateStandardSOPClasses.cxx, and TraverseModules.cxx.

12.141.3.3 GetDicts() [1/2]

```
Dicts & gdcm::Global::GetDicts ()
```

12.141.3.4 GetDicts() [2/2]

```
Dicts const & gdcm::Global::GetDicts () const
```

retrieve the default/internal dicts (Part 6) This dict is filled up at load time

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, MrProtocol.cxx, PublicDict.cxx, ReadAndPrintAttributes.cxx, and TraverseModules.cxx.

12.141.3.5 GetInstance()

```
Global & gdcm::Global::GetInstance ()  [static]
```

return the singleton instance

Examples

BasicAnonymizer.cs, Cleaner.cs, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenerateStandardSOPClasses.cxx, MrProtocol.cxx, PublicDict.cxx, ReadAndPrintAttributes.cxx, and TraverseModules.cxx.

References Global().

12.141.3.6 LoadResourcesFiles()

```
bool gdcm::Global::LoadResourcesFiles ()
```

Load all internal XML files, resource path need to have been set before calling this member function (see Append/↩ Prepend members func)

Warning

not thread safe !

Examples

BasicAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, GenerateStandardSOPClasses.cxx, and TraverseModules.cxx.

12.141.3.7 Locate()

```
const char * gdcm::Global::Locate (
            const char * resfile) const  [protected]
```

Locate a resource file.

12.141.3.8 operator=()

```
Global & gdcm::Global::operator= (
            const Global & _val)  [delete]
```

References Global().

12.141.3.9 Prepend()

```
bool gdcm::Global::Prepend (
            const char * path)
```

Prepend path at the beginning of the path list

Warning

not thread safe !

12.141.4 Friends And Related Symbol Documentation

12.141.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Global & g)  [friend]
```

References Global().

The documentation for this class was generated from the following file:

- gdcmGlobal.h

12.142 gdcm::GroupDict Class Reference

Class to represent the mapping from group number to its abbreviation and name.

```
#include <gdcmGroupDict.h>
```

Public Types

- typedef std::vector< std::string > GroupStringVector

Public Member Functions

- GroupDict ()
- ~GroupDict ()=default
- std::string const & GetAbbreviation (uint16_t num) const
- std::string const & GetName (uint16_t num) const
- size_t Size () const

Protected Member Functions

- void Add (std::string const &abbreviation, std::string const &name)
- void Insert (uint16_t num, std::string const &abbreviation, std::string const &name)

Friends

- std::ostream & operator<< (std::ostream &_os, const GroupDict &_val)

12.142.1 Detailed Description

Class to represent the mapping from group number to its abbreviation and name.

Note

Should I rewrite this class to use a std::map instead of std::vector for problem of memory consumption ?

12.142.2 Member Typedef Documentation

12.142.2.1 GroupStringVector

```
typedef std::vector<std::string> gdcm::GroupDict::GroupStringVector
```

12.142.3 Constructor & Destructor Documentation

12.142.3.1 GroupDict()

```
gdcm::GroupDict::GroupDict () [inline]
```

Referenced by ~GroupDict(), Insert(), and operator<<.

12.142.3.2 ~GroupDict()

```
gdcm::GroupDict::~GroupDict ()  [default]
```

References GroupDict(), and operator<<.

12.142.4 Member Function Documentation

12.142.4.1 Add()

```
void gdcm::GroupDict::Add (
             std::string const & abbreviation,
             std::string const & name)  [protected]
```

12.142.4.2 GetAbbreviation()

```
std::string const & gdcm::GroupDict::GetAbbreviation (
             uint16_t num) const
```

Referenced by operator<<.

12.142.4.3 GetName()

```
std::string const & gdcm::GroupDict::GetName (
             uint16_t num) const
```

Referenced by operator<<.

12.142.4.4 Insert()

```
void gdcm::GroupDict::Insert (
             uint16_t num,
             std::string const & abbreviation,
             std::string const & name)  [protected]
```

References GroupDict().

12.142.4.5 Size()

```
size_t gdcm::GroupDict::Size () const  [inline]
```

Referenced by operator<<.

12.142.5 Friends And Related Symbol Documentation

12.142.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const GroupDict & _val)  [friend]
```

References GroupDict(), GetAbbreviation(), GetName(), and Size().

Referenced by ~GroupDict().

The documentation for this class was generated from the following file:

- gdcmGroupDict.h

12.143 gdcm::IconImageFilter Class Reference

IconImageFilter.

```
#include <gdcmIconImageFilter.h>
```

Public Member Functions

- IconImageFilter ()
- ~IconImageFilter ()
- bool Extract ()

  Extract all Icon found in File.
- File & GetFile ()
- const File & GetFile () const
- IconImage & GetIconImage (unsigned int i) const
- unsigned int GetNumberOfIconImages () const

  Retrieve extract IconImage (need to call Extract first).
- void SetFile (const File &f)

  Set/Get File.

Protected Member Functions

- void ExtractIconImages ()
- void ExtractVeproIconImages ()

12.143.1 Detailed Description

IconImageFilter.

This filter will extract icons from a File This filter will loop over all known sequence (public and private) that may contains an IconImage and retrieve them. The filter will fails with a value of false if no icon can be found Since it handle both public and private icon type, one should not assume the icon is in uncompress form, some private vendor store private icon in JPEG8/JPEG12

Implementation details: This filter supports the following Icons:

- (0088,0200) Icon Image Sequence
- (0009,10,GEIIS) GE IIS Thumbnail Sequence
- (6003,10,GEMS_Ultrasound_ImageGroup_001) GEMS Image Thumbnail Sequence
- (0055,30,VEPRO VIF 3.0 DATA) Icon Data
- (0055,30,VEPRO VIM 5.0 DATA) ICONDATA2

Warning

the icon stored in those private attribute do not conform to definition of Icon Image Sequence (do not simply copy/paste). For example some private icon can be expressed as 12bits pixel, while the DICOM standard only allow 8bits icons.

See also

ImageReader

Examples

ExtractIconFromFile.cxx.

12.143.2 Constructor & Destructor Documentation

12.143.2.1 IconImageFilter()

```
gdcm::IconImageFilter::IconImageFilter ()
```

12.143.2.2 ~IconImageFilter()

```
gdcm::IconImageFilter::~IconImageFilter ()
```

12.143.3 Member Function Documentation

12.143.3.1 Extract()

```
bool gdcm::IconImageFilter::Extract ()
```

Extract all Icon found in File.

Examples

ExtractIconFromFile.cxx.

12.143.3.2 ExtractIconImages()

```
void gdcm::IconImageFilter::ExtractIconImages ()  [protected]
```

12.143.3.3 ExtractVeproIconImages()

```
void gdcm::IconImageFilter::ExtractVeproIconImages ()  [protected]
```

12.143.3.4 GetFile() [1/2]

```
File & gdcm::IconImageFilter::GetFile ()  [inline]
```

12.143.3.5 GetFile() [2/2]

```
const File & gdcm::IconImageFilter::GetFile () const  [inline]
```

12.143.3.6 GetIconImage()

```
IconImage & gdcm::IconImageFilter::GetIconImage (
            unsigned int i) const
```

Examples

ExtractIconFromFile.cxx.

12.143.3.7 GetNumberOfIconImages()

```
unsigned int gdcm::IconImageFilter::GetNumberOfIconImages () const
```

Retrieve extract IconImage (need to call Extract first).

Examples

ExtractIconFromFile.cxx.

12.143.3.8 SetFile()

```
void gdcm::IconImageFilter::SetFile (
            const File & f)  [inline]
```

Set/Get File.

Examples

ExtractIconFromFile.cxx.

The documentation for this class was generated from the following file:

- gdcmIconImageFilter.h

12.144 gdcm::IconImageGenerator Class Reference

IconImageGenerator.

```
#include <gdcmIconImageGenerator.h>
```

Public Member Functions

- IconImageGenerator ()
- ~IconImageGenerator ()
- void AutoPixelMinMax (bool b)
- void ConvertRGBToPaletteColor (bool b)
- bool Generate ()

  Generate Icon.
- const IconImage & GetIconImage () const

  Retrieve generated Icon.
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const
- void SetOutputDimensions (const unsigned int dims[2])

  Set Target dimension of output Icon.
- void SetOutsideValuePixel (double v)
- void SetPixelMinMax (double min, double max)
- void SetPixmap (const Pixmap &p)

  Set/Get File.

12.144.1 Detailed Description

IconImageGenerator.

This filter will generate a valid Icon from the Pixel Data element (an instance of Pixmap). To generate a valid Icon, one is only allowed the following Photometric Interpretation:

- MONOCHROME1
- MONOCHROME2
- PALETTE_COLOR

The Pixel Bits Allocated is restricted to 8bits, therefore 16 bits image needs to be rescaled. By default the filter will use the full scalar range of 16bits image to rescale to unsigned 8bits. This may not be ideal for some situation, in which case the API SetPixelMinMax can be used to overwrite the default min,max interval used.

See also

ImageReader

Examples

ExtractIconFromFile.cxx.

12.144.2 Constructor & Destructor Documentation

12.144.2.1 IconImageGenerator()

```
gdcm::IconImageGenerator::IconImageGenerator ()
```

12.144.2.2 ~IconImageGenerator()

```
gdcm::IconImageGenerator::~IconImageGenerator ()
```

12.144.3 Member Function Documentation

12.144.3.1 AutoPixelMinMax()

```
void gdcm::IconImageGenerator::AutoPixelMinMax (
            bool b)
```

Instead of explicitly specifying the min/max value for the rescale operation, let the internal mechanism compute the min/max of icon and rescale to best appropriate.

Examples

ExtractIconFromFile.cxx.

12.144.3.2 ConvertRGBToPaletteColor()

```
void gdcm::IconImageGenerator::ConvertRGBToPaletteColor (
            bool b)
```

Converting from RGB to PALETTE_COLOR can be a slow operation. However DICOM standard requires that color icon be described as palette. Set this boolean to false only if you understand the consequences. default value is true, false generates invalid Icon Image Sequence

12.144.3.3 Generate()

```
bool gdcm::IconImageGenerator::Generate ()
```

Generate Icon.

Examples

ExtractIconFromFile.cxx.

12.144.3.4 GetIconImage()

```
const IconImage & gdcm::IconImageGenerator::GetIconImage () const  [inline]
```

Retrieve generated Icon.

Examples

ExtractIconFromFile.cxx.

12.144.3.5 GetPixmap() [1/2]

```
Pixmap & gdcm::IconImageGenerator::GetPixmap ()  [inline]
```

12.144.3.6 GetPixmap() [2/2]

```
const Pixmap & gdcm::IconImageGenerator::GetPixmap () const  [inline]
```

12.144.3.7 SetOutputDimensions()

```
void gdcm::IconImageGenerator::SetOutputDimensions (
            const unsigned int dims[2])
```

Set Target dimension of output Icon.

Examples

ExtractIconFromFile.cxx.

12.144.3.8 SetOutsideValuePixel()

```
void gdcm::IconImageGenerator::SetOutsideValuePixel (
            double v)
```

Set a pixel value that should be discarded. This happen typically for CT image, where a pixel has been used to pad outside the image (see Pixel Padding Value). Requires AutoPixelMinMax(true)

12.144.3.9 SetPixelMinMax()

```
void gdcm::IconImageGenerator::SetPixelMinMax (
            double min,
            double max)
```

Override default min/max to compute best rescale for 16bits -> 8bits downscale. Typically those value can be read from the SmallestImagePixelValue LargestImagePixelValue DICOM attribute.

12.144.3.10 SetPixmap()

```
void gdcm::IconImageGenerator::SetPixmap (
            const Pixmap & p)  [inline]
```

Set/Get File.

Examples

ExtractIconFromFile.cxx.

The documentation for this class was generated from the following file:

- gdcmIconImageGenerator.h

12.145 gdcm::ignore_char Struct Reference

```
#include <gdcmElement.h>
```

Public Member Functions

- ignore_char (char c)

Public Attributes

- char m_char

12.145.1 Constructor & Destructor Documentation

12.145.1.1 ignore_char()

```
gdcm::ignore_char::ignore_char (
            char c)  [inline]
```

References m_char.

12.145.2 Member Data Documentation

12.145.2.1 m_char

```
char gdcm::ignore_char::m_char
```

Referenced by ignore_char(), and gdcm::operator>>().

The documentation for this struct was generated from the following file:

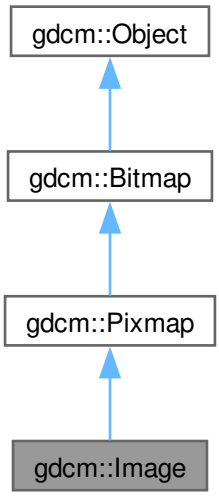
- gdcmElement.h

12.146 gdcm::Image Class Reference

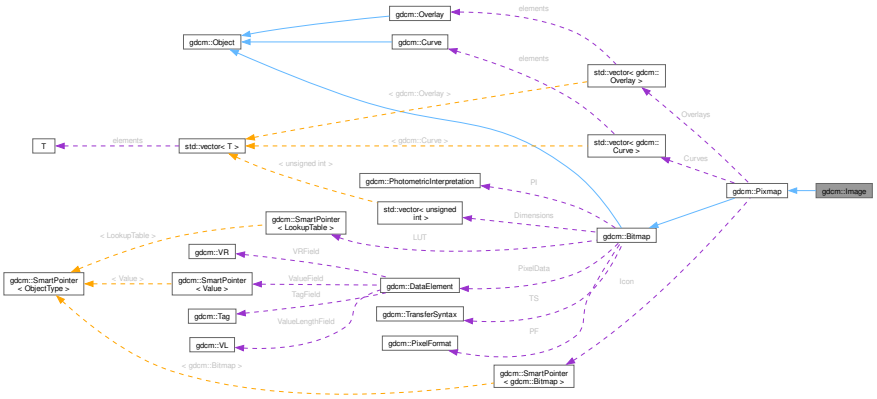
Image.

```
#include <gdcmImage.h>
```

Inheritance diagram for gdcm::Image:



Collaboration diagram for gdcm::Image:



Public Member Functions

- Image ()
- ~Image () override=default
- const double * GetDirectionCosines () const
- double GetDirectionCosines (unsigned int idx) const
- double GetIntercept () const
- const double * GetOrigin () const
- double GetOrigin (unsigned int idx) const
- double GetSlope () const
- const double * GetSpacing () const
- double GetSpacing (unsigned int idx) const
- void Print (std::ostream &os) const override

  print
- void SetDirectionCosines (const double dircos[6])
- void SetDirectionCosines (const float dircos[6])
- void SetDirectionCosines (unsigned int idx, double dircos)
- void SetIntercept (double intercept)

  intercept
- void SetOrigin (const double origin[3])
- void SetOrigin (const float origin[3])
- void SetOrigin (unsigned int idx, double ori)
- void SetSlope (double slope)

  slope
- void SetSpacing (const double spacing[3])
- void SetSpacing (unsigned int idx, double spacing)

Public Member Functions inherited from gdcm::Pixmap

- Pixmap ()
- ~Pixmap () override
- bool AreOverlaysInPixelData () const override

  returns if Overlays are stored in the unused bit of the pixel data:
- Curve & GetCurve (size_t i=0)

  Curve: group 50xx.
- const Curve & GetCurve (size_t i=0) const
- IconImage & GetIconImage ()
- const IconImage & GetIconImage () const

  Set/Get Icon Image.
- size_t GetNumberOfCurves () const
- size_t GetNumberOfOverlays () const
- Overlay & GetOverlay (size_t i=0)

  Overlay: group 60xx.
- const Overlay & GetOverlay (size_t i=0) const
- void Print (std::ostream &) const override
- void RemoveOverlay (size_t i)
- void SetIconImage (IconImage const &ii)
- void SetNumberOfCurves (size_t n)
- void SetNumberOfOverlays (size_t n)
- bool UnusedBitsPresentInPixelData () const override

  returns if there are unused bits in the pixel data

Public Member Functions inherited from gdcm::Bitmap

- Bitmap ()
- ~Bitmap () override
- void Clear ()
- bool GetBuffer (char *buffer) const

  Access the raw data.
- unsigned long GetBufferLength () const
- unsigned int GetColumns () const
- DataElement & GetDataElement ()
- const DataElement & GetDataElement () const
- unsigned int GetDimension (unsigned int idx) const
- const unsigned int * GetDimensions () const

  Return the dimension of the pixel data, first dimension (x), then 2nd (y), then 3rd (z)...
- LookupTable & GetLUT ()
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const

  INTERNAL do not use.
- unsigned int GetNumberOfDimensions () const

  Return the number of dimension of the pixel data bytes; for example 2 for a 2D matrices of values.
- const PhotometricInterpretation & GetPhotometricInterpretation () const

  return the photometric interpretation
- PixelFormat & GetPixelFormat ()

- const PixelFormat & GetPixelFormat () const

  Get/Set PixelFormat.
- unsigned int GetPlanarConfiguration () const

  return the planar configuration
- unsigned int GetRows () const
- const TransferSyntax & GetTransferSyntax () const
- bool IsEmpty () const
- bool IsLossy () const

  Return whether or not the image was compressed using a lossy compressor or not.
- bool IsTransferSyntaxCompatible (TransferSyntax const &ts) const
- void SetColumns (unsigned int col)
- void SetDataElement (DataElement const &de)
- void SetDimension (unsigned int idx, unsigned int dim)
- void SetDimensions (const unsigned int dims[3])
- void SetLossyFlag (bool f)

  Specifically set that the image was compressed using a lossy compression mechanism.
- void SetLUT (LookupTable const &lut)

  Set/Get LUT.
- void SetNeedByteSwap (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)
- void SetRows (unsigned int rows)
- void SetTransferSyntax (TransferSyntax const &ts)

  Transfer syntax.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Additional Inherited Members

Protected Types inherited from gdcm::Bitmap

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::Bitmap

- bool ComputeLossyFlag ()
- bool GetBuffer2 (std::ostream &os) const
- bool TryJPEG2000Codec (char *buffer, bool &lossyflag) const
- bool TryJPEG2000Codec2 (std::ostream &os) const
- bool TryJPEGCodec (char *buffer, bool &lossyflag) const
- bool TryJPEGCodec2 (std::ostream &os) const
- bool TryJPEGLSCodec (char *buffer, bool &lossyflag) const
- bool TryKAKADUCodec (char *buffer, bool &lossyflag) const
- bool TryPVRGCodec (char *buffer, bool &lossyflag) const
- bool TryRAWCodec (char *buffer, bool &lossyflag) const
- bool TryRLECodec (char *buffer, bool &lossyflag) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::Pixmap

- std::vector< Curve > Curves
- SmartPointer< IconImage > Icon
- std::vector< Overlay > Overlays

Protected Attributes inherited from gdcm::Bitmap

- std::vector< unsigned int > Dimensions
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- DataElement PixelData
- unsigned int PlanarConfiguration
- TransferSyntax TS

12.146.1 Detailed Description

Image.

This is the container for an Image in the general sense. From this container you should be able to request information like:

- Origin
- Dimension
- PixelFormat ... But also to retrieve the image as a raw buffer (char *) Since we have to deal with both RAW data and JPEG stream (which internally encode all the above information) this API might seems redundant. One way to solve that would be to subclass Image with JPEGImage which would from the stream extract the header info and fill it to please Image...well except origin for instance

Basically you can see it as a storage for the Pixel Data element (7fe0,0010).

Warning

This class does some heuristics to guess the Spacing but is not compatible with DICOM CP-586. In case of doubt use PixmapReader instead

See also

ImageReader PixmapReader

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, ConvertToQImage.cxx, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, ExtractIconFromFile.cxx, FixJAIBugJPEGLS.cxx, GenFakeImage.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, GetSubSequenceData.cxx, HelloVizWorld.cxx, MpegVideoInfo.cs, PatchFile.cxx, PrintLUT.cxx, ReadMultiTimesException.cxx, RescaleImage.cs, TemplateEmptyImage.cxx, csa2img.cxx, iU22tomultisc.cxx, and threadgdcm.cxx.

12.146.2 Constructor & Destructor Documentation

12.146.2.1 Image()

```
gdcm::Image::Image () [inline]
```

12.146.2.2 ~Image()

```
gdcm::Image::~Image () [override], [default]
```

12.146.3 Member Function Documentation

12.146.3.1 GetDirectionCosines() [1/2]

```
const double * gdcm::Image::GetDirectionCosines () const
```

Return a 6-tuples specifying the direction cosines A default value of (1,0,0,0,1,0) will be return when the direction cosines was not specified.

12.146.3.2 GetDirectionCosines() [2/2]

```
double gdcm::Image::GetDirectionCosines (
            unsigned int idx) const
```

12.146.3.3 GetIntercept()

```
double gdcm::Image::GetIntercept () const  [inline]
```

12.146.3.4 GetOrigin() [1/2]

```
const double * gdcm::Image::GetOrigin () const
```

Return a 3-tuples specifying the origin Will return (0,0,0) if the origin was not specified.

Examples

HelloVizWorld.cxx.

12.146.3.5 GetOrigin() [2/2]

```
double gdcm::Image::GetOrigin (
            unsigned int idx) const
```

12.146.3.6 GetSlope()

```
double gdcm::Image::GetSlope () const  [inline]
```

12.146.3.7 GetSpacing() [1/2]

```
const double * gdcm::Image::GetSpacing () const
```

Return a 3-tuples specifying the spacing NOTE: 3rd value can be an arbitrary 1 value when the spacing was not specified (ex. 2D image). WARNING: when the spacing is not specifier, a default value of 1 will be returned

12.146.3.8 GetSpacing() [2/2]

```
double gdcm::Image::GetSpacing (
            unsigned int idx) const
```

12.146.3.9 Print()

```
void gdcm::Image::Print (
            std::ostream & os) const  [override], [virtual]
```

print

Reimplemented from gdcm::Bitmap.

Examples

CompressImage.cxx, and PatchFile.cxx.

12.146.3.10 SetDirectionCosines() [1/3]

```
void gdcm::Image::SetDirectionCosines (
            const double dircos[6])
```

12.146.3.11 SetDirectionCosines() [2/3]

```
void gdcm::Image::SetDirectionCosines (
            const float dircos[6])
```

12.146.3.12 SetDirectionCosines() [3/3]

```
void gdcm::Image::SetDirectionCosines (
            unsigned int idx,
            double dircos)
```

12.146.3.13 SetIntercept()

```
void gdcm::Image::SetIntercept (
            double intercept)  [inline]
```

intercept

Examples

TemplateEmptyImage.cxx.

12.146.3.14 SetOrigin() [1/3]

```
void gdcm::Image::SetOrigin (
            const double origin[3])
```

12.146.3.15 SetOrigin() [2/3]

```
void gdcm::Image::SetOrigin (
            const float origin[3])
```

12.146.3.16 SetOrigin() [3/3]

```
void gdcm::Image::SetOrigin (
            unsigned int idx,
            double ori)
```

12.146.3.17 SetSlope()

```
void gdcm::Image::SetSlope (
            double slope)  [inline]
```

slope

Examples

TemplateEmptyImage.cxx.

12.146.3.18 SetSpacing() [1/2]

```
void gdcm::Image::SetSpacing (
            const double spacing[3])
```

Examples

csa2img.cxx, and iU22tomultisc.cxx.

12.146.3.19 SetSpacing() [2/2]

```
void gdcm::Image::SetSpacing (
            unsigned int idx,
            double spacing)
```

The documentation for this class was generated from the following file:

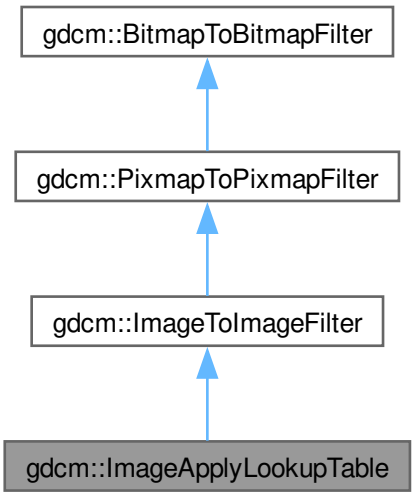
- gdcmImage.h

12.147 gdcm::ImageApplyLookupTable Class Reference

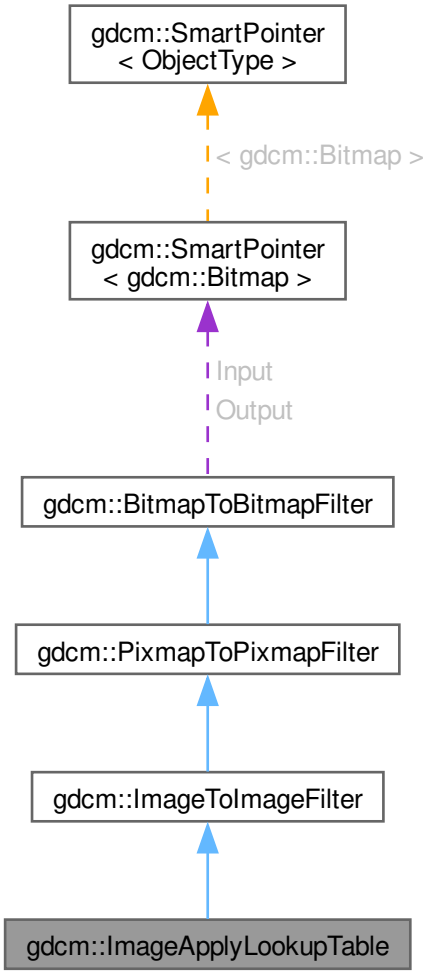
ImageApplyLookupTable class.

`#include <gdcmImageApplyLookupTable.h>`

Inheritance diagram for gdcm::ImageApplyLookupTable:



Collaboration diagram for gdcm::ImageApplyLookupTable:



Public Member Functions

- ImageApplyLookupTable ()
- ~ImageApplyLookupTable ()
- bool Apply ()

  Apply.
- void SetRGB8 (bool b)

  RGB8 ?

Public Member Functions inherited from gdcm::ImageToImageFilter

- ImageToImageFilter ()
- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

12.147.1 Detailed Description

ImageApplyLookupTable class.

It applies the LUT the PixelData (only PALETTE_COLOR images) Output will be a PhotometricInterpretation=RGB image

12.147.2 Constructor & Destructor Documentation

12.147.2.1 ImageApplyLookupTable()

```
gdcm::ImageApplyLookupTable::ImageApplyLookupTable ()
```

12.147.2.2 ~ImageApplyLookupTable()

```
gdcm::ImageApplyLookupTable::~ImageApplyLookupTable ()
```

12.147.3 Member Function Documentation

12.147.3.1 Apply()

```
bool gdcm::ImageApplyLookupTable::Apply ()
```

Apply.

12.147.3.2 SetRGB8()

```
void gdcm::ImageApplyLookupTable::SetRGB8 (
            bool b)
```

RGB8 ?

The documentation for this class was generated from the following file:

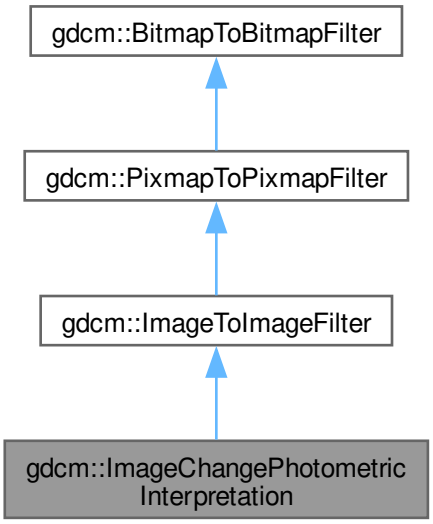
- gdcmImageApplyLookupTable.h

12.148 gdcm::ImageChangePhotometricInterpretation Class Reference

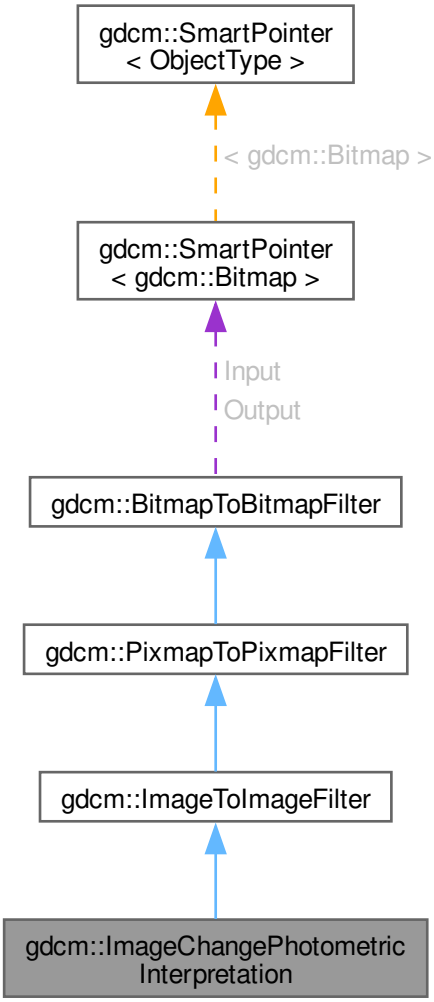
ImageChangePhotometricInterpretation class.

`#include <gdcmImageChangePhotometricInterpretation.h>`

Inheritance diagram for gdcm::ImageChangePhotometricInterpretation:



Collaboration diagram for gdcm::ImageChangePhotometricInterpretation:



Public Member Functions

- ImageChangePhotometricInterpretation ()
- ~ImageChangePhotometricInterpretation ()=default
- bool Change ()

  Change.
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)

  Set/Get requested PhotometricInterpretation.

Public Member Functions inherited from gdcm::ImageToImageFilter

- ImageToImageFilter ()
- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Static Public Member Functions

- template<typename T>
  static void RGB2YBR (T ybr[3], const T rgb[3], unsigned short storedbits=8)
- template<typename T>
  static void YBR2RGB (T rgb[3], const T ybr[3], unsigned short storedbits=8)

Protected Member Functions

- bool ChangeMonochrome ()
- bool ChangeRGB2YBR ()
- bool ChangeYBR2RGB ()

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

12.148.1 Detailed Description

ImageChangePhotometricInterpretation class.

Class to change the Photometric Interpretation of an input DICOM

12.148.2 Constructor & Destructor Documentation

12.148.2.1 ImageChangePhotometricInterpretation()

```
gdcm::ImageChangePhotometricInterpretation::ImageChangePhotometricInterpretation () [inline]
```

12.148.2.2 ~ImageChangePhotometricInterpretation()

```
gdcm::ImageChangePhotometricInterpretation::~ImageChangePhotometricInterpretation () [default]
```

12.148.3 Member Function Documentation

12.148.3.1 Change()

```
bool gdcm::ImageChangePhotometricInterpretation::Change ()
```

Change.

References RGB2YBR(), and YBR2RGB().

12.148.3.2 ChangeMonochrome()

```
bool gdcm::ImageChangePhotometricInterpretation::ChangeMonochrome () [protected]
```

12.148.3.3 ChangeRGB2YBR()

```
bool gdcm::ImageChangePhotometricInterpretation::ChangeRGB2YBR () [protected]
```

12.148.3.4 ChangeYBR2RGB()

```
bool gdcm::ImageChangePhotometricInterpretation::ChangeYBR2RGB () [protected]
```

12.148.3.5 GetPhotometricInterpretation()

```
const PhotometricInterpretation & gdcm::ImageChangePhotometricInterpretation::GetPhotometric↩
Interpretation () const  [inline]
```

12.148.3.6 RGB2YBR()

```
template<typename T>
void gdcm::ImageChangePhotometricInterpretation::RGB2YBR (
             T ybr[3],
             const T rgb[3],
             unsigned short storedbits = 8)  [static]
```

colorspace conversion (based on CCIR Recommendation 601-2) -> T.871

References gdcm::Clamp(), and gdcm::Round().

Referenced by Change().

12.148.3.7 SetPhotometricInterpretation()

```
void gdcm::ImageChangePhotometricInterpretation::SetPhotometricInterpretation (
             PhotometricInterpretation const & pi)  [inline]
```

Set/Get requested PhotometricInterpretation.

12.148.3.8 YBR2RGB()

```
template<typename T>
void gdcm::ImageChangePhotometricInterpretation::YBR2RGB (
             T rgb[3],
             const T ybr[3],
             unsigned short storedbits = 8)  [static]
```

References gdcm::Clamp(), and gdcm::Round().

Referenced by Change().

The documentation for this class was generated from the following file:

- gdcmImageChangePhotometricInterpretation.h

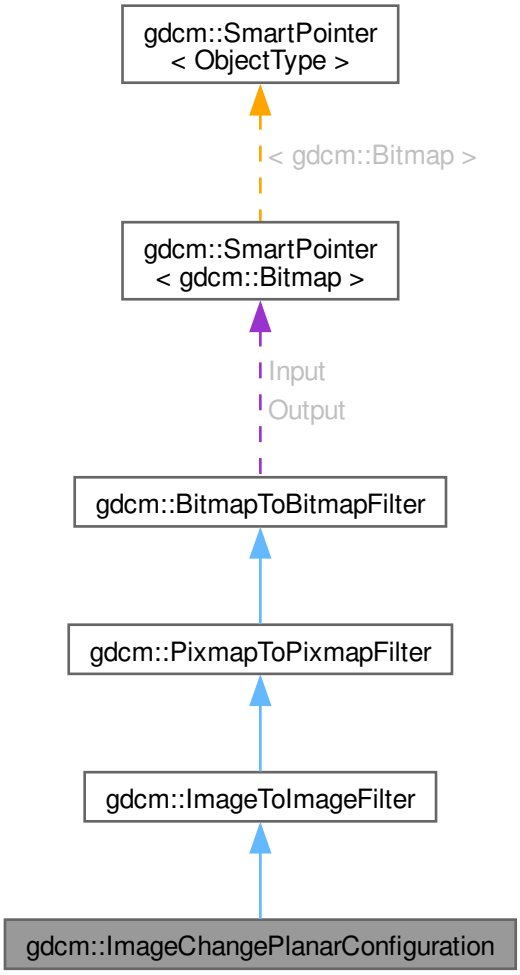
12.149 gdcm::ImageChangePlanarConfiguration Class Reference

ImageChangePlanarConfiguration class.

`#include <gdcmImageChangePlanarConfiguration.h>`

Inheritance diagram for gdcm::ImageChangePlanarConfiguration:

Collaboration diagram for gdcm::ImageChangePlanarConfiguration:



Public Member Functions

- ImageChangePlanarConfiguration ()
- ~ImageChangePlanarConfiguration ()=default
- bool Change ()

  Change.
- unsigned int GetPlanarConfiguration () const
- void SetPlanarConfiguration (unsigned int pc)

  Set/Get requested PlanarConfigation.

Public Member Functions inherited from gdcm::ImageToImageFilter

- ImageToImageFilter ()
- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Static Public Member Functions

- template<typename T>
  static size_t RGBPixelsToRGBPlanes (T *r, T *g, T *b, const T *rgb, size_t s)
- template<typename T>
  static size_t RGBPlanesToRGBPixels (T *out, const T *r, const T *g, const T *b, size_t s)

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

12.149.1 Detailed Description

ImageChangePlanarConfiguration class.

Class to change the Planar configuration of an input DICOM By default it will change into the more usual representation: PlanarConfiguration = 0

12.149.2 Constructor & Destructor Documentation

12.149.2.1 ImageChangePlanarConfiguration()

```
gdcm::ImageChangePlanarConfiguration::ImageChangePlanarConfiguration ()  [inline]
```

12.149.2.2 ~ImageChangePlanarConfiguration()

```
gdcm::ImageChangePlanarConfiguration::~ImageChangePlanarConfiguration ()  [default]
```

12.149.3 Member Function Documentation

12.149.3.1 Change()

```
bool gdcm::ImageChangePlanarConfiguration::Change ()
```

Change.

12.149.3.2 GetPlanarConfiguration()

```
unsigned int gdcm::ImageChangePlanarConfiguration::GetPlanarConfiguration () const  [inline]
```

12.149.3.3 RGBPixelsToRGBPlanes()

```
template<typename T>
size_t gdcm::ImageChangePlanarConfiguration::RGBPixelsToRGBPlanes (
            T * r,
            T * g,
            T * b,
            const T * rgb,
            size_t s)  [static]
```

Convert a regular RGB pixel image (R,G,B,R,G,B...) into a planar R,G,B image (R,R..,G,G...B,B)

Warning

this works on a frame basis, you need to loop over all frames in multiple frames image to apply this function

12.149.3.4 RGBPlanesToRGBPixels()

```
template<typename T>
size_t gdcm::ImageChangePlanarConfiguration::RGBPlanesToRGBPixels (
            T * out,
            const T * r,
            const T * g,
            const T * b,
            size_t s)  [static]
```

s is the size of one plane (r,g or b). Thus the output buffer needs to be at least 3∗s bytes long s can be seen as the number of RGB pixels in the output

12.149.3.5 SetPlanarConfiguration()

```
void gdcm::ImageChangePlanarConfiguration::SetPlanarConfiguration (
            unsigned int pc)  [inline]
```

Set/Get requested PlanarConfigation.

The documentation for this class was generated from the following file:

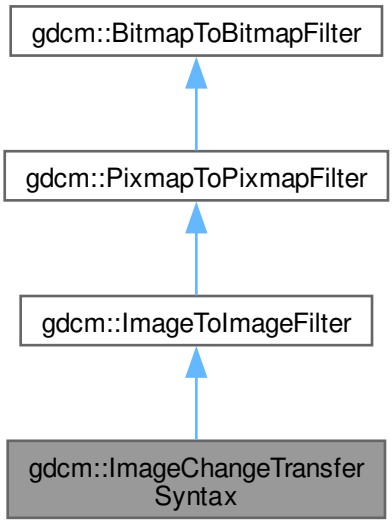
- gdcmImageChangePlanarConfiguration.h

12.150 gdcm::ImageChangeTransferSyntax Class Reference

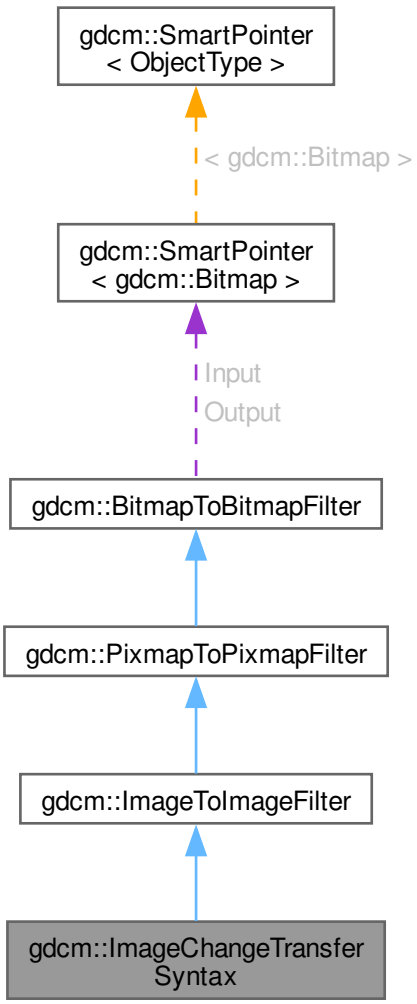
ImageChangeTransferSyntax class.

`#include <gdcmImageChangeTransferSyntax.h>`

Inheritance diagram for gdcm::ImageChangeTransferSyntax:



Collaboration diagram for gdcm::ImageChangeTransferSyntax:



Public Member Functions

- ImageChangeTransferSyntax ()
- ~ImageChangeTransferSyntax ()=default
- bool Change ()

  Change.
- const TransferSyntax & GetTransferSyntax () const

  Get Transfer Syntax.
- void SetCompressIconImage (bool b)
- void SetForce (bool f)

- void SetTransferSyntax (const TransferSyntax &ts)

  Set target Transfer Syntax.
- void SetUserCodec (ImageCodec *ic)

Public Member Functions inherited from gdcm::ImageToImageFilter

- ImageToImageFilter ()
- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Protected Member Functions

- bool TryJPEG2000Codec (const DataElement &pixelde, Bitmap const &input, Bitmap &output)
- bool TryJPEGCodec (const DataElement &pixelde, Bitmap const &input, Bitmap &output)
- bool TryJPEGLSCodec (const DataElement &pixelde, Bitmap const &input, Bitmap &output)
- bool TryRAWCodec (const DataElement &pixelde, Bitmap const &input, Bitmap &output)
- bool TryRLECodec (const DataElement &pixelde, Bitmap const &input, Bitmap &output)

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

12.150.1 Detailed Description

ImageChangeTransferSyntax class.

Class to change the transfer syntax of an input DICOM

If only Force param is set but no input TransferSyntax is set, it is assumed that user only wants to inspect encapsulated stream (advanced dev. option).

When using UserCodec it is very important that the TransferSyntax (as set in SetTransferSyntax) is actually understood by UserCodec (ie. UserCodec->CanCode(TransferSyntax)). Otherwise the behavior is to use a default codec.

See also

JPEGCodec JPEGLSCodec JPEG2000Codec

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, and StandardizeFiles.cs.

12.150.2 Constructor & Destructor Documentation

12.150.2.1 ImageChangeTransferSyntax()

```
gdcm::ImageChangeTransferSyntax::ImageChangeTransferSyntax ()  [inline]
```

12.150.2.2 ~ImageChangeTransferSyntax()

```
gdcm::ImageChangeTransferSyntax::~ImageChangeTransferSyntax ()  [default]
```

12.150.3 Member Function Documentation

12.150.3.1 Change()

```
bool gdcm::ImageChangeTransferSyntax::Change ()
```

Change.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, and StandardizeFiles.cs.

12.150.3.2 GetTransferSyntax()

```
const TransferSyntax & gdcm::ImageChangeTransferSyntax::GetTransferSyntax () const  [inline]
```

Get Transfer Syntax.

12.150.3.3 SetCompressIconImage()

```
void gdcm::ImageChangeTransferSyntax::SetCompressIconImage (
            bool b)  [inline]
```

Decide whether or not to also compress the Icon Image using the same Transfer Syntax. Default is to simply decompress icon image

Examples

StandardizeFiles.cs.

12.150.3.4 SetForce()

```
void gdcm::ImageChangeTransferSyntax::SetForce (
            bool f)  [inline]
```

When target Transfer Syntax is identical to input target syntax, no operation is actually done. This is an issue when someone wants to re-compress using GDCM internal implementation a JPEG (for example) image

Examples

StandardizeFiles.cs.

12.150.3.5 SetTransferSyntax()

```
void gdcm::ImageChangeTransferSyntax::SetTransferSyntax (
            const TransferSyntax & ts)  [inline]
```

Set target Transfer Syntax.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, and StandardizeFiles.cs.

12.150.3.6 SetUserCodec()

```
void gdcm::ImageChangeTransferSyntax::SetUserCodec (
            ImageCodec * ic)  [inline]
```

Allow user to specify exactly which codec to use. this is needed to specify special qualities or compression option.

Warning

if the codec 'ic' is not compatible with the TransferSyntax requested, it will not be used. It is the user responsibility to check that UserCodec->CanCode(TransferSyntax)

Examples

CompressLossyJPEG.cs.

12.150.3.7 TryJPEG2000Codec()

```
bool gdcm::ImageChangeTransferSyntax::TryJPEG2000Codec (
            const DataElement & pixelde,
            Bitmap const & input,
            Bitmap & output)  [protected]
```

12.150.3.8 TryJPEGCodec()

```
bool gdcm::ImageChangeTransferSyntax::TryJPEGCodec (
            const DataElement & pixelde,
            Bitmap const & input,
            Bitmap & output)  [protected]
```

12.150.3.9 TryJPEGLSCodec()

```
bool gdcm::ImageChangeTransferSyntax::TryJPEGLSCodec (
            const DataElement & pixelde,
            Bitmap const & input,
            Bitmap & output)  [protected]
```

12.150.3.10 TryRAWCodec()

```
bool gdcm::ImageChangeTransferSyntax::TryRAWCodec (
            const DataElement & pixelde,
            Bitmap const & input,
            Bitmap & output)  [protected]
```

12.150.3.11 TryRLECodec()

```
bool gdcm::ImageChangeTransferSyntax::TryRLECodec (
            const DataElement & pixelde,
            Bitmap const & input,
            Bitmap & output)  [protected]
```

The documentation for this class was generated from the following file:

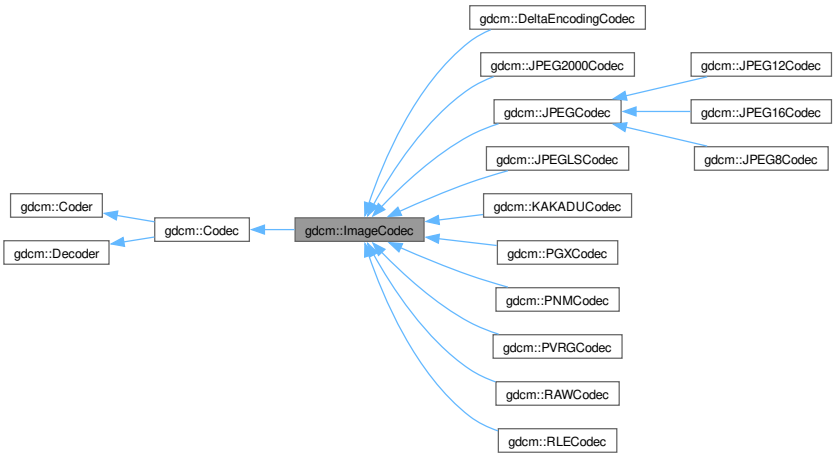
- gdcmImageChangeTransferSyntax.h

12.151 gdcm::ImageCodec Class Reference

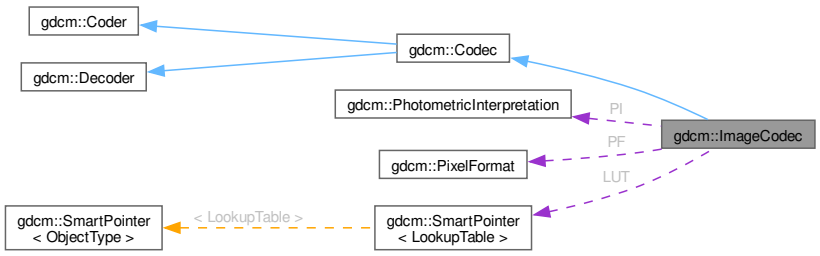
ImageCodec.

`#include <gdcmImageCodec.h>`

Inheritance diagram for gdcm::ImageCodec:



Collaboration diagram for gdcm::ImageCodec:



Public Member Functions

- ImageCodec ()
- ~ImageCodec () override
- bool CanCode (TransferSyntax const &) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &) const override

  Return whether this decoder support this transfer syntax (can decode it).
- bool CleanupUnusedBits (char *data, size_t datalen)
- virtual ImageCodec * Clone () const =0
- bool Decode (DataElement const &is_, DataElement &os) override

  Decode.
- const unsigned int * GetDimensions () const
- virtual bool GetHeaderInfo (std::istream &is_, TransferSyntax &ts)
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Types

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Attributes

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

Friends

- class FileChangeTransferSyntax
- class ImageChangePhotometricInterpretation

12.151.1 Detailed Description

ImageCodec.

Note

Main codec, this is a central place for all implementation

Examples

FileChangeTSLossy.cs.

12.151.2 Member Typedef Documentation

12.151.2.1 LUTPtr

```
typedef SmartPointer<LookupTable> gdcm::ImageCodec::LUTPtr  [protected]
```

12.151.3 Constructor & Destructor Documentation

12.151.3.1 ImageCodec()

```
gdcm::ImageCodec::ImageCodec ()
```

Referenced by Clone(), gdcm::JPEG2000Codec::Clone(), gdcm::JPEGCodec::Clone(), gdcm::JPEGLSCodec::Clone(), gdcm::KAKADUCodec::Clone(), gdcm::PGXCodec::Clone(), gdcm::PNMCodec::Clone(), gdcm::PVRGCodec::Clone(), gdcm::RAWCodec::Clone(), and gdcm::RLECodec::Clone().

12.151.3.2 ~ImageCodec()

```
gdcm::ImageCodec::~ImageCodec ()  [override]
```

12.151.4 Member Function Documentation

12.151.4.1 AppendFrameEncode()

```
virtual bool gdcm::ImageCodec::AppendFrameEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

12.151.4.2 AppendRowEncode()

```
virtual bool gdcm::ImageCodec::AppendRowEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

12.151.4.3 CanCode()

```
bool gdcm::ImageCodec::CanCode (
            TransferSyntax const & ) const  [inline], [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Implements gdcm::Coder.

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.151.4.4 CanDecode()

```
bool gdcm::ImageCodec::CanDecode (
            TransferSyntax const & ) const  [inline], [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Implements gdcm::Decoder.

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.151.4.5 CleanupUnusedBits()

```
bool gdcm::ImageCodec::CleanupUnusedBits (
            char * data,
            size_t datalen)
```

12.151.4.6 Clone()

```
virtual ImageCodec * gdcm::ImageCodec::Clone () const  [pure virtual]
```

Implemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

References ImageCodec().

12.151.4.7 Decode()

```
bool gdcm::ImageCodec::Decode (
            DataElement const & ,
            DataElement & )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::Decoder.

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.151.4.8 DecodeByStreams()

```
bool gdcm::ImageCodec::DecodeByStreams (
            std::istream & is_,
            std::ostream & os)  [override], [protected], [virtual]
```

Reimplemented from gdcm::Decoder.

Reimplemented in gdcm::JPEG12Codec, gdcm::JPEG16Codec, gdcm::JPEG2000Codec, gdcm::JPEG8Codec, gdcm::JPEGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.151.4.9 DoByteSwap()

```
bool gdcm::ImageCodec::DoByteSwap (
            std::istream & is_,
            std::ostream & os)  [protected]
```

12.151.4.10 DoInvertMonochrome()

```
bool gdcm::ImageCodec::DoInvertMonochrome (
            std::istream & is_,
            std::ostream & os)  [protected]
```

12.151.4.11 DoOverlayCleanup()

```
bool gdcm::ImageCodec::DoOverlayCleanup (
            std::istream & is_,
            std::ostream & os)  [protected]
```

12.151.4.12 DoPaddedCompositePixelCode()

```
bool gdcm::ImageCodec::DoPaddedCompositePixelCode (
            std::istream & is_,
            std::ostream & os)  [protected]
```

12.151.4.13 DoPlanarConfiguration()

```
bool gdcm::ImageCodec::DoPlanarConfiguration (
            std::istream & is_,
            std::ostream & os)  [protected]
```

12.151.4.14 DoSimpleCopy()

```
bool gdcm::ImageCodec::DoSimpleCopy (
            std::istream & is_,
            std::ostream & os)  [protected]
```

12.151.4.15 DoYBR()

```
bool gdcm::ImageCodec::DoYBR (
            std::istream & is_,
            std::ostream & os)  [protected]
```

12.151.4.16 DoYBRFull422()

```
bool gdcm::ImageCodec::DoYBRFull422 (
            std::istream & is_,
            std::ostream & os)  [protected]
```

12.151.4.17 GetDimensions()

```
const unsigned int * gdcm::ImageCodec::GetDimensions () const  [inline]
```

References Dimensions.

12.151.4.18 GetHeaderInfo()

```
virtual bool gdcm::ImageCodec::GetHeaderInfo (
            std::istream & is_,
            TransferSyntax & ts)  [virtual]
```

Reimplemented in gdcm::JPEG12Codec, gdcm::JPEG16Codec, gdcm::JPEG2000Codec, gdcm::JPEG8Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.151.4.19 GetLossyFlag()

```
bool gdcm::ImageCodec::GetLossyFlag () const
```

12.151.4.20 GetLUT()

```
const LookupTable & gdcm::ImageCodec::GetLUT () const  [inline]
```

References LUT.

12.151.4.21 GetNeedByteSwap()

```
bool gdcm::ImageCodec::GetNeedByteSwap () const  [inline]
```

References NeedByteSwap.

12.151.4.22 GetNumberOfDimensions()

```
unsigned int gdcm::ImageCodec::GetNumberOfDimensions () const
```

12.151.4.23 GetPhotometricInterpretation()

```
const PhotometricInterpretation & gdcm::ImageCodec::GetPhotometricInterpretation () const
```

12.151.4.24 GetPixelFormat() [1/2]

```
PixelFormat & gdcm::ImageCodec::GetPixelFormat ()  [inline]
```

Examples

GetJPEGSamplePrecision.cxx.

References PF.

12.151.4.25 GetPixelFormat() [2/2]

```
const PixelFormat & gdcm::ImageCodec::GetPixelFormat () const  [inline]
```

References PF.

12.151.4.26 GetPlanarConfiguration()

```
unsigned int gdcm::ImageCodec::GetPlanarConfiguration () const  [inline]
```

References PlanarConfiguration.

12.151.4.27 IsFrameEncoder()

```
virtual bool gdcm::ImageCodec::IsFrameEncoder ()  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

12.151.4.28 IsLossy()

```
bool gdcm::ImageCodec::IsLossy () const
```

12.151.4.29 IsRowEncoder()

```
virtual bool gdcm::ImageCodec::IsRowEncoder ()  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

12.151.4.30 IsValid()

```
virtual bool gdcm::ImageCodec::IsValid (
            PhotometricInterpretation const & pi)  [protected], [virtual]
```

Reimplemented in gdcm::JPEGCodec.

12.151.4.31 SetDimensions() [1/2]

```
void gdcm::ImageCodec::SetDimensions (
            const std::vector< unsigned int > & d)
```

12.151.4.32 SetDimensions() [2/2]

```
void gdcm::ImageCodec::SetDimensions (
            const unsigned int d[3])
```

Examples

ExtractIconFromFile.cxx.

12.151.4.33 SetLossyFlag()

```
void gdcm::ImageCodec::SetLossyFlag (
            bool l)
```

12.151.4.34 SetLUT()

```
void gdcm::ImageCodec::SetLUT (
            LookupTable const & lut)  [inline]
```

Examples

ExtractIconFromFile.cxx.

References LUT.

12.151.4.35 SetNeedByteSwap()

```
void gdcm::ImageCodec::SetNeedByteSwap (
            bool b)  [inline]
```

References NeedByteSwap.

12.151.4.36 SetNeedOverlayCleanup()

```
void gdcm::ImageCodec::SetNeedOverlayCleanup (
            bool b)  [inline]
```

References NeedOverlayCleanup.

12.151.4.37 SetNumberOfDimensions()

```
void gdcm::ImageCodec::SetNumberOfDimensions (
            unsigned int dim)
```

12.151.4.38 SetPhotometricInterpretation()

```
void gdcm::ImageCodec::SetPhotometricInterpretation (
            PhotometricInterpretation const & pi)
```

Examples

ExtractIconFromFile.cxx.

12.151.4.39 SetPixelFormat()

```
virtual void gdcm::ImageCodec::SetPixelFormat (
            PixelFormat const & pf)  [inline], [virtual]
```

Reimplemented in gdcm::JPEGCodec.

Examples

ExtractIconFromFile.cxx.

References PF.

12.151.4.40 SetPlanarConfiguration()

```
void gdcm::ImageCodec::SetPlanarConfiguration (
            unsigned int pc)  [inline]
```

References PlanarConfiguration.

12.151.4.41 StartEncode()

```
virtual bool gdcm::ImageCodec::StartEncode (
            std::ostream & os)  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

12.151.4.42 StopEncode()

```
virtual bool gdcm::ImageCodec::StopEncode (
            std::ostream & os)  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

12.151.5 Friends And Related Symbol Documentation

12.151.5.1 FileChangeTransferSyntax

```
friend class FileChangeTransferSyntax  [friend]
```

This is a high level API to encode in a streaming fashion. Each plugin will handle differently the caching mechanism so that a limited memory is used when compressing dataset. Codec will fall into two categories:

- Full row encoder: only a single scanline (row) of data is needed to be loaded at a time;
- Full frame encoder (default): a complete frame (row x col) is needed to be loaded at a time

References FileChangeTransferSyntax.

Referenced by FileChangeTransferSyntax.

12.151.5.2 ImageChangePhotometricInterpretation

```
friend class ImageChangePhotometricInterpretation  [friend]
```

References ImageChangePhotometricInterpretation.

Referenced by ImageChangePhotometricInterpretation.

12.151.6 Member Data Documentation

12.151.6.1 Dimensions

```
unsigned int gdcm::ImageCodec::Dimensions[3]  [protected]
```

Referenced by GetDimensions().

12.151.6.2 LossyFlag

```
bool gdcm::ImageCodec::LossyFlag  [protected]
```

12.151.6.3 LUT

```
LUTPtr gdcm::ImageCodec::LUT  [protected]
```

Referenced by GetLUT(), and SetLUT().

12.151.6.4 NeedByteSwap

```
bool gdcm::ImageCodec::NeedByteSwap  [protected]
```

Referenced by GetNeedByteSwap(), and SetNeedByteSwap().

12.151.6.5 NeedOverlayCleanup

```
bool gdcm::ImageCodec::NeedOverlayCleanup  [protected]
```

Referenced by SetNeedOverlayCleanup().

12.151.6.6 NumberOfDimensions

```
unsigned int gdcm::ImageCodec::NumberOfDimensions  [protected]
```

12.151.6.7 PF

```
PixelFormat gdcm::ImageCodec::PF  [protected]
```

Referenced by GetPixelFormat(), GetPixelFormat(), and SetPixelFormat().

12.151.6.8 PI

```
PhotometricInterpretation gdcm::ImageCodec::PI  [protected]
```

12.151.6.9 PlanarConfiguration

```
unsigned int gdcm::ImageCodec::PlanarConfiguration  [protected]
```

Referenced by GetPlanarConfiguration(), and SetPlanarConfiguration().

12.151.6.10 RequestPaddedCompositePixelCode

```
bool gdcm::ImageCodec::RequestPaddedCompositePixelCode  [protected]
```

12.151.6.11 RequestPlanarConfiguration

```
bool gdcm::ImageCodec::RequestPlanarConfiguration  [protected]
```

The documentation for this class was generated from the following file:

- gdcmImageCodec.h

12.152 gdcm::ImageConverter Class Reference

Image Converter.

```
#include <gdcmImageConverter.h>
```

Public Member Functions

- ImageConverter ()
- ~ImageConverter ()
- void Convert ()
- const Image & GetOuput () const
- void SetInput (Image const &input)

12.152.1 Detailed Description

Image Converter.

Note

This is the class used to convert from on Image to another This is typically used to convert let say YBR JPEG compressed Image to a RAW RGB Image. So that the buffer can be directly pass to third party application. This filter is application level and not integrated directly in GDCM

12.152.2 Constructor & Destructor Documentation

12.152.2.1 ImageConverter()

```
gdcm::ImageConverter::ImageConverter ()
```

12.152.2.2 ~ImageConverter()

```
gdcm::ImageConverter::~ImageConverter ()
```

12.152.3 Member Function Documentation

12.152.3.1 Convert()

```
void gdcm::ImageConverter::Convert ()
```

12.152.3.2 GetOuput()

```
const Image & gdcm::ImageConverter::GetOuput () const
```

12.152.3.3 SetInput()

```
void gdcm::ImageConverter::SetInput (
            Image const & input)
```

The documentation for this class was generated from the following file:

- gdcmImageConverter.h

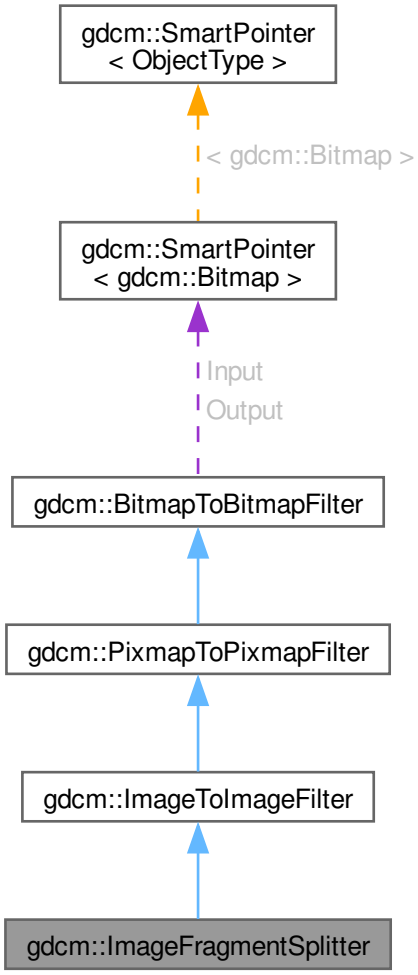
12.153 gdcm::ImageFragmentSplitter Class Reference

ImageFragmentSplitter class.

`#include <gdcmImageFragmentSplitter.h>`

Inheritance diagram for gdcm::ImageFragmentSplitter:

Collaboration diagram for gdcm::ImageFragmentSplitter:



Public Member Functions

- ImageFragmentSplitter ()
- ~ImageFragmentSplitter ()=default
- unsigned int GetFragmentSizeMax () const
- void SetForce (bool f)
- void SetFragmentSizeMax (unsigned int fragsize)

  FragmentSizeMax needs to be an even number.
- bool Split ()

  Split.

Public Member Functions inherited from gdcm::ImageToImageFilter

- ImageToImageFilter ()
- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

12.153.1 Detailed Description

ImageFragmentSplitter class.

For single frame image, DICOM standard allow splitting the frame into multiple fragments

12.153.2 Constructor & Destructor Documentation

12.153.2.1 ImageFragmentSplitter()

```
gdcm::ImageFragmentSplitter::ImageFragmentSplitter () [inline]
```

12.153.2.2 ~ImageFragmentSplitter()

```
gdcm::ImageFragmentSplitter::~ImageFragmentSplitter ()  [default]
```

12.153.3 Member Function Documentation

12.153.3.1 GetFragmentSizeMax()

```
unsigned int gdcm::ImageFragmentSplitter::GetFragmentSizeMax () const  [inline]
```

12.153.3.2 SetForce()

```
void gdcm::ImageFragmentSplitter::SetForce (
            bool f)  [inline]
```

When file already has all it's segment < FragmentSizeMax there is not need to run the filter. Unless the user explicitly say 'force' recomputation !

12.153.3.3 SetFragmentSizeMax()

```
void gdcm::ImageFragmentSplitter::SetFragmentSizeMax (
            unsigned int fragsize)
```

FragmentSizeMax needs to be an even number.

12.153.3.4 Split()

```
bool gdcm::ImageFragmentSplitter::Split ()
```

Split.

The documentation for this class was generated from the following file:

- gdcmImageFragmentSplitter.h

12.154 gdcm::ImageHelper Class Reference

ImageHelper (internal class, not intended for user level).

```
#include <gdcmImageHelper.h>
```

Static Public Member Functions

- static MediaStorage ComputeMediaStorageFromModality (const char *modality, unsigned int dimension=2, PixelFormat const &pf=PixelFormat(), PhotometricInterpretation const &pi=PhotometricInterpretation(), double rescaleintercept=0, double rescaleslope=1)

  Moved from MediaStorage here, since we need extra info stored in PixelFormat & PhotometricInterpretation.
- static bool ComputeSpacingFromImagePositionPatient (const std::vector< double > &imageposition, std::vector< double > &spacing)

  DO NOT USE.
- static std::vector< unsigned int > GetDimensionsValue (const File &f)
- static bool GetDirectionCosinesFromDataSet (DataSet const &ds, std::vector< double > &dircos)
- static std::vector< double > GetDirectionCosinesValue (File const &f)
- static bool GetForcePixelSpacing ()
- static bool GetForceRescaleInterceptSlope ()
- static SmartPointer< LookupTable > GetLUT (File const &f)

  returns the lookup table of an image file
- static std::vector< double > GetOriginValue (File const &f)

  Set/Get Origin (IPP) from/to a file.
- static PhotometricInterpretation GetPhotometricInterpretationValue (File const &f)
- static PixelFormat GetPixelFormatValue (const File &f)
- static unsigned int GetPlanarConfigurationValue (const File &f)
- static bool GetPMSRescaleInterceptSlope ()
- static const ByteValue * GetPointerFromElement (Tag const &tag, File const &f)
- static bool GetRealWorldValueMappingContent (File const &f, RealWorldValueMappingContent &rwvmc)
- static std::vector< double > GetRescaleInterceptSlopeValue (File const &f)
- static bool GetSecondaryCaptureImagePlaneModule ()
- static std::vector< double > GetSpacingValue (File const &f)

  Set/Get Spacing from/to a File.
- static void SetDimensionsValue (File &f, const Pixmap &img)
- static void SetDirectionCosinesValue (DataSet &ds, const std::vector< double > &dircos)
- static void SetForcePixelSpacing (bool)
- static void SetForceRescaleInterceptSlope (bool)
- static void SetOriginValue (DataSet &ds, const Image &img)
- static void SetPMSRescaleInterceptSlope (bool)
- static void SetRescaleInterceptSlopeValue (File &f, const Image &img)
- static void SetSecondaryCaptureImagePlaneModule (bool)
- static void SetSpacingValue (DataSet &ds, const std::vector< double > &spacing)

Static Protected Member Functions

- static Tag GetSpacingTagFromMediaStorage (MediaStorage const &ms)
- static Tag GetZSpacingTagFromMediaStorage (MediaStorage const &ms)

12.154.1 Detailed Description

ImageHelper (internal class, not intended for user level).

Helper for writing World images in DICOM. DICOM has a 'template' approach to image where MR Image Storage are distinct object from Enhanced MR Image Storage. For example the Pixel Spacing in one object is not at the same position (ie Tag) as in the other this class is the central (read: fragile) place where all the dispatching is done from a unified view of a world image (typically VTK or ITK point of view) down to the low level DICOM point of view.

Warning

: do not expect the API of this class to be maintained at any point, since as Modalities are added the API might have to be augmented or behavior changed to cope with new modalities.

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, and ExtractOneFrame.cs.

12.154.2 Member Function Documentation

12.154.2.1 ComputeMediaStorageFromModality()

```
MediaStorage gdcm::ImageHelper::ComputeMediaStorageFromModality (
            const char * modality,
            unsigned int dimension = 2,
            PixelFormat const & pf = PixelFormat(),
            PhotometricInterpretation const & pi = PhotometricInterpretation(),
            double rescaleintercept = 0,
            double rescaleslope = 1)  [static]
```

Moved from MediaStorage here, since we need extra info stored in PixelFormat & PhotometricInterpretation.

12.154.2.2 ComputeSpacingFromImagePositionPatient()

```
bool gdcm::ImageHelper::ComputeSpacingFromImagePositionPatient (
            const std::vector< double > & imageposition,
            std::vector< double > & spacing)  [static]
```

DO NOT USE.

12.154.2.3 GetDimensionsValue()

```
std::vector< unsigned int > gdcm::ImageHelper::GetDimensionsValue (
            const File & f)  [static]
```

This function checks tags (0x0028, 0x0010) and (0x0028, 0x0011) for the rows and columns of the image in pixels (as opposed to actual distances). The output is {col , row}

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.154.2.4 GetDirectionCosinesFromDataSet()

```
bool gdcm::ImageHelper::GetDirectionCosinesFromDataSet (
            DataSet const & ds,
            std::vector< double > & dircos)  [static]
```

12.154.2.5 GetDirectionCosinesValue()

```
std::vector< double > gdcm::ImageHelper::GetDirectionCosinesValue (
            File const & f)  [static]
```

Get Direction Cosines (IOP) from/to a file Requires a file because mediastorage must be known

12.154.2.6 GetForcePixelSpacing()

```
bool gdcm::ImageHelper::GetForcePixelSpacing ()  [static]
```

12.154.2.7 GetForceRescaleInterceptSlope()

```
bool gdcm::ImageHelper::GetForceRescaleInterceptSlope ()  [static]
```

12.154.2.8 GetLUT()

```
SmartPointer< LookupTable > gdcm::ImageHelper::GetLUT (
            File const & f)  [static]
```

returns the lookup table of an image file

12.154.2.9 GetOriginValue()

```
std::vector< double > gdcm::ImageHelper::GetOriginValue (
            File const & f)  [static]
```

Set/Get Origin (IPP) from/to a file.

12.154.2.10 GetPhotometricInterpretationValue()

```
PhotometricInterpretation gdcm::ImageHelper::GetPhotometricInterpretationValue (
            File const & f)  [static]
```

Examples

ExtractImageRegion.cs.

12.154.2.11 GetPixelFormatValue()

```
PixelFormat gdcm::ImageHelper::GetPixelFormatValue (
            const File & f)  [static]
```

This function returns pixel information about an image from its dataset That includes samples per pixel and bit depth (in that order)

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, and ExtractOneFrame.cs.

12.154.2.12 GetPlanarConfigurationValue()

```
unsigned int gdcm::ImageHelper::GetPlanarConfigurationValue (
            const File & f)  [static]
```

12.154.2.13 GetPMSRescaleInterceptSlope()

```
bool gdcm::ImageHelper::GetPMSRescaleInterceptSlope ()  [static]
```

12.154.2.14 GetPointerFromElement()

```
const ByteValue * gdcm::ImageHelper::GetPointerFromElement (
            Tag const & tag,
            File const & f)  [static]
```

12.154.2.15 GetRealWorldValueMappingContent()

```
bool gdcm::ImageHelper::GetRealWorldValueMappingContent (
            File const & f,
            RealWorldValueMappingContent & rwvmc)  [static]
```

12.154.2.16 GetRescaleInterceptSlopeValue()

```
std::vector< double > gdcm::ImageHelper::GetRescaleInterceptSlopeValue (
            File const & f)  [static]
```

Set/Get shift/scale from/to a file

Warning

this function reads/sets the Slope/Intercept in appropriate class storage, but also Grid Scaling in RT Dose Storage Can't take a dataset because the mediastorage of the file must be known

12.154.2.17 GetSecondaryCaptureImagePlaneModule()

```
bool gdcm::ImageHelper::GetSecondaryCaptureImagePlaneModule ()  [static]
```

12.154.2.18 GetSpacingTagFromMediaStorage()

```
Tag gdcm::ImageHelper::GetSpacingTagFromMediaStorage (
            MediaStorage const & ms)  [static], [protected]
```

12.154.2.19 GetSpacingValue()

```
std::vector< double > gdcm::ImageHelper::GetSpacingValue (
            File const & f)  [static]
```

Set/Get Spacing from/to a File.

12.154.2.20 GetZSpacingTagFromMediaStorage()

```
Tag gdcm::ImageHelper::GetZSpacingTagFromMediaStorage (
            MediaStorage const & ms)  [static], [protected]
```

12.154.2.21 SetDimensionsValue()

```
void gdcm::ImageHelper::SetDimensionsValue (
            File & f,
            const Pixmap & img)  [static]
```

12.154.2.22 SetDirectionCosinesValue()

```
void gdcm::ImageHelper::SetDirectionCosinesValue (
            DataSet & ds,
            const std::vector< double > & dircos)  [static]
```

Set Direction Cosines (IOP) from/to a file When IOD does not defines what is IOP (eg. typically Secondary Capture Image Storage) this call will simply remove the IOP attribute. Else in case of MR/CT image storage, this call will properly lookup the correct attribute to store the IOP.

12.154.2.23 SetForcePixelSpacing()

```
void gdcm::ImageHelper::SetForcePixelSpacing (
            bool )  [static]
```

GDCM 1.x compatibility issue: When using ReWrite an MR Image Storage would be rewritten as Secondary Capture Object while still having a Pixel Spacing tag (0028,0030). If you have deal with those files, use this very special flag to handle them Unless explicitly set elsewhere by the standard, it will use value from 0028,0030 / 0018,0088 for the Pixel Spacing of the Image

12.154.2.24 SetForceRescaleInterceptSlope()

```
void gdcm::ImageHelper::SetForceRescaleInterceptSlope (
            bool )  [static]
```

GDCM 1.x compatibility issue: Do not use anymore. This hack was used for some MR Image Storage generated by Philips Modality. When "Combine MR Rescaling" is set to TRUE, rescaling is removed. But when set to FALSE, the Modality LUT was exported. Internally GDCM now handles this gracefully.

12.154.2.25 SetOriginValue()

```
void gdcm::ImageHelper::SetOriginValue (
            DataSet & ds,
            const Image & img)  [static]
```

12.154.2.26 SetPMSRescaleInterceptSlope()

```
void gdcm::ImageHelper::SetPMSRescaleInterceptSlope (
            bool )  [static]
```

Since GDCM 2.6.1 Philips Medical System are read using the Private Field For Rescale Slope/Intercept by default. This mechanism can be deactivated using the following API: This option has no effect when ForceRescaleInterceptSlope is set to true GDCM will only read those private attribute but never write them out.

12.154.2.27 SetRescaleInterceptSlopeValue()

```
void gdcm::ImageHelper::SetRescaleInterceptSlopeValue (
            File & f,
            const Image & img)  [static]
```

12.154.2.28 SetSecondaryCaptureImagePlaneModule()

```
void gdcm::ImageHelper::SetSecondaryCaptureImagePlaneModule (
            bool )  [static]
```

Opt into Image Plane Module for Secondary Capture Image Storage Enable reading Image Position Patient (IPP), Image Orientation Patient (IOP) and Pixel Spacing (0028,0030) This is a custom extension for some existing dataset (academic)

12.154.2.29 SetSpacingValue()

```
void gdcm::ImageHelper::SetSpacingValue (
            DataSet & ds,
            const std::vector< double > & spacing)  [static]
```

Warning

You need to call SetSpacingValue after SetOriginValue / SetDirectionCosinesValue

The documentation for this class was generated from the following file:

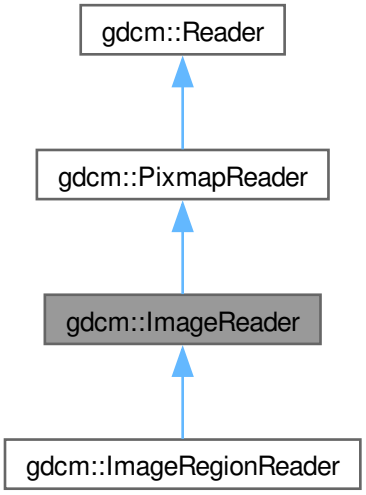
- gdcmImageHelper.h

12.155 gdcm::ImageReader Class Reference

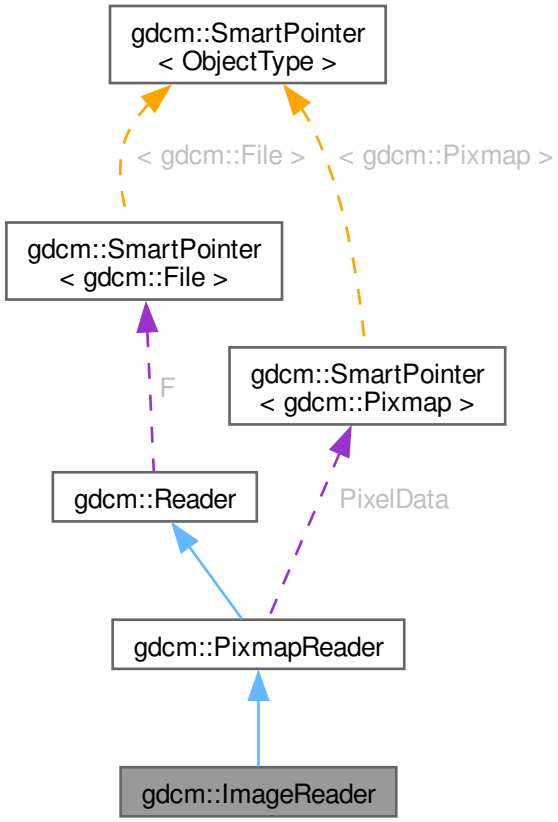
ImageReader.

```
#include <gdcmImageReader.h>
```

Inheritance diagram for gdcm::ImageReader:



Collaboration diagram for gdcm::ImageReader:



Public Member Functions

- ImageReader ()
- ~ImageReader () override
- Image & GetImage ()
- const Image & GetImage () const

  Return the read image.
- bool Read () override

Public Member Functions inherited from gdcm::PixmapReader

- PixmapReader ()
- ~PixmapReader () override
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const

  Return the read image (need to call Read() first).
- bool Read () override

Public Member Functions inherited from gdcm::Reader

- Reader ()
- virtual ~Reader ()
- bool CanRead () const
- File & GetFile ()

  Set/Get File.
- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const
- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

  Will only read the specified selected private tags.
- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Member Functions

- bool ReadACRNEMAImage () override
- bool ReadImage (MediaStorage const &ms) override

Protected Member Functions inherited from gdcm::PixmapReader

- bool ReadImageInternal (MediaStorage const &ms, bool handlepixeldata=true)

Protected Member Functions inherited from gdcm::Reader

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Additional Inherited Members

Protected Attributes inherited from gdcm::PixmapReader

- SmartPointer< Pixmap > PixelData

Protected Attributes inherited from gdcm::Reader

- SmartPointer< File > F

12.155.1 Detailed Description

ImageReader.

Note

its role is to convert the DICOM DataSet into a Image representation Image is different from Pixmap has it has a position and a direction in Space.

See also

Image

Examples

BasicImageAnonymizer.cs, CheckBigEndianBug.cxx, CompressImage.cxx, CompressLossyJPEG.cs, ConvertToQImage.cxx, DecompressImage.cs, ExtractIconFromFile.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, MrProtocol.cxx, PatchFile.cxx, PrintLUT.cxx, ReadMultiTimesException.cxx, RescaleImage.cs, and threadgdcm.cxx.

12.155.2 Constructor & Destructor Documentation

12.155.2.1 ImageReader()

```
gdcm::ImageReader::ImageReader ()
```

12.155.2.2 ~ImageReader()

```
gdcm::ImageReader::~ImageReader ()  [override]
```

12.155.3 Member Function Documentation

12.155.3.1 GetImage() [1/2]

```
Image & gdcm::ImageReader::GetImage ()
```

12.155.3.2 GetImage() [2/2]

```
const Image & gdcm::ImageReader::GetImage () const
```

Return the read image.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, ConvertToQImage.cxx, DecompressImage.cs, ExtractIconFromFile.cxx, ExtractImageRegionWithLUT.cs, FixJAIBugJPEGLS.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, PatchFile.cxx, PrintLUT.cxx, ReadMultiTimesException.cxx, RescaleImage.cs, TemplateEmptyImage.cxx, and threadgdcm.cxx.

12.155.3.3 Read()

```
bool gdcm::ImageReader::Read ()  [override], [virtual]
```

Read the DICOM image. There are two reason for failure:

1. The input filename is not DICOM
2. The input DICOM file does not contains an Image.

Reimplemented from gdcm::Reader.

Reimplemented in gdcm::ImageRegionReader.

Examples

BasicImageAnonymizer.cs, CheckBigEndianBug.cxx, CompressImage.cxx, CompressLossyJPEG.cs, ConvertToQImage.cxx, DecompressImage.cs, ExtractIconFromFile.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MrProtocol.cxx, PatchFile.cxx, PrintLUT.cxx, ReadMultiTimesException.cxx, RescaleImage.cs, and threadgdcm.cxx.

12.155.3.4 ReadACRNEMAImage()

```
bool gdcm::ImageReader::ReadACRNEMAImage ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::PixmapReader.

12.155.3.5 ReadImage()

```
bool gdcm::ImageReader::ReadImage (
            MediaStorage const & ms)  [override], [protected], [virtual]
```

Reimplemented from gdcm::PixmapReader.

The documentation for this class was generated from the following file:

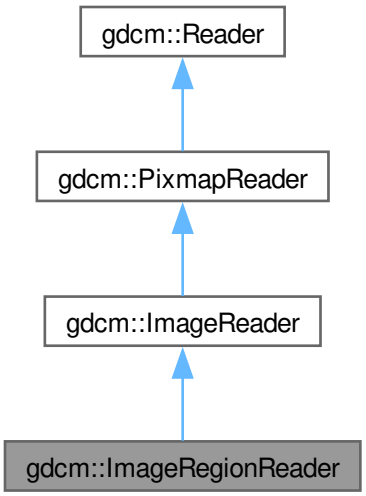
- gdcmImageReader.h

12.156 gdcm::ImageRegionReader Class Reference

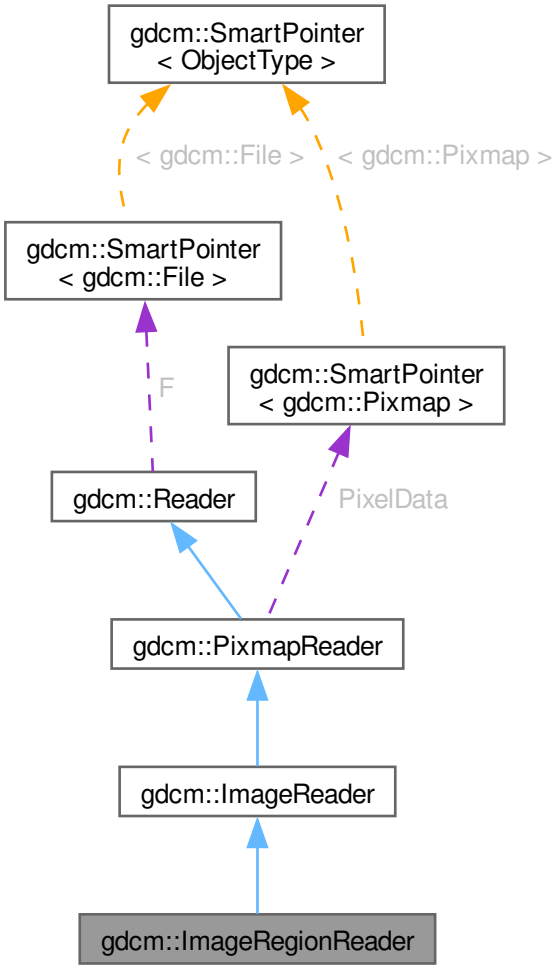
ImageRegionReader.

`#include <gdcmImageRegionReader.h>`

Inheritance diagram for gdcm::ImageRegionReader:



Collaboration diagram for gdcm::ImageRegionReader:



Public Member Functions

- ImageRegionReader ()
- ~ImageRegionReader () override
- size_t ComputeBufferLength () const
- Region const & GetRegion () const
- bool ReadInformation ()
- bool ReadIntoBuffer (char *inreadbuffer, size_t buflen)
- void SetRegion (Region const &region)

  Set/Get Region to be read.

Public Member Functions inherited from gdcm::ImageReader

- ImageReader ()
- ~ImageReader () override
- Image & GetImage ()
- const Image & GetImage () const

  Return the read image.

Public Member Functions inherited from gdcm::PixmapReader

- PixmapReader ()
- ~PixmapReader () override
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const

  Return the read image (need to call Read() first).
- bool Read () override

Public Member Functions inherited from gdcm::Reader

- Reader ()
- virtual ~Reader ()
- bool CanRead () const
- File & GetFile ()

  Set/Get File.
- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const
- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

  Will only read the specified selected private tags.
- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Member Functions

- bool Read () override

  To prevent user from calling super class Read() function.

Protected Member Functions inherited from gdcm::ImageReader

- bool ReadACRNEMAImage () override
- bool ReadImage (MediaStorage const &ms) override

Protected Member Functions inherited from gdcm::PixmapReader

- bool ReadImageInternal (MediaStorage const &ms, bool handlepixeldata=true)

Protected Member Functions inherited from gdcm::Reader

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Additional Inherited Members

Protected Attributes inherited from gdcm::PixmapReader

- SmartPointer< Pixmap > PixelData

Protected Attributes inherited from gdcm::Reader

- SmartPointer< File > F

12.156.1 Detailed Description

ImageRegionReader.

This class is able to read a region from a DICOM file containing an image. This implementation requires that the information stored in the DICOM header are consistent with what is in the encapsulated Pixel Data. This is technically not required by DICOM standard, which makes this implementation illegal with regards to the famous JPEG note: `http://dicom.nema.org/medical/dicom/current/output/chtml/part05/sect_8.2.html#para_4bcb841e-c6bf-4e26-82a5-3fad3c942da0`

See also

ImageReader

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, and TemplateEmptyImage.cxx.

12.156.2 Constructor & Destructor Documentation

12.156.2.1 ImageRegionReader()

```
gdcm::ImageRegionReader::ImageRegionReader ()
```

12.156.2.2 ~ImageRegionReader()

```
gdcm::ImageRegionReader::~ImageRegionReader ()  [override]
```

12.156.3 Member Function Documentation

12.156.3.1 ComputeBufferLength()

```
size_t gdcm::ImageRegionReader::ComputeBufferLength () const
```

Explicit call which will compute the minimal buffer length that can hold the whole uncompressed image as defined by Region `region`.

Returns

0 upon error

12.156.3.2 GetRegion()

```
Region const & gdcm::ImageRegionReader::GetRegion () const
```

12.156.3.3 Read()

```
bool gdcm::ImageRegionReader::Read ()  [override], [protected], [virtual]
```

To prevent user from calling super class Read() function.

Reimplemented from gdcm::ImageReader.

12.156.3.4 ReadInformation()

```
bool gdcm::ImageRegionReader::ReadInformation ()
```

Read meta information (not Pixel Data) from the DICOM file.

Returns

false upon error

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, and TemplateEmptyImage.cxx.

12.156.3.5 ReadIntoBuffer()

```
bool gdcm::ImageRegionReader::ReadIntoBuffer (
            char * inreadbuffer,
            size_t buflen)
```

Read into buffer: For Python, the `buflen` param is deduced directly from the input bytearray passed as parameter (function only takes one param).

Returns

false upon error

Examples

ExtractImageRegion.cs, and ExtractImageRegionWithLUT.cs.

12.156.3.6 SetRegion()

```
void gdcm::ImageRegionReader::SetRegion (
            Region const & region)
```

Set/Get Region to be read.

Examples

ExtractImageRegion.cs, and ExtractImageRegionWithLUT.cs.

The documentation for this class was generated from the following file:

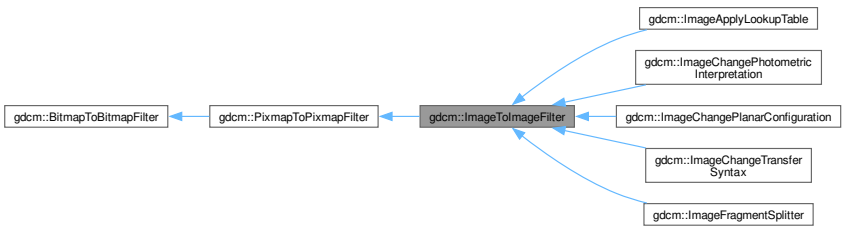
- gdcmImageRegionReader.h

12.157 gdcm::ImageToImageFilter Class Reference

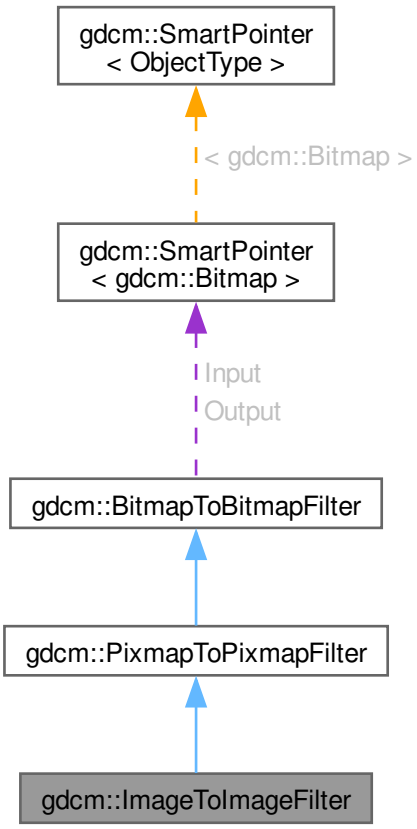
ImageToImageFilter class.

`#include <gdcmImageToImageFilter.h>`

Inheritance diagram for gdcm::ImageToImageFilter:



Collaboration diagram for gdcm::ImageToImageFilter:



Public Member Functions

- ImageToImageFilter ()
- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

12.157.1 Detailed Description

ImageToImageFilter class.

Super class for all filter taking an image and producing an output image

12.157.2 Constructor & Destructor Documentation

12.157.2.1 ImageToImageFilter()

```
gdcm::ImageToImageFilter::ImageToImageFilter ()
```

12.157.2.2 ~ImageToImageFilter()

```
gdcm::ImageToImageFilter::~ImageToImageFilter ()  [default]
```

12.157.3 Member Function Documentation

12.157.3.1 GetInput()

```
Image & gdcm::ImageToImageFilter::GetInput ()
```

12.157.3.2 GetOutput()

```
const Image & gdcm::ImageToImageFilter::GetOutput () const
```

Get Output image.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, and CompressLossyJPEG.cs.

The documentation for this class was generated from the following file:

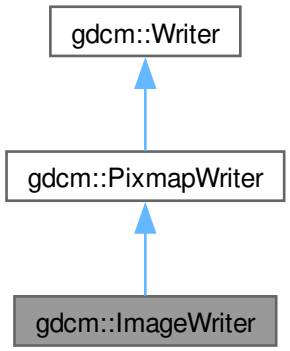
- gdcmImageToImageFilter.h

12.158 gdcm::ImageWriter Class Reference

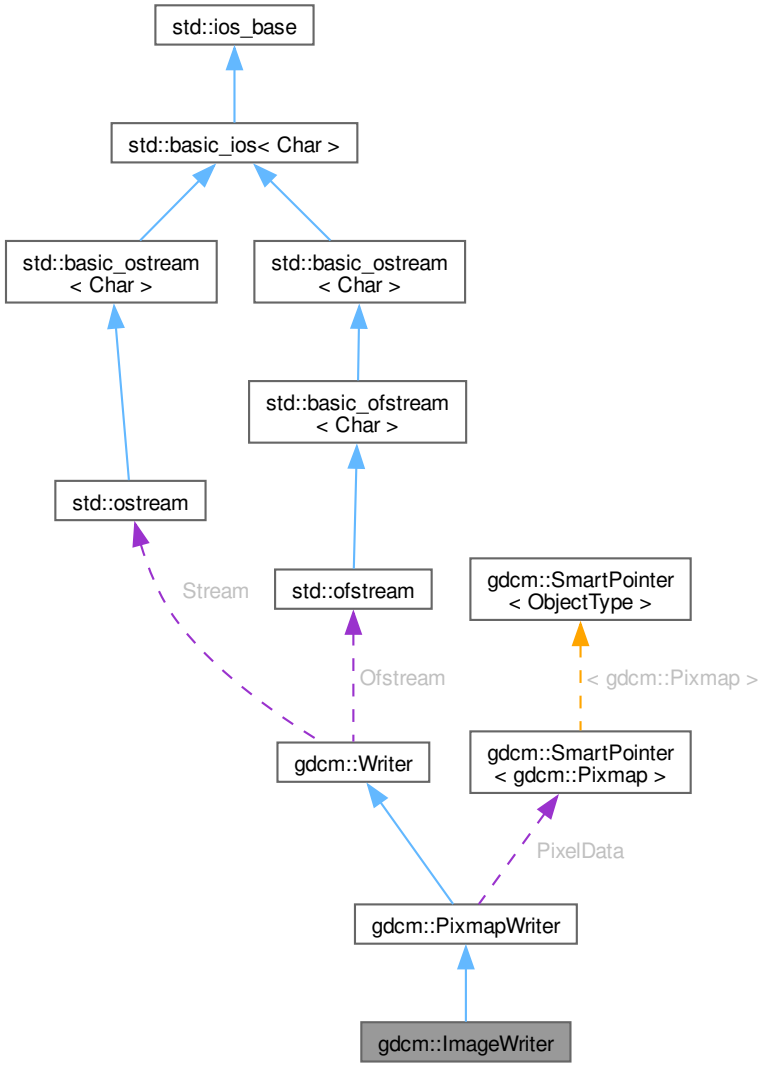
ImageWriter.

```
#include <gdcmImageWriter.h>
```

Inheritance diagram for gdcm::ImageWriter:



Collaboration diagram for gdcm::ImageWriter:



Public Member Functions

- ImageWriter ()
- ~ImageWriter () override
- MediaStorage ComputeTargetMediaStorage ()
- const Image & GetImage () const override
- Image & GetImage () override
- bool Write () override

  Write.

Public Member Functions inherited from gdcm::PixmapWriter

- PixmapWriter ()
- ~PixmapWriter () override
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const
- virtual void SetImage (Pixmap const &img)
- void SetPixmap (Pixmap const &img)
- bool Write () override

  Write.

Public Member Functions inherited from gdcm::Writer

- Writer ()
- virtual ~Writer ()
- void CheckFileMetaInformationOff ()
- void CheckFileMetaInformationOn ()
- File & GetFile ()
- void SetCheckFileMetaInformation (bool b)

  Undocumented function, do not use (= leave default).
- void SetFile (const File &f)

  Set/Get the DICOM file (DataSet + Header).
- void SetFileName (const char *filename_native)

  Set the filename of DICOM file to write:
- void SetStream (std::ostream &output_stream)

  Set user ostream buffer.

Additional Inherited Members

Protected Member Functions inherited from gdcm::PixmapWriter

- void DoIconImage (DataSet &ds, Pixmap const &image)
- bool PrepareWrite (MediaStorage const &refms)

Protected Member Functions inherited from gdcm::Writer

- bool GetCheckFileMetaInformation () const
- std::ostream * GetStreamPtr () const
- void SetWriteDataSetOnly (bool b)

Protected Attributes inherited from gdcm::PixmapWriter

- SmartPointer< Pixmap > PixelData

Protected Attributes inherited from gdcm::Writer

- std::ofstream * Ofstream
- std::ostream * Stream

12.158.1 Detailed Description

ImageWriter.

This is an extended version of the PixmapWriter. Pay attention that:

1. It will populate missing attribute for Secondary Capture Image Storage instances,
2. It may also change an input MR Image Storage instance into a pseudo Enhanced MR Image Storage instance whenever Modality LUT is required.
3. Some DataElement related to gdcm::Image may be slightly altered.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, GenFakeImage.cxx, GetSubSequenceData.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, TemplateEmptyImage.cxx, csa2img.cxx, and iU22tomultisc.cxx.

12.158.2 Constructor & Destructor Documentation

12.158.2.1 ImageWriter()

```
gdcm::ImageWriter::ImageWriter ()
```

12.158.2.2 ~ImageWriter()

```
gdcm::ImageWriter::~ImageWriter ()  [override]
```

12.158.3 Member Function Documentation

12.158.3.1 ComputeTargetMediaStorage()

```
MediaStorage gdcm::ImageWriter::ComputeTargetMediaStorage ()
```

internal function used to compute a target MediaStorage the most appropriate User may want to call this function ahead of time (before Write)

Examples

TemplateEmptyImage.cxx.

12.158.3.2 GetImage() [1/2]

```
const Image & gdcm::ImageWriter::GetImage () const  [inline], [override], [virtual]
```

Set/Get Image to be written It will overwrite anything Image infos found in DataSet (see parent class to see how to pass dataset)

Reimplemented from gdcm::PixmapWriter.

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, csa2img.cxx, and iU22tomultisc.cxx.

12.158.3.3 GetImage() [2/2]

```
Image & gdcm::ImageWriter::GetImage ()  [inline], [override], [virtual]
```

Reimplemented from gdcm::PixmapWriter.

12.158.3.4 Write()

```
bool gdcm::ImageWriter::Write ()  [override], [virtual]
```

Write.

Reimplemented from gdcm::Writer.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, GenFakeImage.cxx, GetSubSequenceData.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, TemplateEmptyImage.cxx, csa2img.cxx, and iU22tomultisc.cxx.

The documentation for this class was generated from the following file:

- gdcmImageWriter.h

12.159 gdcm::network::ImplementationClassUIDSub Class Reference

ImplementationClassUIDSub.

```
#include <gdcmImplementationClassUIDSub.h>
```

Public Member Functions

- ImplementationClassUIDSub ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.159.1 Detailed Description

ImplementationClassUIDSub.

PS 3.7 Table D.3-1 IMPLEMENTATION CLASS UID SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

12.159.2 Constructor & Destructor Documentation

12.159.2.1 ImplementationClassUIDSub()

```
gdcm::network::ImplementationClassUIDSub::ImplementationClassUIDSub ()
```

12.159.3 Member Function Documentation

12.159.3.1 Print()

```
void gdcm::network::ImplementationClassUIDSub::Print (
            std::ostream & os) const
```

12.159.3.2 Read()

```
std::istream & gdcm::network::ImplementationClassUIDSub::Read (
            std::istream & is)
```

12.159.3.3 Size()

```
size_t gdcm::network::ImplementationClassUIDSub::Size () const
```

12.159.3.4 Write()

```
const std::ostream & gdcm::network::ImplementationClassUIDSub::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

- gdcmImplementationClassUIDSub.h

12.160 gdcm::network::ImplementationUIDSub Class Reference

ImplementationUIDSub.

```
#include <gdcmImplementationUIDSub.h>
```

Public Member Functions

- ImplementationUIDSub ()
- const std::ostream & Write (std::ostream &os) const

12.160.1 Detailed Description

ImplementationUIDSub.

Table D.3-2 IMPLEMENTATION UID SUB-ITEM FIELDS (A-ASSOCIATE-AC)

12.160.2 Constructor & Destructor Documentation

12.160.2.1 ImplementationUIDSub()

```
gdcm::network::ImplementationUIDSub::ImplementationUIDSub ()
```

12.160.3 Member Function Documentation

12.160.3.1 Write()

```
const std::ostream & gdcm::network::ImplementationUIDSub::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

- gdcmImplementationUIDSub.h

12.161 gdcm::network::ImplementationVersionNameSub Class Reference

ImplementationVersionNameSub.

```
#include <gdcmImplementationVersionNameSub.h>
```

Public Member Functions

- ImplementationVersionNameSub ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.161.1 Detailed Description

ImplementationVersionNameSub.

Table D.3-3 IMPLEMENTATION VERSION NAME SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

12.161.2 Constructor & Destructor Documentation

12.161.2.1 ImplementationVersionNameSub()

```
gdcm::network::ImplementationVersionNameSub::ImplementationVersionNameSub ()
```

12.161.3 Member Function Documentation

12.161.3.1 Print()

```
void gdcm::network::ImplementationVersionNameSub::Print (
            std::ostream & os) const
```

12.161.3.2 Read()

```
std::istream & gdcm::network::ImplementationVersionNameSub::Read (
            std::istream & is)
```

12.161.3.3 Size()

```
size_t gdcm::network::ImplementationVersionNameSub::Size () const
```

12.161.3.4 Write()

```
const std::ostream & gdcm::network::ImplementationVersionNameSub::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

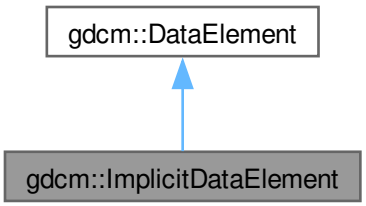
- gdcmImplementationVersionNameSub.h

12.162 gdcm::ImplicitDataElement Class Reference

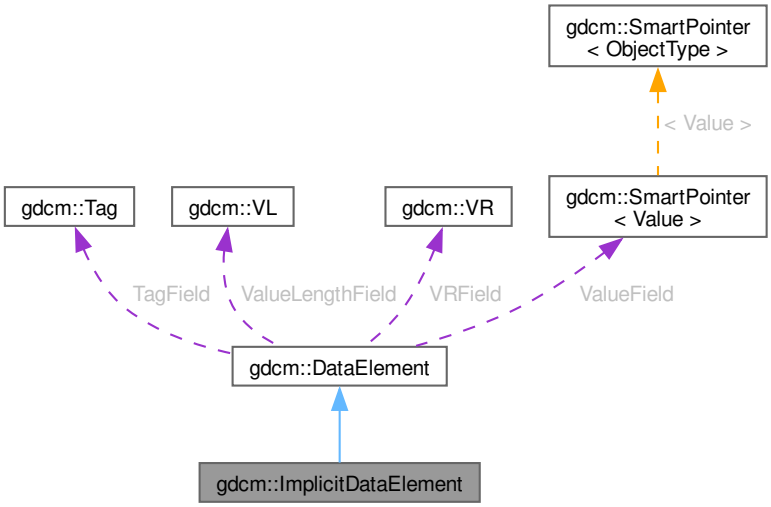
Class to represent an *Implicit VR* Data Element.

`#include <gdcmImplicitDataElement.h>`

Inheritance diagram for gdcm::ImplicitDataElement:



Collaboration diagram for gdcm::ImplicitDataElement:



Public Member Functions

- VL GetLength () const

- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, bool readvalues=true)
- template<typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length, bool readvalues=true)
- template<typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)

- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.162.1 Detailed Description

Class to represent an *Implicit VR* Data Element.

Note

bla

Examples

ReadExplicitLengthSQIVR.cxx.

12.162.2 Member Function Documentation

12.162.2.1 GetLength()

```
VL gdcm::ImplicitDataElement::GetLength () const
```

12.162.2.2 Read()

```
template<typename TSwap>
std::istream & gdcm::ImplicitDataElement::Read (
             std::istream & is)
```

12.162.2.3 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::ImplicitDataElement::ReadPreValue (
             std::istream & is)
```

12.162.2.4 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::ImplicitDataElement::ReadValue (
             std::istream & is,
             bool readvalues = true)
```

12.162.2.5 ReadValueWithLength()

```
template<typename TSwap>
std::istream & gdcm::ImplicitDataElement::ReadValueWithLength (
             std::istream & is,
             VL & length,
             bool readvalues = true)
```

12.162.2.6 ReadWithLength()

```
template<typename TSwap>
std::istream & gdcm::ImplicitDataElement::ReadWithLength (
             std::istream & is,
             VL & length,
             bool readvalues = true)
```

12.162.2.7 Write()

```
template<typename TSwap>
const std::ostream & gdcm::ImplicitDataElement::Write (
             std::ostream & os) const
```

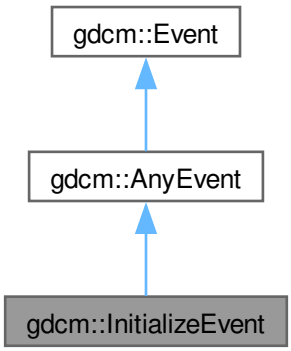
The documentation for this class was generated from the following file:

- gdcmImplicitDataElement.h

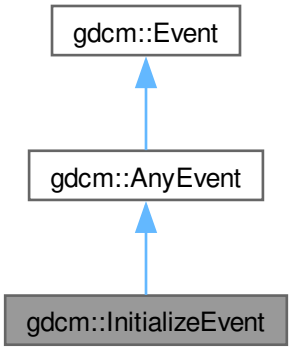
12.163 gdcm::InitializeEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::InitializeEvent:



Collaboration diagram for gdcm::InitializeEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

12.164 gdcm::IOD Class Reference

Class for representing a IOD.

`#include <gdcmIOD.h>`

Public Types

- typedef std::vector< IODEntry > MapIODEntry
- typedef MapIODEntry::size_type SizeType

Public Member Functions

- IOD ()=default
- void AddIODEntry (const IODEntry &iode)
- void Clear ()
- const IODEntry & GetIODEntry (SizeType idx) const
- SizeType GetNumberOfIODs () const
- Type GetTypeFromTag (const Defs &defs, const Tag &tag) const

Friends

- std::ostream & operator<< (std::ostream &_os, const IOD &_val)

12.164.1 Detailed Description

Class for representing a IOD.

Note

bla

See also

Dict

Examples

TraverseModules.cxx.

12.164.2 Member Typedef Documentation

12.164.2.1 MapIODEntry

```
typedef std::vector<IODEntry> gdcm::IOD::MapIODEntry
```

12.164.2.2 SizeType

```
typedef MapIODEntry::size_type gdcm::IOD::SizeType
```

12.164.3 Constructor & Destructor Documentation

12.164.3.1 IOD()

```
gdcm::IOD::IOD ()  [default]
```

References IOD(), and operator<<.

Referenced by IOD(), and operator<<.

12.164.4 Member Function Documentation

12.164.4.1 AddIODEntry()

```
void gdcm::IOD::AddIODEntry (
            const IODEntry & iode)  [inline]
```

12.164.4.2 Clear()

```
void gdcm::IOD::Clear ()  [inline]
```

12.164.4.3 GetIODEntry()

```
const IODEntry & gdcm::IOD::GetIODEntry (
            SizeType idx) const  [inline]
```

Examples

TraverseModules.cxx.

12.164.4.4 GetNumberOfIODs()

```
SizeType gdcm::IOD::GetNumberOfIODs () const  [inline]
```

Examples

TraverseModules.cxx.

12.164.4.5 GetTypeFromTag()

```
Type gdcm::IOD::GetTypeFromTag (
            const Defs & defs,
            const Tag & tag) const
```

12.164.5 Friends And Related Symbol Documentation

12.164.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const IOD & _val)  [friend]
```

References IOD().

Referenced by IOD().

The documentation for this class was generated from the following file:

- gdcmIOD.h

12.165 gdcm::IODEntry Class Reference

Class for representing a IODEntry.

```
#include <gdcmIODEntry.h>
```

Public Member Functions

- IODEntry (const char *name="", const char *ref="", const char *inUsage="")
- const char * GetIE () const
- const char * GetName () const
- const char * GetRef () const
- const char * GetUsage () const
- Usage::UsageType GetUsageType () const
- void SetIE (const char *ie)
- void SetName (const char *name)
- void SetRef (const char *ref)
- void SetUsage (const char *inUsage)

Friends

- std::ostream & operator<< (std::ostream &_os, const IODEntry &_val)

12.165.1 Detailed Description

Class for representing a IODEntry.

Note

A.1.3 IOD Module Table and Functional Group Macro Table This Section of each IOD defines in a tabular form the Modules comprising the IOD. The following information must be specified for each Module in the table:

- The name of the Module or Functional Group
- A reference to the Section in Annex C which defines the Module or Functional Group
- The usage of the Module or Functional Group; whether it is:
- Mandatory (see A.1.3.1) , abbreviated M
- Conditional (see A.1.3.2) , abbreviated C
- User Option (see A.1.3.3) , abbreviated U The Modules referenced are defined in Annex C. A.1.3.1 MANDATORY MODULES For each IOD, Mandatory Modules shall be supported per the definitions, semantics and requirements defined in Annex C. PS 3.3 - 2008 Page 96
- Standard - A.1.3.2 CONDITIONAL MODULES Conditional Modules are Mandatory Modules if specific conditions are met. If the specified conditions are not met, this Module shall not be supported; that is, no information defined in that Module shall be sent. A.1.3.3 USER OPTION MODULES User Option Modules may or may not be supported. If an optional Module is supported, the Attribute Types specified in the Modules in Annex C shall be supported.

See also

DictEntry

Examples

TraverseModules.cxx.

12.165.2 Constructor & Destructor Documentation

12.165.2.1 IODEntry()

```
gdcm::IODEntry::IODEntry (
            const char * name = "",
            const char * ref = "",
            const char * inUsage = "")  [inline]
```

Referenced by operator<<.

12.165.3 Member Function Documentation

12.165.3.1 GetIE()

```
const char * gdcm::IODEntry::GetIE () const  [inline]
```

12.165.3.2 GetName()

```
const char * gdcm::IODEntry::GetName () const  [inline]
```

12.165.3.3 GetRef()

```
const char * gdcm::IODEntry::GetRef () const  [inline]
```

Examples

TraverseModules.cxx.

12.165.3.4 GetUsage()

```
const char * gdcm::IODEntry::GetUsage () const  [inline]
```

12.165.3.5 GetUsageType()

```
Usage::UsageType gdcm::IODEntry::GetUsageType () const
```

12.165.3.6 SetIE()

```
void gdcm::IODEntry::SetIE (
            const char * ie)  [inline]
```

12.165.3.7 SetName()

```
void gdcm::IODEntry::SetName (
            const char * name)  [inline]
```

12.165.3.8 SetRef()

```
void gdcm::IODEntry::SetRef (
            const char * ref)  [inline]
```

12.165.3.9 SetUsage()

```
void gdcm::IODEntry::SetUsage (
            const char * inUsage)  [inline]
```

12.165.4 Friends And Related Symbol Documentation

12.165.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const IODEntry & _val)  [friend]
```

References IODEntry().

The documentation for this class was generated from the following file:

- gdcmIODEntry.h

12.166 gdcm::IODs Class Reference

Class for representing a IODs.

`#include <gdcmIODs.h>`

Public Types

- typedef std::map< IODName, IOD > IODMapType
- typedef IODMapType::const_iterator IODMapTypeConstIterator
- typedef std::string IODName

Public Member Functions

- IODs ()=default
- void AddIOD (const char *name, const IOD &module)
- IODMapTypeConstIterator Begin () const
- void Clear ()
- IODMapTypeConstIterator End () const
- const IOD & GetIOD (const char *name) const

Friends

- std::ostream & operator<< (std::ostream &_os, const IODs &_val)

12.166.1 Detailed Description

Class for representing a IODs.

Note

bla

See also

IOD

Examples

TraverseModules.cxx.

12.166.2 Member Typedef Documentation

12.166.2.1 IODMapType

```
typedef std::map<IODName, IOD> gdcm::IODs::IODMapType
```

12.166.2.2 IODMapTypeConstIterator

```
typedef IODMapType::const_iterator gdcm::IODs::IODMapTypeConstIterator
```

Examples

TraverseModules.cxx.

12.166.2.3 IODName

```
typedef std::string gdcm::IODs::IODName
```

Examples

TraverseModules.cxx.

12.166.3 Constructor & Destructor Documentation

12.166.3.1 IODs()

```
gdcm::IODs::IODs () [default]
```

References IODs(), and operator<<.

Referenced by IODs(), and operator<<.

12.166.4 Member Function Documentation

12.166.4.1 AddIOD()

```
void gdcm::IODs::AddIOD (
            const char * name,
            const IOD & module)  [inline]
```

12.166.4.2 Begin()

```
IODMapTypeConstIterator gdcm::IODs::Begin () const  [inline]
```

Examples

TraverseModules.cxx.

12.166.4.3 Clear()

```
void gdcm::IODs::Clear ()  [inline]
```

12.166.4.4 End()

```
IODMapTypeConstIterator gdcm::IODs::End () const  [inline]
```

Examples

TraverseModules.cxx.

12.166.4.5 GetIOD()

```
const IOD & gdcm::IODs::GetIOD (
            const char * name) const  [inline]
```

12.166.5 Friends And Related Symbol Documentation

12.166.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const IODs & _val)  [friend]
```

References IODs().

Referenced by IODs().

The documentation for this class was generated from the following file:

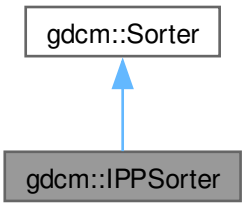
- gdcmIODs.h

12.167 gdcm::IPPSorter Class Reference

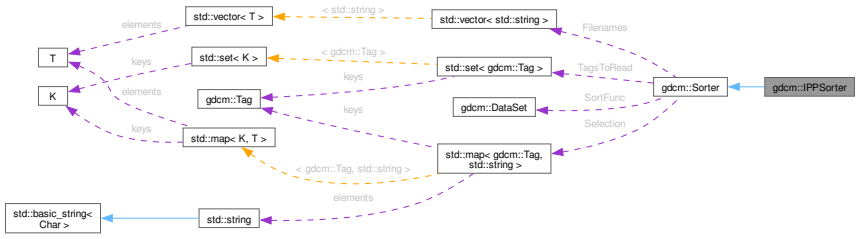
IPPSorter.

`#include <gdcmIPPSorter.h>`

Inheritance diagram for gdcm::IPPSorter:



Collaboration diagram for gdcm::IPPSorter:



Public Member Functions

- IPPSorter ()
- double GetDirectionCosinesTolerance () const
- double GetZSpacing () const
- double GetZSpacingTolerance () const
- void SetComputeZSpacing (bool b)
- void SetDirectionCosinesTolerance (double tol)
- void SetDropDuplicatePositions (bool b)
- void SetZSpacingTolerance (double tol)
- bool Sort (std::vector< std::string > const &filenames) override

Public Member Functions inherited from gdcm::Sorter

- Sorter ()
- virtual ~Sorter ()
- bool AddSelect (Tag const &tag, const char *value)

  UNSUPPORTED FOR NOW.
- const std::vector< std::string > & GetFilenames () const
- void Print (std::ostream &os) const

  Print.
- void SetSortFunction (SortFunction f)
- void SetTagsToRead (std::set< Tag > const &tags)
- virtual bool StableSort (std::vector< std::string > const &filenames)

Protected Attributes

- bool ComputeZSpacing
- double DirCosTolerance
- bool DropDuplicatePositions
- double ZSpacing
- double ZTolerance

Protected Attributes inherited from gdcm::Sorter

- std::vector< std::string > Filenames
- std::map< Tag, std::string > Selection
- SortFunction SortFunc
- std::set< Tag > TagsToRead

Additional Inherited Members

Public Types inherited from gdcm::Sorter

- typedef bool(* SortFunction) (DataSet const &, DataSet const &)

  Set the sort function which compares one dataset to the other.

Protected Types inherited from gdcm::Sorter

- typedef std::map< Tag, std::string > SelectionMap

12.167.1 Detailed Description

IPPSorter.

Implement a simple Image Position (Patient) sorter, along the Image Orientation (Patient) direction. This algorithm does NOT support duplicate and will FAIL in case of duplicate IPP.

Warning

See special note for SetZSpacingTolerance when computing the ZSpacing from the IPP of each DICOM files (default tolerance for consistent spacing is: 1e-6mm)

For more information on Spacing, and how it is defined in DICOM, advanced users may refers to:

`http://gdcm.sourceforge.net/wiki/index.php/Imager_Pixel_Spacing`

Bug There are currently a couple of bugs in this implementation:

- Gantry Tilt is not considered (always an error)
- Application programmer should only sort valid DataSet (eg. MRImageStorage, CTImageStorage, PETImage↩ Storage)

Examples

Compute3DSpacing.cxx, VolumeSorter.cxx, and gdcmorthoplanes.cxx.

12.167.2 Constructor & Destructor Documentation

12.167.2.1 IPPSorter()

```
gdcm::IPPSorter::IPPSorter ()
```

12.167.3 Member Function Documentation

12.167.3.1 GetDirectionCosinesTolerance()

```
double gdcm::IPPSorter::GetDirectionCosinesTolerance () const  [inline]
```

References DirCosTolerance.

12.167.3.2 GetZSpacing()

```
double gdcm::IPPSorter::GetZSpacing () const  [inline]
```

Read-only function to provide access to the computed value for the Z-Spacing The ComputeZSpacing must have been set to true before execution of sort algorithm. Call this function *after* calling Sort(); Z-Spacing will be 0 on 2 occasions:

- Sorting simply failed, potentially duplicate IPP => ZSpacing = 0
- ZSpacing could not be computed (Z-Spacing is not constant, or ZTolerance is too low)

Examples

Compute3DSpacing.cxx, gdcmorthoplanes.cxx, and reslicesphere.cxx.

References ZSpacing.

12.167.3.3 GetZSpacingTolerance()

```
double gdcm::IPPSorter::GetZSpacingTolerance () const  [inline]
```

References ZTolerance.

12.167.3.4 SetComputeZSpacing()

```
void gdcm::IPPSorter::SetComputeZSpacing (
            bool b)  [inline]
```

Functions related to Z-Spacing computation Set to true when sort algorithm should also perform a regular Z-Spacing computation using the Image Position (Patient) Potential reason for failure:

1. ALL slices are taken into account, if one slice if missing then ZSpacing will be set to 0 since the spacing will not be found to be regular along the Series

Examples

Compute3DSpacing.cxx, VolumeSorter.cxx, gdcmorthoplanes.cxx, and reslicesphere.cxx.

References ComputeZSpacing.

12.167.3.5 SetDirectionCosinesTolerance()

```
void gdcm::IPPSorter::SetDirectionCosinesTolerance (
            double tol)  [inline]
```

Sometimes IOP along a series is slightly changing for example: "0.999081\\0.0426953\\0.00369272\\-0.0419025\\0.↩
955059\\0.293439", "0.999081\\0.0426953\\0.00369275\\-0.0419025\\0.955059\\0.293439", "0.999081\\0.0426952\\0.↩
00369272\\-0.0419025\\0.955059\\0.293439", We need an API to define the tolerance which is allowed. Internally the cross vector of each direction cosines is computed. The tolerance then define the distance in between 1.0 to the dot product of those cross vectors. In a perfect world this dot product is of course 1.0 which imply a DirectionCosines tolerance of exactly 0.0 (default).

References DirCosTolerance.

12.167.3.6 SetDropDuplicatePositions()

```
void gdcm::IPPSorter::SetDropDuplicatePositions (
            bool b)  [inline]
```

Makes the IPPSorter ignore multiple images located at the same position. Only the first occurrence will be kept. Drop↩
DuplicatePositions defaults to false.

References DropDuplicatePositions.

12.167.3.7 SetZSpacingTolerance()

```
void gdcm::IPPSorter::SetZSpacingTolerance (
            double tol)  [inline]
```

1. Another reason for failure is that that Z-Spacing is only slightly changing (eg 1e-3) along the series, a human can determine that this is ok and change the tolerance from its default value: 1e-6

Examples

Compute3DSpacing.cxx, gdcmorthoplanes.cxx, and reslicesphere.cxx.

References ZTolerance.

12.167.3.8 Sort()

```
bool gdcm::IPPSorter::Sort (
            std::vector< std::string > const & filenames)  [override], [virtual]
```

Main entry point to the sorter. It will execute the filter, option should be set before running this function (SetZSpacing↩
Tolerance, ...) Return value indicate if sorting could be achieved,. Warning this does *NOT* imply that spacing is consistent, it only means the file are sorted according to IPP You should check if ZSpacing is 0 or not to deduce if file are actually a 3D volume

Reimplemented from gdcm::Sorter.

Examples

Compute3DSpacing.cxx, VolumeSorter.cxx, gdcmorthoplanes.cxx, and reslicesphere.cxx.

12.167.4 Member Data Documentation

12.167.4.1 ComputeZSpacing

```
bool gdcm::IPPSorter::ComputeZSpacing  [protected]
```

Referenced by SetComputeZSpacing().

12.167.4.2 DirCosTolerance

```
double gdcm::IPPSorter::DirCosTolerance  [protected]
```

Referenced by GetDirectionCosinesTolerance(), and SetDirectionCosinesTolerance().

12.167.4.3 DropDuplicatePositions

```
bool gdcm::IPPSorter::DropDuplicatePositions  [protected]
```

Referenced by SetDropDuplicatePositions().

12.167.4.4 ZSpacing

```
double gdcm::IPPSorter::ZSpacing  [protected]
```

Referenced by GetZSpacing().

12.167.4.5 ZTolerance

```
double gdcm::IPPSorter::ZTolerance  [protected]
```

Referenced by GetZSpacingTolerance(), and SetZSpacingTolerance().

The documentation for this class was generated from the following file:

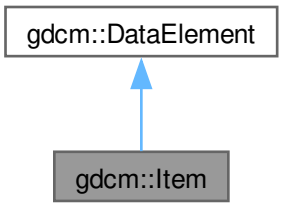
- gdcmIPPSorter.h

12.168 gdcm::Item Class Reference

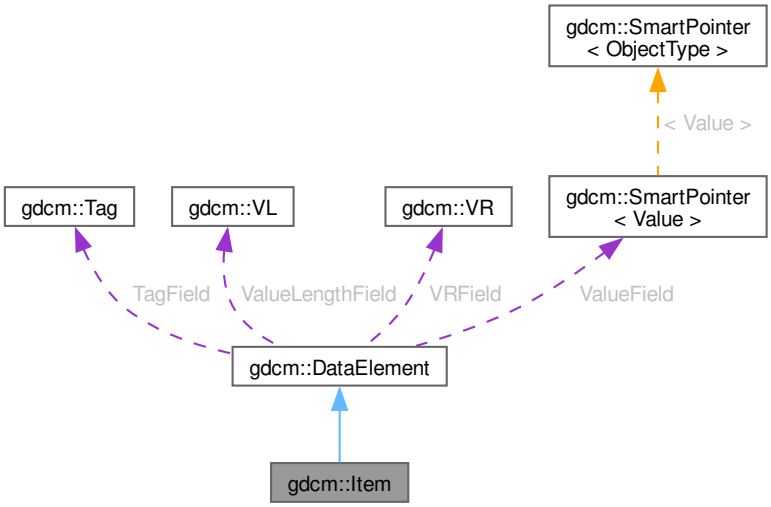
Class to represent an Item.

`#include <gdcmItem.h>`

Inheritance diagram for gdcm::Item:



Collaboration diagram for gdcm::Item:



Public Member Functions

- Item ()

- Item (Item const &val)
- void Clear ()
- bool FindDataElement (const Tag &t) const
- const DataElement & GetDataElement (const Tag &t) const
- template<typename TDE>
  VL GetLength () const
- DataSet & GetNestedDataSet ()
- const DataSet & GetNestedDataSet () const
- void InsertDataElement (const DataElement &de)
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- void SetNestedDataSet (const DataSet &nested)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)

- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Friends

- std::ostream & operator<< (std::ostream &os, const Item &val)

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.168.1 Detailed Description

Class to represent an Item.

A component of the value of a Data Element that is of Value Representation Sequence of Items. An Item contains a Data Set . See PS 3.5 7.5.1 Item Encoding Rules Each Item of a Data Element of VR SQ shall be encoded as a DICOM Standard Data Element with a specific Data Element Tag of Value (FFFE,E000). The Item Tag is followed by a 4 byte Item Length field encoded in one of the following two ways Explicit/ Implicit

Note

ITEM: A component of the Value of a Data Element that is of Value Representation Sequence of Items. An Item contains a Data Set.

Examples

ChangeSequenceUltrasound.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx Fake_Image_Using_Stream_Image_Writer.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, NewSequence.cs, SimplePrint.cs, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.168.2 Constructor & Destructor Documentation

12.168.2.1 Item() [1/2]

```
gdcm::Item::Item ()  [inline]
```

References gdcm::DataElement::DataElement().

Referenced by Item(), and operator<<.

12.168.2.2 Item() [2/2]

```
gdcm::Item::Item (
            Item const & val)  [inline]
```

References gdcm::DataElement::DataElement(), and Item().

12.168.3 Member Function Documentation

12.168.3.1 Clear()

```
void gdcm::Item::Clear ()  [inline]
```

References gdcm::DataElement::Clear().

Referenced by gdcm::SequenceOfItems::Read().

12.168.3.2 FindDataElement()

```
bool gdcm::Item::FindDataElement (
            const Tag & t) const  [inline]
```

12.168.3.3 GetDataElement()

```
const DataElement & gdcm::Item::GetDataElement (
            const Tag & t) const  [inline]
```

References gdcm::DataElement::DataElement().

12.168.3.4 GetLength()

```
template<typename TDE>
VL gdcm::Item::GetLength () const
```

12.168.3.5 GetNestedDataSet() [1/2]

```
DataSet & gdcm::Item::GetNestedDataSet ()  [inline]
```

12.168.3.6 GetNestedDataSet() [2/2]

```
const DataSet & gdcm::Item::GetNestedDataSet () const  [inline]
```

Examples

ChangeSequenceUltrasound.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenSeqs.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, NewSequence.cs, SimplePrint.cs, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

Referenced by gdcm::SequenceOfItems::Read().

12.168.3.7 InsertDataElement()

```
void gdcm::Item::InsertDataElement (
            const DataElement & de)  [inline]
```

References gdcm::DataElement::DataElement(), and gdcm::DataElement::IsUndefinedLength().

12.168.3.8 Read()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::Item::Read (
             std::istream & is)  [inline]
```

References gdcm::ByteSwapFilter::ByteSwap(), gdcm::DataSet::Clear(), gdcmDebugMacro, gdcmErrorMacro, gdcmWarningMacro, gdcm::DataSet::IsEmpty(), gdcm::DataElement::ReadWithLength(), gdcm::ByteSwapFilter::SetByteSwapTag(), gdcm::SwapperDoOp::Swap(), gdcm::DataElement::TagField, and gdcm::DataElement::ValueLengthField.

Referenced by gdcm::SequenceOfItems::Read().

12.168.3.9 SetNestedDataSet()

```
void gdcm::Item::SetNestedDataSet (
             const DataSet & nested)  [inline]
```

12.168.3.10 Write()

```
template<typename TDE, typename TSwap>
const std::ostream & gdcm::Item::Write (
             std::ostream & os) const  [inline]
```

References gdcmWarningMacro, gdcm::VL::GetLength(), gdcm::DataElement::TagField, gdcm::DataElement::ValueLengthField, gdcm::Tag::Write(), and gdcm::VL::Write().

12.168.4 Friends And Related Symbol Documentation

12.168.4.1 operator<<

```
std::ostream & operator<< (
             std::ostream & os,
             const Item & val)  [friend]
```

References Item(), operator<<, gdcm::DataSet::Print(), gdcm::DataElement::TagField, and gdcm::DataElement::ValueLengthField.

Referenced by operator<<.

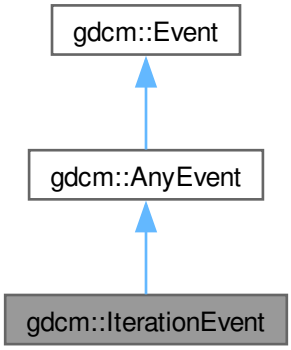
The documentation for this class was generated from the following file:

- gdcmItem.h

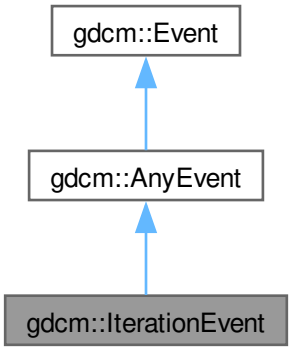
12.169 gdcm::IterationEvent Class Reference

`#include <gdcmEvent.h>`

Inheritance diagram for gdcm::IterationEvent:



Collaboration diagram for gdcm::IterationEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()

- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

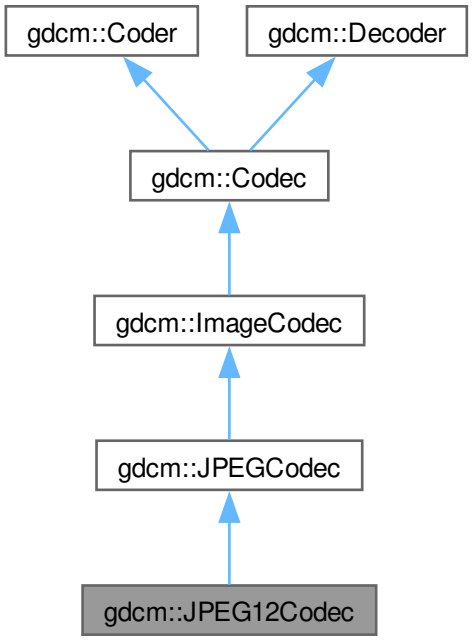
- gdcmEvent.h

12.170 gdcm::JPEG12Codec Class Reference

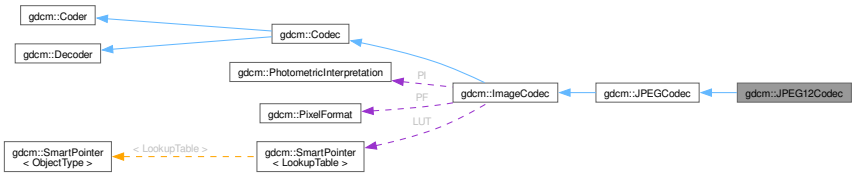
Class to do JPEG 12bits (lossy & lossless).

`#include <gdcmJPEG12Codec.h>`

Inheritance diagram for gdcm::JPEG12Codec:



Collaboration diagram for gdcm::JPEG12Codec:



Public Member Functions

- JPEG12Codec ()
- ~JPEG12Codec () override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool InternalCode (const char *input, unsigned long len, std::ostream &os) override

Public Member Functions inherited from gdcm::JPEGCodec

- JPEGCodec ()
- ~JPEGCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Compress into JPEG.
- void ComputeOffsetTable (bool b)

  Compute the offset table:
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool GetLossless () const
- double GetQuality () const
- void SetLossless (bool l)
- void SetPixelFormat (PixelFormat const &pf) override
- void SetQuality (double q)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool EncodeBuffer (std::ostream &os, const char *data, size_t datalen) override
- bool IsStateSuspension () const override

Protected Member Functions inherited from gdcm::JPEGCodec

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool IsValid (PhotometricInterpretation const &pi) override
- void SetBitSample (int bit)
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::JPEGCodec

- int BitSample
- int Quality

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.170.1 Detailed Description

Class to do JPEG 12bits (lossy & lossless).

Note

internal class

12.170.2 Constructor & Destructor Documentation

12.170.2.1 JPEG12Codec()

```
gdcm::JPEG12Codec::JPEG12Codec ()
```

12.170.2.2 ~JPEG12Codec()

```
gdcm::JPEG12Codec::~JPEG12Codec ()  [override]
```

12.170.3 Member Function Documentation

12.170.3.1 DecodeByStreams()

```
bool gdcm::JPEG12Codec::DecodeByStreams (
            std::istream & is,
            std::ostream & os)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.170.3.2 EncodeBuffer()

```
bool gdcm::JPEG12Codec::EncodeBuffer (
            std::ostream & os,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

12.170.3.3 GetHeaderInfo()

```
bool gdcm::JPEG12Codec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.170.3.4 InternalCode()

```
bool gdcm::JPEG12Codec::InternalCode (
            const char * input,
            unsigned long len,
            std::ostream & os)  [override], [virtual]
```

Reimplemented from gdcm::Coder.

12.170.3.5 IsStateSuspension()

```
bool gdcm::JPEG12Codec::IsStateSuspension () const  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

The documentation for this class was generated from the following file:

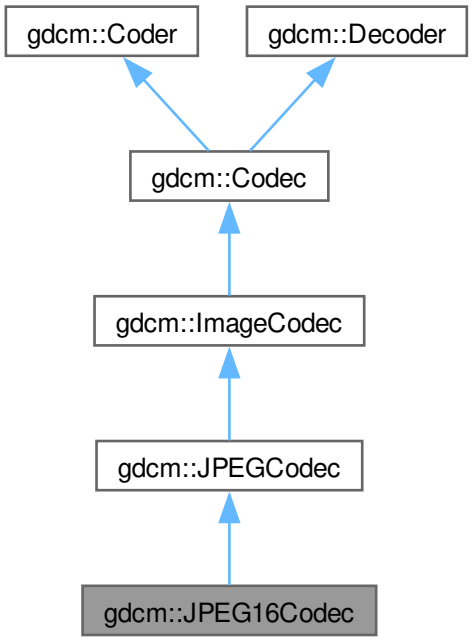
- gdcmJPEG12Codec.h

12.171 gdcm::JPEG16Codec Class Reference

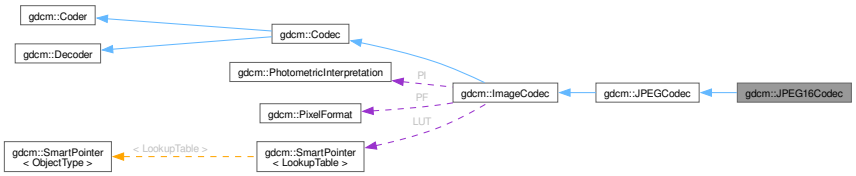
Class to do JPEG 16bits (lossless).

```
#include <gdcmJPEG16Codec.h>
```

Inheritance diagram for gdcm::JPEG16Codec:



Collaboration diagram for gdcm::JPEG16Codec:



Public Member Functions

- JPEG16Codec ()
- ~JPEG16Codec () override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool InternalCode (const char *input, unsigned long len, std::ostream &os) override

Public Member Functions inherited from gdcm::JPEGCodec

- JPEGCodec ()
- ~JPEGCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Compress into JPEG.
- void ComputeOffsetTable (bool b)

  Compute the offset table:
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool GetLossless () const
- double GetQuality () const
- void SetLossless (bool l)
- void SetPixelFormat (PixelFormat const &pf) override
- void SetQuality (double q)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool EncodeBuffer (std::ostream &os, const char *data, size_t datalen) override
- bool IsStateSuspension () const override

Protected Member Functions inherited from gdcm::JPEGCodec

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool IsValid (PhotometricInterpretation const &pi) override
- void SetBitSample (int bit)
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::JPEGCodec

- int BitSample
- int Quality

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.171.1 Detailed Description

Class to do JPEG 16bits (lossless).

Note

internal class

12.171.2 Constructor & Destructor Documentation

12.171.2.1 JPEG16Codec()

```
gdcm::JPEG16Codec::JPEG16Codec ()
```

12.171.2.2 ~JPEG16Codec()

```
gdcm::JPEG16Codec::~JPEG16Codec ()  [override]
```

12.171.3 Member Function Documentation

12.171.3.1 DecodeByStreams()

```
bool gdcm::JPEG16Codec::DecodeByStreams (
            std::istream & is,
            std::ostream & os)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.171.3.2 EncodeBuffer()

```
bool gdcm::JPEG16Codec::EncodeBuffer (
            std::ostream & os,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

12.171.3.3 GetHeaderInfo()

```
bool gdcm::JPEG16Codec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.171.3.4 InternalCode()

```
bool gdcm::JPEG16Codec::InternalCode (
            const char * input,
            unsigned long len,
            std::ostream & os)  [override], [virtual]
```

Reimplemented from gdcm::Coder.

12.171.3.5 IsStateSuspension()

```
bool gdcm::JPEG16Codec::IsStateSuspension () const  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

The documentation for this class was generated from the following file:

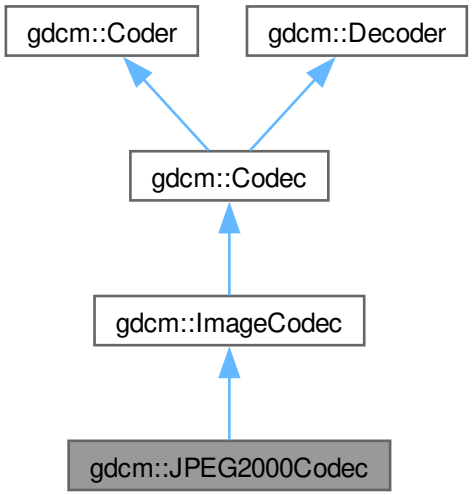
- gdcmJPEG16Codec.h

12.172 gdcm::JPEG2000Codec Class Reference

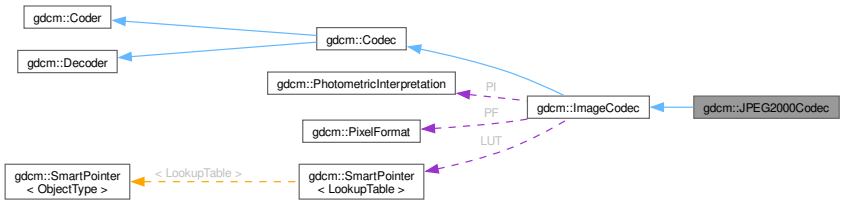
Class to do JPEG 2000.

```
#include <gdcmJPEG2000Codec.h>
```

Inheritance diagram for gdcm::JPEG2000Codec:



Collaboration diagram for gdcm::JPEG2000Codec:



Public Member Functions

- JPEG2000Codec ()
- ~JPEG2000Codec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- double GetQuality (unsigned int idx=0) const
- double GetRate (unsigned int idx=0) const
- void SetMCT (unsigned int mct)
- void SetNumberOfResolutions (unsigned int nres)
- void SetNumberOfThreadsForDecompression (int nThreads)
- void SetQuality (unsigned int idx, double q)
- void SetRate (unsigned int idx, double rate)
- void SetReversible (bool res)
- void SetTileSize (unsigned int tx, unsigned int ty)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsValid (PhotometricInterpretation const &pi)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Friends

- class Bitmap
- class ImageRegionReader

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.172.1 Detailed Description

Class to do JPEG 2000.

Note

the class will produce JPC (JPEG 2000 codestream), since some private implementor are using full jp2 file the decoder tolerate jp2 input this is an implementation of an ImageCodec

12.172.2 Constructor & Destructor Documentation

12.172.2.1 JPEG2000Codec()

```
gdcm::JPEG2000Codec::JPEG2000Codec ()
```

12.172.2.2 ~JPEG2000Codec()

```
gdcm::JPEG2000Codec::~JPEG2000Codec ()  [override]
```

12.172.3 Member Function Documentation

12.172.3.1 AppendFrameEncode()

```
bool gdcm::JPEG2000Codec::AppendFrameEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.172.3.2 AppendRowEncode()

```
bool gdcm::JPEG2000Codec::AppendRowEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.172.3.3 CanCode()

```
bool gdcm::JPEG2000Codec::CanCode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

12.172.3.4 CanDecode()

```
bool gdcm::JPEG2000Codec::CanDecode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.172.3.5 Clone()

```
ImageCodec * gdcm::JPEG2000Codec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.172.3.6 Code()

```
bool gdcm::JPEG2000Codec::Code (
            DataElement const & in_,
            DataElement & out_)  [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

12.172.3.7 Decode()

```
bool gdcm::JPEG2000Codec::Decode (
            DataElement const & ,
            DataElement & )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

12.172.3.8 DecodeByStreams()

```
bool gdcm::JPEG2000Codec::DecodeByStreams (
            std::istream & is,
            std::ostream & os)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.172.3.9 DecodeExtent()

```
bool gdcm::JPEG2000Codec::DecodeExtent (
            char * buffer,
            unsigned int xmin,
            unsigned int xmax,
            unsigned int ymin,
            unsigned int ymax,
            unsigned int zmin,
            unsigned int zmax,
            std::istream & is)  [protected]
```

12.172.3.10 GetHeaderInfo()

```
bool gdcm::JPEG2000Codec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

Referenced by StopEncode().

12.172.3.11 GetQuality()

```
double gdcm::JPEG2000Codec::GetQuality (
            unsigned int idx = 0) const
```

12.172.3.12 GetRate()

```
double gdcm::JPEG2000Codec::GetRate (
            unsigned int idx = 0) const
```

12.172.3.13 IsFrameEncoder()

```
bool gdcm::JPEG2000Codec::IsFrameEncoder ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.172.3.14 IsRowEncoder()

```
bool gdcm::JPEG2000Codec::IsRowEncoder ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.172.3.15 SetMCT()

```
void gdcm::JPEG2000Codec::SetMCT (
            unsigned int mct)
```

12.172.3.16 SetNumberOfResolutions()

```
void gdcm::JPEG2000Codec::SetNumberOfResolutions (
            unsigned int nres)
```

12.172.3.17 SetNumberOfThreadsForDecompression()

```
void gdcm::JPEG2000Codec::SetNumberOfThreadsForDecompression (
            int nThreads)
```

Set Number of threads

Parameters

nThreads	: number of threads for decompression codec, if 0 or 1 decompression is done in current thread, if negative value is set determine how many virtual threads are available

12.172.3.18 SetQuality()

```
void gdcm::JPEG2000Codec::SetQuality (
            unsigned int idx,
            double q)
```

12.172.3.19 SetRate()

```
void gdcm::JPEG2000Codec::SetRate (
            unsigned int idx,
            double rate)
```

12.172.3.20 SetReversible()

```
void gdcm::JPEG2000Codec::SetReversible (
            bool res)
```

12.172.3.21 SetTileSize()

```
void gdcm::JPEG2000Codec::SetTileSize (
            unsigned int tx,
            unsigned int ty)
```

12.172.3.22 StartEncode()

```
bool gdcm::JPEG2000Codec::StartEncode (
            std::ostream & )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.172.3.23 StopEncode()

```
bool gdcm::JPEG2000Codec::StopEncode (
            std::ostream & )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

References GetHeaderInfo().

12.172.4 Friends And Related Symbol Documentation

12.172.4.1 Bitmap

```
friend class Bitmap  [friend]
```

References Bitmap.

Referenced by Bitmap.

12.172.4.2 ImageRegionReader

```
friend class ImageRegionReader  [friend]
```

References ImageRegionReader.

Referenced by ImageRegionReader.

The documentation for this class was generated from the following file:

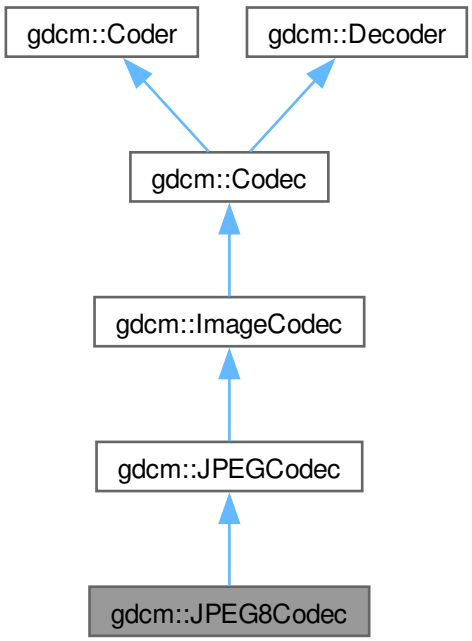
- gdcmJPEG2000Codec.h

12.173 gdcm::JPEG8Codec Class Reference

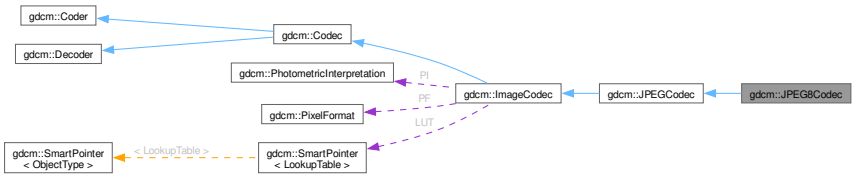
Class to do JPEG 8bits (lossy & lossless).

`#include <gdcmJPEG8Codec.h>`

Inheritance diagram for gdcm::JPEG8Codec:



Collaboration diagram for gdcm::JPEG8Codec:



Public Member Functions

- JPEG8Codec ()
- ~JPEG8Codec () override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool InternalCode (const char *input, unsigned long len, std::ostream &os) override

Public Member Functions inherited from gdcm::JPEGCodec

- JPEGCodec ()
- ~JPEGCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Compress into JPEG.
- void ComputeOffsetTable (bool b)

  Compute the offset table:
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool GetLossless () const
- double GetQuality () const
- void SetLossless (bool l)
- void SetPixelFormat (PixelFormat const &pf) override
- void SetQuality (double q)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool EncodeBuffer (std::ostream &os, const char *data, size_t datalen) override
- bool IsStateSuspension () const override

Protected Member Functions inherited from gdcm::JPEGCodec

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool IsValid (PhotometricInterpretation const &pi) override
- void SetBitSample (int bit)
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::JPEGCodec

- int BitSample
- int Quality

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.173.1 Detailed Description

Class to do JPEG 8bits (lossy & lossless).

Note

internal class

12.173.2 Constructor & Destructor Documentation

12.173.2.1 JPEG8Codec()

```
gdcm::JPEG8Codec::JPEG8Codec ()
```

12.173.2.2 ~JPEG8Codec()

```
gdcm::JPEG8Codec::~JPEG8Codec ()  [override]
```

12.173.3 Member Function Documentation

12.173.3.1 DecodeByStreams()

```
bool gdcm::JPEG8Codec::DecodeByStreams (
            std::istream & is,
            std::ostream & os)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.173.3.2 EncodeBuffer()

```
bool gdcm::JPEG8Codec::EncodeBuffer (
            std::ostream & os,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

12.173.3.3 GetHeaderInfo()

```
bool gdcm::JPEG8Codec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.173.3.4 InternalCode()

```
bool gdcm::JPEG8Codec::InternalCode (
            const char * input,
            unsigned long len,
            std::ostream & os)  [override], [virtual]
```

Reimplemented from gdcm::Coder.

12.173.3.5 IsStateSuspension()

```
bool gdcm::JPEG8Codec::IsStateSuspension () const  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

The documentation for this class was generated from the following file:

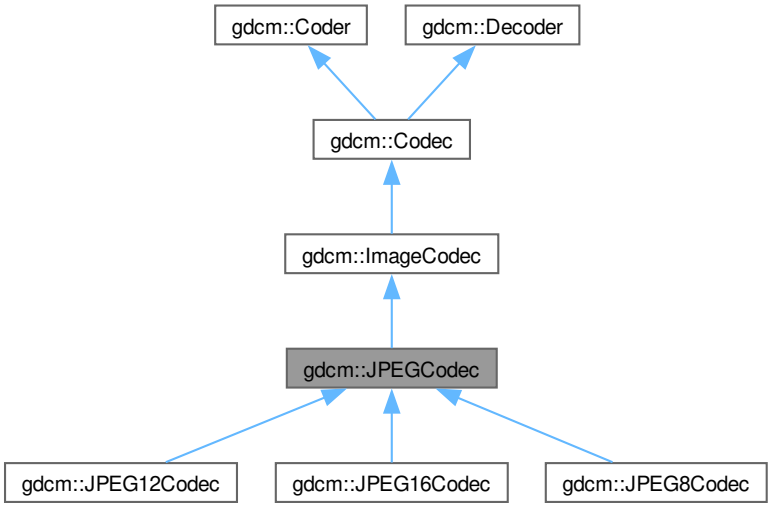
- gdcmJPEG8Codec.h

12.174 gdcm::JPEGCodec Class Reference

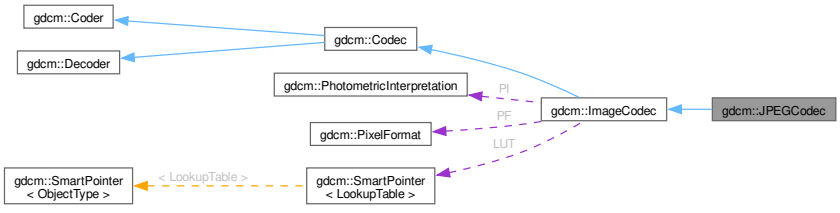
JPEG codec.

```
#include <gdcmJPEGCodec.h>
```

Inheritance diagram for gdcm::JPEGCodec:



Collaboration diagram for gdcm::JPEGCodec:



Public Member Functions

- JPEGCodec ()
- ~JPEGCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Compress into JPEG.
- void ComputeOffsetTable (bool b)

  Compute the offset table:
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- virtual bool EncodeBuffer (std::ostream &out, const char *inbuffer, size_t inlen)
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool GetLossless () const
- double GetQuality () const
- void SetLossless (bool l)
- void SetPixelFormat (PixelFormat const &pf) override
- void SetQuality (double q)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- virtual bool IsStateSuspension () const
- bool IsValid (PhotometricInterpretation const &pi) override
- void SetBitSample (int bit)
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Attributes

- int BitSample
- int Quality

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

Friends

- class ImageRegionReader

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

12.174.1 Detailed Description

JPEG codec.

Class to do JPEG (8bits, 12bits, 16bits lossy & lossless). It redispatch in between the different codec implementation: JPEG8Codec, JPEG12Codec & JPEG16Codec It also support inconsistency in between DICOM header and JPEG compressed stream ImageCodec implementation for the JPEG case

Note

Things you should know if you ever want to dive into DICOM/JPEG world (among other):

- `http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/625e46919f208`
- `http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/75fdfccc65a62`
- `http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/2d525ef6a2f09`
- `http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/6b93af410f8c92`

Examples

CompressLossyJPEG.cs, FileChangeTSLossy.cs, and GetJPEGSamplePrecision.cxx.

12.174.2 Constructor & Destructor Documentation

12.174.2.1 JPEGCodec()

```
gdcm::JPEGCodec::JPEGCodec ()
```

12.174.2.2 ~JPEGCodec()

```
gdcm::JPEGCodec::~JPEGCodec ()  [override]
```

12.174.3 Member Function Documentation

12.174.3.1 AppendFrameEncode()

```
bool gdcm::JPEGCodec::AppendFrameEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.174.3.2 AppendRowEncode()

```
bool gdcm::JPEGCodec::AppendRowEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.174.3.3 CanCode()

```
bool gdcm::JPEGCodec::CanCode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

Examples

CompressLossyJPEG.cs.

12.174.3.4 CanDecode()

```
bool gdcm::JPEGCodec::CanDecode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.174.3.5 Clone()

```
ImageCodec * gdcm::JPEGCodec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.174.3.6 Code()

```
bool gdcm::JPEGCodec::Code (
            DataElement const & in,
            DataElement & out)  [override], [virtual]
```

Compress into JPEG.

Reimplemented from gdcm::Coder.

12.174.3.7 ComputeOffsetTable()

```
void gdcm::JPEGCodec::ComputeOffsetTable (
            bool b)
```

Compute the offset table:

12.174.3.8 Decode()

```
bool gdcm::JPEGCodec::Decode (
            DataElement const & ,
            DataElement & )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

12.174.3.9 DecodeByStreams()

```
bool gdcm::JPEGCodec::DecodeByStreams (
            std::istream & is,
            std::ostream & os)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.174.3.10 DecodeExtent()

```
bool gdcm::JPEGCodec::DecodeExtent (
            char * buffer,
            unsigned int xmin,
            unsigned int xmax,
            unsigned int ymin,
            unsigned int ymax,
            unsigned int zmin,
            unsigned int zmax,
            std::istream & is)  [protected]
```

12.174.3.11 EncodeBuffer()

```
virtual bool gdcm::JPEGCodec::EncodeBuffer (
            std::ostream & out,
            const char * inbuffer,
            size_t inlen)  [virtual]
```

Reimplemented in gdcm::JPEG12Codec, gdcm::JPEG16Codec, and gdcm::JPEG8Codec.

12.174.3.12 GetHeaderInfo()

```
bool gdcm::JPEGCodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

Examples

GetJPEGSamplePrecision.cxx.

12.174.3.13 GetLossless()

```
bool gdcm::JPEGCodec::GetLossless () const
```

12.174.3.14 GetQuality()

```
double gdcm::JPEGCodec::GetQuality () const
```

12.174.3.15 IsFrameEncoder()

```
bool gdcm::JPEGCodec::IsFrameEncoder ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.174.3.16 IsRowEncoder()

```
bool gdcm::JPEGCodec::IsRowEncoder ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.174.3.17 IsStateSuspension()

```
virtual bool gdcm::JPEGCodec::IsStateSuspension () const  [protected], [virtual]
```

Reimplemented in gdcm::JPEG12Codec, gdcm::JPEG16Codec, and gdcm::JPEG8Codec.

12.174.3.18 IsValid()

```
bool gdcm::JPEGCodec::IsValid (
            PhotometricInterpretation const & pi)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.174.3.19 SetBitSample()

```
void gdcm::JPEGCodec::SetBitSample (
            int bit)  [protected]
```

12.174.3.20 SetLossless()

```
void gdcm::JPEGCodec::SetLossless (
            bool l)
```

Examples

CompressLossyJPEG.cs, and FileChangeTSLossy.cs.

12.174.3.21 SetPixelFormat()

```
void gdcm::JPEGCodec::SetPixelFormat (
            PixelFormat const & pf)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

Examples

GetJPEGSamplePrecision.cxx.

12.174.3.22 SetQuality()

```
void gdcm::JPEGCodec::SetQuality (
            double q)
```

Examples

CompressLossyJPEG.cs, and FileChangeTSLossy.cs.

12.174.3.23 StartEncode()

```
bool gdcm::JPEGCodec::StartEncode (
            std::ostream & )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.174.3.24 StopEncode()

```
bool gdcm::JPEGCodec::StopEncode (
            std::ostream & )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.174.4 Friends And Related Symbol Documentation

12.174.4.1 ImageRegionReader

```
friend class ImageRegionReader  [friend]
```

References ImageRegionReader.

Referenced by ImageRegionReader.

12.174.5 Member Data Documentation

12.174.5.1 BitSample

```
int gdcm::JPEGCodec::BitSample  [protected]
```

12.174.5.2 Quality

```
int gdcm::JPEGCodec::Quality  [protected]
```

The documentation for this class was generated from the following file:

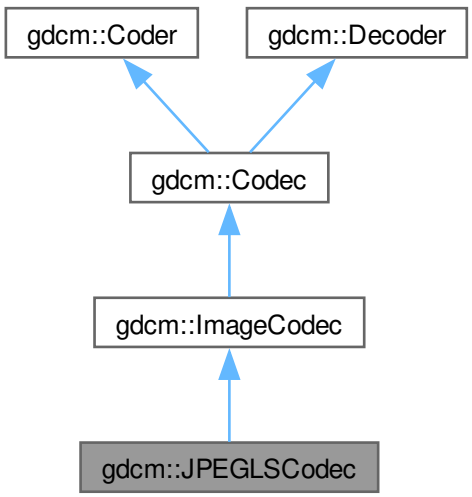
- gdcmJPEGCodec.h

12.175 gdcm::JPEGLSCodec Class Reference

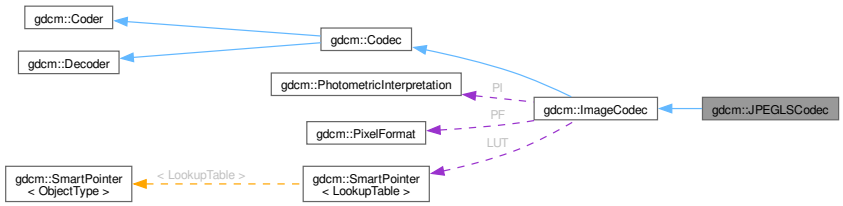
JPEG-LS.

```
#include <gdcmJPEGLSCodec.h>
```

Inheritance diagram for gdcm::JPEGLSCodec:



Collaboration diagram for gdcm::JPEGLSCodec:



Public Member Functions

- JPEGLSCodec ()
- ~JPEGLSCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &in, char *outBuffer, size_t inBufferLength, uint32_t inXMin, uint32_t inXMax, uint32_t inYMin, uint32_t inYMax, uint32_t inZMin, uint32_t inZMax)
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- unsigned long GetBufferLength () const
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool GetLossless () const
- void SetBufferLength (unsigned long l)
- void SetLossless (bool l)
- void SetLossyError (int error)

  [0-3] generally

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const

- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsValid (PhotometricInterpretation const &pi)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Friends

- class ImageRegionReader

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.175.1 Detailed Description

JPEG-LS.

Note

codec that implement the JPEG-LS compression this is an implementation of ImageCodec for JPEG-LS

It uses the CharLS JPEG-LS implementation `https://github.com/team-charls/charls`

12.175.2 Constructor & Destructor Documentation

12.175.2.1 JPEGLSCodec()

```
gdcm::JPEGLSCodec::JPEGLSCodec ()
```

12.175.2.2 ~JPEGLSCodec()

```
gdcm::JPEGLSCodec::~JPEGLSCodec ()  [override]
```

12.175.3 Member Function Documentation

12.175.3.1 AppendFrameEncode()

```
bool gdcm::JPEGLSCodec::AppendFrameEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.175.3.2 AppendRowEncode()

```
bool gdcm::JPEGLSCodec::AppendRowEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.175.3.3 CanCode()

```
bool gdcm::JPEGLSCodec::CanCode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

12.175.3.4 CanDecode()

```
bool gdcm::JPEGLSCodec::CanDecode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.175.3.5 Clone()

```
ImageCodec * gdcm::JPEGLSCodec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.175.3.6 Code()

```
bool gdcm::JPEGLSCodec::Code (
            DataElement const & in_,
            DataElement & out_)  [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

12.175.3.7 Decode() [1/2]

```
bool gdcm::JPEGLSCodec::Decode (
            DataElement const & in,
            char * outBuffer,
            size_t inBufferLength,
            uint32_t inXMin,
            uint32_t inXMax,
            uint32_t inYMin,
            uint32_t inYMax,
            uint32_t inZMin,
            uint32_t inZMax)
```

12.175.3.8 Decode() [2/2]

```
bool gdcm::JPEGLSCodec::Decode (
            DataElement const & ,
            DataElement & )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

12.175.3.9 DecodeExtent()

```
bool gdcm::JPEGLSCodec::DecodeExtent (
            char * buffer,
            unsigned int xmin,
            unsigned int xmax,
            unsigned int ymin,
            unsigned int ymax,
            unsigned int zmin,
            unsigned int zmax,
            std::istream & is)  [protected]
```

12.175.3.10 GetBufferLength()

```
unsigned long gdcm::JPEGLSCodec::GetBufferLength () const  [inline]
```

12.175.3.11 GetHeaderInfo()

```
bool gdcm::JPEGLSCodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.175.3.12 GetLossless()

```
bool gdcm::JPEGLSCodec::GetLossless () const
```

12.175.3.13 IsFrameEncoder()

```
bool gdcm::JPEGLSCodec::IsFrameEncoder ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.175.3.14 IsRowEncoder()

```
bool gdcm::JPEGLSCodec::IsRowEncoder ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.175.3.15 SetBufferLength()

```
void gdcm::JPEGLSCodec::SetBufferLength (
            unsigned long l)  [inline]
```

12.175.3.16 SetLossless()

```
void gdcm::JPEGLSCodec::SetLossless (
            bool l)
```

12.175.3.17 SetLossyError()

```
void gdcm::JPEGLSCodec::SetLossyError (
            int error)
```

[0-3] generally

12.175.3.18 StartEncode()

```
bool gdcm::JPEGLSCodec::StartEncode (
            std::ostream & )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.175.3.19 StopEncode()

```
bool gdcm::JPEGLSCodec::StopEncode (
            std::ostream & )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.175.4 Friends And Related Symbol Documentation

12.175.4.1 ImageRegionReader

```
friend class ImageRegionReader  [friend]
```

References ImageRegionReader.

Referenced by ImageRegionReader.

The documentation for this class was generated from the following file:

- gdcmJPEGLSCodec.h

12.176 gdcm::JSON Class Reference

```
#include <gdcmJSON.h>
```

Public Member Functions

- JSON ()
- ~JSON ()
- bool Code (DataSet const &in, std::ostream &os)
- bool Decode (std::istream &is, DataSet &out)
- bool GetPrettyPrint () const
- void PrettyPrintOff ()
- void PrettyPrintOn ()
- void SetPrettyPrint (bool onoff)

12.176.1 Detailed Description

Examples

QIDO-RS.cxx.

12.176.2 Constructor & Destructor Documentation

12.176.2.1 JSON()

```
gdcm::JSON::JSON ()
```

12.176.2.2 ~JSON()

```
gdcm::JSON::~JSON ()
```

12.176.3 Member Function Documentation

12.176.3.1 Code()

```
bool gdcm::JSON::Code (
            DataSet const & in,
            std::ostream & os)
```

Examples

QIDO-RS.cxx.

12.176.3.2 Decode()

```
bool gdcm::JSON::Decode (
            std::istream & is,
            DataSet & out)
```

Examples

QIDO-RS.cxx.

12.176.3.3 GetPrettyPrint()

```
bool gdcm::JSON::GetPrettyPrint () const
```

12.176.3.4 PrettyPrintOff()

```
void gdcm::JSON::PrettyPrintOff ()
```

12.176.3.5 PrettyPrintOn()

```
void gdcm::JSON::PrettyPrintOn ()
```

Examples

QIDO-RS.cxx.

12.176.3.6 SetPrettyPrint()

```
void gdcm::JSON::SetPrettyPrint (
            bool onoff)
```

The documentation for this class was generated from the following file:

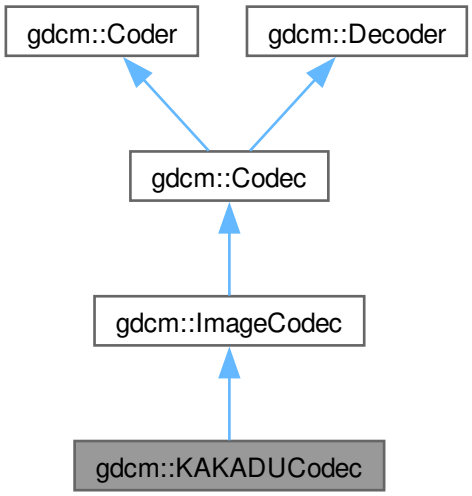
- gdcmJSON.h

12.177 gdcm::KAKADUCodec Class Reference

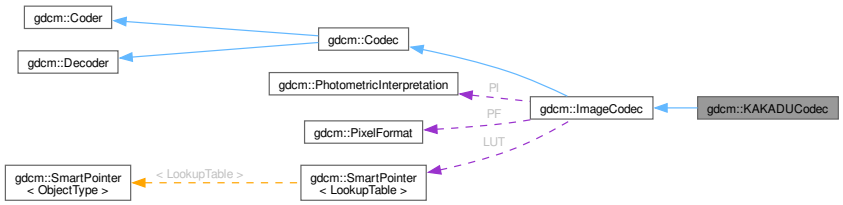
KAKADUCodec.

`#include <gdcmKAKADUCodec.h>`

Inheritance diagram for gdcm::KAKADUCodec:



Collaboration diagram for gdcm::KAKADUCodec:



Public Member Functions

- KAKADUCodec ()
- ~KAKADUCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- virtual bool GetHeaderInfo (std::istream &is_, TransferSyntax &ts)
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.177.1 Detailed Description

KAKADUCodec.

12.177.2 Constructor & Destructor Documentation

12.177.2.1 KAKADUCodec()

```
gdcm::KAKADUCodec::KAKADUCodec ()
```

12.177.2.2 ~KAKADUCodec()

```
gdcm::KAKADUCodec::~KAKADUCodec ()  [override]
```

12.177.3 Member Function Documentation

12.177.3.1 CanCode()

```
bool gdcm::KAKADUCodec::CanCode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

12.177.3.2 CanDecode()

```
bool gdcm::KAKADUCodec::CanDecode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.177.3.3 Clone()

```
ImageCodec * gdcm::KAKADUCodec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.177.3.4 Code()

```
bool gdcm::KAKADUCodec::Code (
            DataElement const & in_,
            DataElement & out_)  [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

12.177.3.5 Decode()

```
bool gdcm::KAKADUCodec::Decode (
            DataElement const & ,
            DataElement & )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

The documentation for this class was generated from the following file:

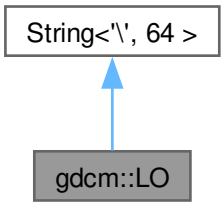
- gdcmKAKADUCodec.h

12.178 gdcm::LO Class Reference

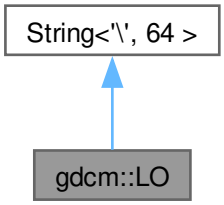
LO.

```
#include <gdcmLO.h>
```

Inheritance diagram for gdcm::LO:



Collaboration diagram for gdcm::LO:



Public Types

- typedef Superclass::const_iterator const_iterator
- typedef Superclass::const_reference const_reference
- typedef Superclass::const_reverse_iterator const_reverse_iterator
- typedef Superclass::difference_type difference_type
- typedef Superclass::iterator iterator
- typedef Superclass::pointer pointer
- typedef Superclass::reference reference
- typedef Superclass::reverse_iterator reverse_iterator
- typedef Superclass::size_type size_type
- typedef String<'\\', 64 > Superclass
- typedef Superclass::value_type value_type

Public Member Functions

- LO ()
- LO (const Superclass &s, size_type pos=0, size_type n=npos)
- LO (const value_type *s)
- LO (const value_type *s, size_type n)
- bool IsValid () const

12.178.1 Detailed Description

LO.

Note

TODO

12.178.2 Member Typedef Documentation

12.178.2.1 const_iterator

```
typedef Superclass::const_iterator gdcm::LO::const_iterator
```

12.178.2.2 const_reference

```
typedef Superclass::const_reference gdcm::LO::const_reference
```

12.178.2.3 const_reverse_iterator

```
typedef Superclass::const_reverse_iterator gdcm::LO::const_reverse_iterator
```

12.178.2.4 difference_type

```
typedef Superclass::difference_type gdcm::LO::difference_type
```

12.178.2.5 iterator

```
typedef Superclass::iterator gdcm::LO::iterator
```

12.178.2.6 pointer

```
typedef Superclass::pointer gdcm::LO::pointer
```

12.178.2.7 reference

```
typedef Superclass::reference gdcm::LO::reference
```

12.178.2.8 reverse_iterator

```
typedef Superclass::reverse_iterator gdcm::LO::reverse_iterator
```

12.178.2.9 size_type

```
typedef Superclass::size_type gdcm::LO::size_type
```

12.178.2.10 Superclass

```
typedef String<'\\',64> gdcm::LO::Superclass
```

12.178.2.11 value_type

```
typedef Superclass::value_type gdcm::LO::value_type
```

12.178.3 Constructor & Destructor Documentation

12.178.3.1 LO() [1/4]

```
gdcm::LO::LO ()  [inline]
```

12.178.3.2 LO() [2/4]

```
gdcm::LO::LO (
            const value_type * s)  [inline]
```

12.178.3.3 LO() [3/4]

```
gdcm::LO::LO (
            const value_type * s,
            size_type n)  [inline]
```

12.178.3.4 LO() [4/4]

```
gdcm::LO::LO (
            const Superclass & s,
            size_type pos = 0,
            size_type n = npos)  [inline]
```

12.178.4 Member Function Documentation

12.178.4.1 IsValid()

```
bool gdcm::LO::IsValid () const  [inline]
```

References gdcm::String<'\\', 64 >::IsValid().

The documentation for this class was generated from the following file:

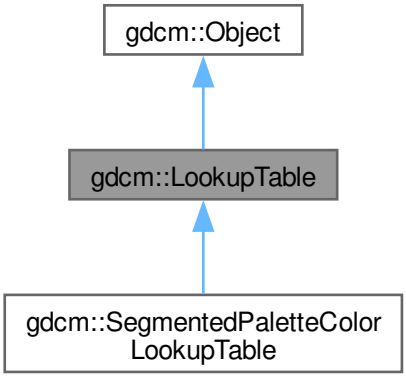
- gdcmLO.h

12.179 gdcm::LookupTable Class Reference

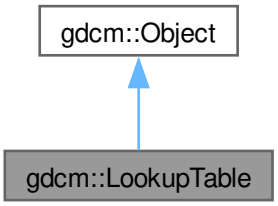
LookupTable class.

`#include <gdcmLookupTable.h>`

Inheritance diagram for gdcm::LookupTable:



Collaboration diagram for gdcm::LookupTable:



Public Types

- enum LookupTableType {
  RED = 0 ,
  GREEN ,
  BLUE ,
  GRAY ,
  UNKNOWN }

Public Member Functions

- LookupTable ()
- LookupTable (LookupTable const &lut)
- ~LookupTable () override
- void Allocate (unsigned short bitsample=8)

  Allocate the LUT.
- void Clear ()

  Clear the LUT.
- bool Decode (char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const
- void Decode (std::istream &is, std::ostream &os) const

  Decode the LUT.
- bool Decode8 (char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const

  Decode into RGB 8 bits space.
- unsigned short GetBitSample () const

  return the bit sample
- bool GetBufferAsRGBA (unsigned char *rgba) const

  return the LUT as RGBA buffer
- void GetLUT (LookupTableType type, unsigned char *array, unsigned int &length) const
- void GetLUTDescriptor (LookupTableType type, unsigned short &length, unsigned short &subscript, unsigned short &bitsize) const
- unsigned int GetLUTLength (LookupTableType type) const
- const unsigned char * GetPointer () const

  return a raw pointer to the LUT
- void InitializeBlueLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)
- bool Initialized () const

  return whether the LUT has been initialized
- void InitializeGreenLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)
- void InitializeLUT (LookupTableType type, unsigned short length, unsigned short subscript, unsigned short bitsize)

  Generic interface:
- void InitializeRedLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)

  RED / GREEN / BLUE specific:
- bool IsRGB8 () const

  Return whether 16 bits LUT is in RGB 8 bits space.
- void Print (std::ostream &) const override
- void SetBlueLUT (const unsigned char *blue, unsigned int length)
- void SetGreenLUT (const unsigned char *green, unsigned int length)
- virtual void SetLUT (LookupTableType type, const unsigned char *array, unsigned int length)
- void SetRedLUT (const unsigned char *red, unsigned int length)
- bool WriteBufferAsRGBA (const unsigned char *rgba)

  Write the LUT as RGBA.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Attributes

- unsigned short BitSample
- bool IncompleteLUT:1
- LookupTableInternal * Internal

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.179.1 Detailed Description

LookupTable class.

Examples

ExtractImageRegionWithLUT.cs, and PrintLUT.cxx.

12.179.2 Member Enumeration Documentation

12.179.2.1 LookupTableType

```
enum gdcm::LookupTable::LookupTableType
```

Enumerator

RED	
GREEN	
BLUE	
GRAY	
UNKNOWN	

12.179.3 Constructor & Destructor Documentation

12.179.3.1 LookupTable() [1/2]

```
gdcm::LookupTable::LookupTable ()
```

Referenced by LookupTable().

12.179.3.2 ~LookupTable()

```
gdcm::LookupTable::~LookupTable ()  [override]
```

12.179.3.3 LookupTable() [2/2]

```
gdcm::LookupTable::LookupTable (
            LookupTable const & lut)  [inline]
```

References LookupTable(), and gdcm::Object::Object().

12.179.4 Member Function Documentation

12.179.4.1 Allocate()

```
void gdcm::LookupTable::Allocate (
            unsigned short bitsample = 8)
```

Allocate the LUT.

12.179.4.2 Clear()

```
void gdcm::LookupTable::Clear ()
```

Clear the LUT.

12.179.4.3 Decode() [1/2]

```
bool gdcm::LookupTable::Decode (
            char * outputbuffer,
            size_t outlen,
            const char * inputbuffer,
            size_t inlen) const
```

Decode the LUT outputbuffer will contains the RGB decoded PALETTE COLOR input image of size inlen the outputbuffer should be at least 3 times the size of inlen

12.179.4.4 Decode() [2/2]

```
void gdcm::LookupTable::Decode (
            std::istream & is,
            std::ostream & os) const
```

Decode the LUT.

Examples

ExtractImageRegionWithLUT.cs.

12.179.4.5 Decode8()

```
bool gdcm::LookupTable::Decode8 (
            char * outputbuffer,
            size_t outlen,
            const char * inputbuffer,
            size_t inlen) const
```

Decode into RGB 8 bits space.

12.179.4.6 GetBitSample()

```
unsigned short gdcm::LookupTable::GetBitSample () const  [inline]
```

return the bit sample

References BitSample.

12.179.4.7 GetBufferAsRGBA()

```
bool gdcm::LookupTable::GetBufferAsRGBA (
            unsigned char * rgba) const
```

return the LUT as RGBA buffer

12.179.4.8 GetLUT()

```
void gdcm::LookupTable::GetLUT (
            LookupTableType type,
            unsigned char * array,
            unsigned int & length) const
```

12.179.4.9 GetLUTDescriptor()

```
void gdcm::LookupTable::GetLUTDescriptor (
            LookupTableType type,
            unsigned short & length,
            unsigned short & subscript,
            unsigned short & bitsize) const
```

12.179.4.10 GetLUTLength()

```
unsigned int gdcm::LookupTable::GetLUTLength (
            LookupTableType type) const
```

12.179.4.11 GetPointer()

```
const unsigned char * gdcm::LookupTable::GetPointer () const
```

return a raw pointer to the LUT

12.179.4.12 InitializeBlueLUT()

```
void gdcm::LookupTable::InitializeBlueLUT (
            unsigned short length,
            unsigned short subscript,
            unsigned short bitsize)
```

12.179.4.13 Initialized()

```
bool gdcm::LookupTable::Initialized () const
```

return whether the LUT has been initialized

12.179.4.14 InitializeGreenLUT()

```
void gdcm::LookupTable::InitializeGreenLUT (
            unsigned short length,
            unsigned short subscript,
            unsigned short bitsize)
```

12.179.4.15 InitializeLUT()

```
void gdcm::LookupTable::InitializeLUT (
            LookupTableType type,
            unsigned short length,
            unsigned short subscript,
            unsigned short bitsize)
```

Generic interface:

12.179.4.16 InitializeRedLUT()

```
void gdcm::LookupTable::InitializeRedLUT (
            unsigned short length,
            unsigned short subscript,
            unsigned short bitsize)
```

RED / GREEN / BLUE specific:

12.179.4.17 IsRGB8()

```
bool gdcm::LookupTable::IsRGB8 () const
```

Return whether 16 bits LUT is in RGB 8 bits space.

12.179.4.18 Print()

```
void gdcm::LookupTable::Print (
            std::ostream & ) const  [override], [virtual]
```

Reimplemented from gdcm::Object.

Reimplemented in gdcm::SegmentedPaletteColorLookupTable.

Examples

PrintLUT.cxx.

12.179.4.19 SetBlueLUT()

```
void gdcm::LookupTable::SetBlueLUT (
            const unsigned char * blue,
            unsigned int length)
```

12.179.4.20 SetGreenLUT()

```
void gdcm::LookupTable::SetGreenLUT (
            const unsigned char * green,
            unsigned int length)
```

12.179.4.21 SetLUT()

```
virtual void gdcm::LookupTable::SetLUT (
            LookupTableType type,
            const unsigned char * array,
            unsigned int length)  [virtual]
```

Reimplemented in gdcm::SegmentedPaletteColorLookupTable.

12.179.4.22 SetRedLUT()

```
void gdcm::LookupTable::SetRedLUT (
            const unsigned char * red,
            unsigned int length)
```

12.179.4.23 WriteBufferAsRGBA()

```
bool gdcm::LookupTable::WriteBufferAsRGBA (
            const unsigned char * rgba)
```

Write the LUT as RGBA.

12.179.5 Member Data Documentation

12.179.5.1 BitSample

```
unsigned short gdcm::LookupTable::BitSample  [protected]
```

Referenced by GetBitSample().

12.179.5.2 IncompleteLUT

```
bool gdcm::LookupTable::IncompleteLUT  [protected]
```

12.179.5.3 Internal

```
LookupTableInternal* gdcm::LookupTable::Internal  [protected]
```

The documentation for this class was generated from the following file:

- gdcmLookupTable.h

12.180 gdcm::Scanner2::Itstr Struct Reference

```
#include <gdcmScanner2.h>
```

Public Member Functions

- bool operator() (const char *s1, const char *s2) const

12.180.1 Member Function Documentation

12.180.1.1 operator()()

```
bool gdcm::Scanner2::ltstr::operator() (
            const char * s1,
            const char * s2) const  [inline]
```

The documentation for this struct was generated from the following file:

- gdcmScanner2.h

12.181 gdcm::Scanner::ltstr Struct Reference

```
#include <gdcmScanner.h>
```

Public Member Functions

- bool operator() (const char *s1, const char *s2) const

12.181.1 Member Function Documentation

12.181.1.1 operator()()

```
bool gdcm::Scanner::ltstr::operator() (
            const char * s1,
            const char * s2) const  [inline]
```

The documentation for this struct was generated from the following file:

- gdcmScanner.h

12.182 gdcm::StrictScanner2::ltstr Struct Reference

```
#include <gdcmStrictScanner2.h>
```

Public Member Functions

- bool operator() (const char *s1, const char *s2) const

12.182.1 Member Function Documentation

12.182.1.1 operator()()

```
bool gdcm::StrictScanner2::ltstr::operator() (
            const char * s1,
            const char * s2) const  [inline]
```

The documentation for this struct was generated from the following file:

- gdcmStrictScanner2.h

12.183 gdcm::StrictScanner::ltstr Struct Reference

```
#include <gdcmStrictScanner.h>
```

Public Member Functions

- bool operator() (const char *s1, const char *s2) const

12.183.1 Member Function Documentation

12.183.1.1 operator()()

```
bool gdcm::StrictScanner::ltstr::operator() (
            const char * s1,
            const char * s2) const  [inline]
```

The documentation for this struct was generated from the following file:

- gdcmStrictScanner.h

12.184 gdcm::Macro Class Reference

Class for representing a Macro.

```
#include <gdcmMacro.h>
```

Public Types

- typedef std::vector< std::string > ArrayIncludeMacrosType
- typedef std::map< Tag, MacroEntry > MapModuleEntry

Public Member Functions

- Macro ()=default
- void AddMacroEntry (const Tag &tag, const MacroEntry &module)

  Will add a ModuleEntry directly at root-level. See Macro for nested-included level.
- void Clear ()
- bool FindMacroEntry (const Tag &tag) const
- const MacroEntry & GetMacroEntry (const Tag &tag) const
- const char * GetName () const
- void SetName (const char *name)
- bool Verify (const DataSet &ds, Usage const &usage) const

Friends

- std::ostream & operator<< (std::ostream &_os, const Macro &_val)

12.184.1 Detailed Description

Class for representing a Macro.

Note

Attribute Macro: a set of Attributes that are described in a single table that is referenced by multiple Module or other tables.

See also

Module

12.184.2 Member Typedef Documentation

12.184.2.1 ArrayIncludeMacrosType

```
typedef std::vector<std::string> gdcm::Macro::ArrayIncludeMacrosType
```

12.184.2.2 MapModuleEntry

```
typedef std::map<Tag, MacroEntry> gdcm::Macro::MapModuleEntry
```

12.184.3 Constructor & Destructor Documentation

12.184.3.1 Macro()

```
gdcm::Macro::Macro ()  [default]
```

References Macro(), and operator<<.

Referenced by Macro(), and operator<<.

12.184.4 Member Function Documentation

12.184.4.1 AddMacroEntry()

```
void gdcm::Macro::AddMacroEntry (
            const Tag & tag,
            const MacroEntry & module)  [inline]
```

Will add a ModuleEntry directly at root-level. See Macro for nested-included level.

12.184.4.2 Clear()

```
void gdcm::Macro::Clear ()  [inline]
```

12.184.4.3 FindMacroEntry()

```
bool gdcm::Macro::FindMacroEntry (
            const Tag & tag) const
```

Find or Get a ModuleEntry. ModuleEntry are either search are root-level or within nested-macro included in module.

12.184.4.4 GetMacroEntry()

```
const MacroEntry & gdcm::Macro::GetMacroEntry (
            const Tag & tag) const
```

12.184.4.5 GetName()

```
const char * gdcm::Macro::GetName () const  [inline]
```

12.184.4.6 SetName()

```
void gdcm::Macro::SetName (
            const char * name)  [inline]
```

12.184.4.7 Verify()

```
bool gdcm::Macro::Verify (
            const DataSet & ds,
            Usage const & usage) const
```

12.184.5 Friends And Related Symbol Documentation

12.184.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Macro & _val)  [friend]
```

References Macro().

Referenced by Macro().

The documentation for this class was generated from the following file:

- gdcmMacro.h

12.185 gdcm::Macros Class Reference

Class for representing a Modules.

```
#include <gdcmMacros.h>
```

Public Types

- typedef std::map< std::string, Macro > ModuleMapType

Public Member Functions

- Macros ()=default
- void AddMacro (const char *ref, const Macro &module)
- void Clear ()
- const Macro & GetMacro (const char *name) const
- bool IsEmpty () const

Friends

- std::ostream & operator<< (std::ostream &_os, const Macros &_val)

12.185.1 Detailed Description

Class for representing a Modules.

Note

bla

See also

Module

Examples

TraverseModules.cxx.

12.185.2 Member Typedef Documentation

12.185.2.1 ModuleMapType

```
typedef std::map<std::string, Macro> gdcm::Macros::ModuleMapType
```

12.185.3 Constructor & Destructor Documentation

12.185.3.1 Macros()

```
gdcm::Macros::Macros ()  [default]
```

References Macros(), and operator<<.

Referenced by Macros(), and operator<<.

12.185.4 Member Function Documentation

12.185.4.1 AddMacro()

```
void gdcm::Macros::AddMacro (
            const char * ref,
            const Macro & module)  [inline]
```

12.185.4.2 Clear()

```
void gdcm::Macros::Clear ()  [inline]
```

12.185.4.3 GetMacro()

```
const Macro & gdcm::Macros::GetMacro (
            const char * name) const  [inline]
```

12.185.4.4 IsEmpty()

```
bool gdcm::Macros::IsEmpty () const  [inline]
```

12.185.5 Friends And Related Symbol Documentation

12.185.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Macros & _val)  [friend]
```

References Macros().

Referenced by Macros().

The documentation for this class was generated from the following file:

- gdcmMacros.h

12.186 gdcm::network::MaximumLengthSub Class Reference

MaximumLengthSub.

```
#include <gdcmMaximumLengthSub.h>
```

Public Member Functions

- MaximumLengthSub ()
- uint32_t GetMaximumLength () const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetMaximumLength (uint32_t maximumlength)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.186.1 Detailed Description

MaximumLengthSub.

Annex D Table D.1-1 MAXIMUM LENGTH SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

or

Table D.1-2 Maximum length sub-item fields (A-ASSOCIATE-AC)

12.186.2 Constructor & Destructor Documentation

12.186.2.1 MaximumLengthSub()

```
gdcm::network::MaximumLengthSub::MaximumLengthSub ()
```

12.186.3 Member Function Documentation

12.186.3.1 GetMaximumLength()

```
uint32_t gdcm::network::MaximumLengthSub::GetMaximumLength () const  [inline]
```

12.186.3.2 Print()

```
void gdcm::network::MaximumLengthSub::Print (
            std::ostream & os) const
```

12.186.3.3 Read()

```
std::istream & gdcm::network::MaximumLengthSub::Read (
            std::istream & is)
```

12.186.3.4 SetMaximumLength()

```
void gdcm::network::MaximumLengthSub::SetMaximumLength (
            uint32_t maximumlength)
```

12.186.3.5 Size()

```
size_t gdcm::network::MaximumLengthSub::Size () const
```

12.186.3.6 Write()

```
const std::ostream & gdcm::network::MaximumLengthSub::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

- gdcmMaximumLengthSub.h

12.187 gdcm::MD5 Class Reference

Class for MD5.

```
#include <gdcmMD5.h>
```

Static Public Member Functions

- static bool Compute (const char *buffer, size_t buf_len, char digest_str[33])
- static bool ComputeFile (const char *filename, char digest_str[33])

  Compute md5 from a file `filename`.

12.187.1 Detailed Description

Class for MD5.

Warning

this class is able to pick from two implementations:

1. a lightweight md5 implementation (when GDCM_BUILD_TESTING is turned ON)
2. the one from OpenSSL (when GDCM_USE_SYSTEM_OPENSSL is turned ON)

In all other cases it will return an error

12.187.2 Member Function Documentation

12.187.2.1 Compute()

```
bool gdcm::MD5::Compute (
            const char * buffer,
            size_t buf_len,
            char digest_str[33])  [static]
```

12.187.2.2 ComputeFile()

```
bool gdcm::MD5::ComputeFile (
            const char * filename,
            char digest_str[33])  [static]
```

Compute md5 from a file `filename`.

The documentation for this class was generated from the following file:

- gdcmMD5.h

12.188 gdcm::MEC_MR3 Class Reference

Class for MEC_MR3.

`#include <gdcmMEC_MR3.h>`

Static Public Member Functions

- static const PrivateTag & GetCanonMECMR3Tag ()
- static const PrivateTag & GetPMTFInformationDataTag ()
- static const PrivateTag & GetToshibaMECMR3Tag ()
- static bool Print (const char *src, size_t srclen)

12.188.1 Detailed Description

Class for MEC_MR3.

12.188.2 Member Function Documentation

12.188.2.1 GetCanonMECMR3Tag()

```
const PrivateTag & gdcm::MEC_MR3::GetCanonMECMR3Tag ()  [static]
```

Return the private tag used by CANON to store the MEC_MR3 data This is: PrivateTag(0x0029,0x90,"CANON_MEC↩
_MR3");

12.188.2.2 GetPMTFInformationDataTag()

```
const PrivateTag & gdcm::MEC_MR3::GetPMTFInformationDataTag ()  [static]
```

Return the private tag used by PMTF to store the MEC_MR3 data This is: PrivateTag(0x0029,0x90,"PMTF INFORMATION DATA");

12.188.2.3 GetToshibaMECMR3Tag()

```
const PrivateTag & gdcm::MEC_MR3::GetToshibaMECMR3Tag ()  [static]
```

Return the private tag used by TOSHIBA to store the MEC_MR3 data This is: PrivateTag(0x0029,0x90,"TOSHIBA_↩ MEC_MR3");

12.188.2.4 Print()

```
bool gdcm::MEC_MR3::Print (
            const char * src,
            size_t srclen)  [static]
```

The documentation for this class was generated from the following file:

- gdcmMEC_MR3.h

12.189 gdcm::MediaStorage Class Reference

MediaStorage.

```
#include <gdcmMediaStorage.h>
```

Public Types

- enum MSType {
  MediaStorageDirectoryStorage = 0 ,
  ComputedRadiographyImageStorage ,
  DigitalXRayImageStorageForPresentation ,
  DigitalXRayImageStorageForProcessing ,
  DigitalMammographyImageStorageForPresentation ,
  DigitalMammographyImageStorageForProcessing ,
  DigitalIntraoralXrayImageStorageForPresentation ,
  DigitalIntraoralXRayImageStorageForProcessing ,
  CTImageStorage ,
  EnhancedCTImageStorage ,
  UltrasoundImageStorageRetired ,
  UltrasoundImageStorage ,
  UltrasoundMultiFrameImageStorageRetired ,
  UltrasoundMultiFrameImageStorage ,
  MRImageStorage ,
  EnhancedMRImageStorage ,
  MRSpectroscopyStorage ,
  NuclearMedicineImageStorageRetired ,
  SecondaryCaptureImageStorage ,
  MultiframeSingleBitSecondaryCaptureImageStorage ,
  MultiframeGrayscaleByteSecondaryCaptureImageStorage ,
  MultiframeGrayscaleWordSecondaryCaptureImageStorage ,

MultiframeTrueColorSecondaryCaptureImageStorage ,
StandaloneOverlayStorage ,
StandaloneCurveStorage ,
LeadECGWaveformStorage ,
GeneralECGWaveformStorage ,
AmbulatoryECGWaveformStorage ,
HemodynamicWaveformStorage ,
CardiacElectrophysiologyWaveformStorage ,
BasicVoiceAudioWaveformStorage ,
StandaloneModalityLUTStorage ,
StandaloneVOILUTStorage ,
GrayscaleSoftcopyPresentationStateStorageSOPClass ,
XRayAngiographicImageStorage ,
XRayRadiofluoroscopingImageStorage ,
XRayAngiographicBiPlaneImageStorageRetired ,
NuclearMedicineImageStorage ,
RawDataStorage ,
SpacialRegistrationStorage ,
SpacialFiducialsStorage ,
PETImageStorage ,
RTImageStorage ,
RTDoseStorage ,
RTStructureSetStorage ,
RTPlanStorage ,
CSANonImageStorage ,
Philips3D ,
EnhancedSR ,
BasicTextSR ,
HardcopyGrayscaleImageStorage ,
ComprehensiveSR ,
DetachedStudyManagementSOPClass ,
EncapsulatedPDFStorage ,
EncapsulatedCDAStorage ,
StudyComponentManagementSOPClass ,
DetachedVisitManagementSOPClass ,
DetachedPatientManagementSOPClass ,
VideoEndoscopicImageStorage ,
GeneralElectricMagneticResonanceImageStorage ,
GEPrivate3DModelStorage ,
ToshibaPrivateDataStorage ,
MammographyCADSR ,
KeyObjectSelectionDocument ,
HangingProtocolStorage ,
ModalityPerformedProcedureStepSOPClass ,
PhilipsPrivateMRSyntheticImageStorage ,
VLPhotographicImageStorage ,
SegmentationStorage ,
RTIonPlanStorage ,
XRay3DAngiographicImageStorage ,
EnhancedXAImageStorage ,
RTIonBeamsTreatmentRecordStorage ,
SurfaceSegmentationStorage ,
VLWholeSlideMicroscopyImageStorage ,
RTTreatmentSummaryRecordStorage ,

EnhancedUSVolumeStorage ,
XRayRadiationDoseSR ,
VLEndoscopicImageStorage ,
BreastTomosynthesisImageStorage ,
FujiPrivateCRImageStorage ,
OphthalmicPhotography8BitImageStorage ,
OphthalmicTomographyImageStorage ,
VLMicroscopicImageStorage ,
EnhancedPETImageStorage ,
VideoPhotographicImageStorage ,
XRay3DCraniofacialImageStorage ,
IVOCTForPresentation ,
IVOCTForProcessing ,
LegacyConvertedEnhancedCTImageStorage ,
LegacyConvertedEnhancedMRImageStorage ,
LegacyConvertedEnhancedPETImageStorage ,
BreastProjectionXRayImageStorageForPresentation ,
BreastProjectionXRayImageStorageForProcessing ,
HardcopyColorImageStorage ,
EnhancedMRColorImageStorage ,
FujiPrivateMammoCRImageStorage ,
OphthalmicPhotography16BitImageStorage ,
VideoMicroscopicImageStorage ,
MS_END }

- enum ObjectType {
  NoObject = 0 ,
  Video ,
  Waveform ,
  Audio ,
  PDF ,
  URI ,
  Segmentation ,
  ObjectEnd }

Public Member Functions

- MediaStorage (MSType type=MS_END)
- const char * GetModality () const
- unsigned int GetModalityDimension () const
- const char * GetString () const

  Return the Media String of the object.
- void GuessFromModality (const char *modality, unsigned int dimension=2)
- bool IsUndefined () const
- operator MSType () const
- bool SetFromDataSet (DataSet const &ds)
- bool SetFromFile (File const &file)
- bool SetFromHeader (FileMetaInformation const &fmi)
- bool SetFromModality (DataSet const &ds)

Static Public Member Functions

- static const char * GetMSString (MSType ts)

  Return the Media String associated. Will return NULL for MS_END.
- static MSType GetMSType (const char *str)
- static unsigned int GetNumberOfModality ()
- static unsigned int GetNumberOfMSString ()
- static unsigned int GetNumberOfMSType ()
- static bool IsImage (MSType ts)

Protected Member Functions

- void SetFromSourceImageSequence (DataSet const &ds)

Friends

- std::ostream & operator<< (std::ostream &os, const MediaStorage &ms)

12.189.1 Detailed Description

MediaStorage.

Note

FIXME There should not be any notion of Image and/or PDF at that point Only the codec can answer yes I support this Media Storage or not... For instance an ImageCodec will answer yes to most of them while a PDFCodec will answer only for the Encapsulated PDF

See also

UIDs

Examples

CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenerateStandardSOPClasses.cxx, GetSubSequenceData.cxx, MpegVideoInfo.cs, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, TestReader.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, and iU22tomultisc.cxx.

12.189.2 Member Enumeration Documentation

12.189.2.1 MSType

`enum gdcm::MediaStorage::MSType`

Enumerator

MediaStorageDirectoryStorage	
ComputedRadiographyImageStorage	
DigitalXRayImageStorageForPresentation	
DigitalXRayImageStorageForProcessing	
DigitalMammographyImageStorageForPresentation	
DigitalMammographyImageStorageForProcessing	
DigitalIntraoralXrayImageStorageForPresentation	
DigitalIntraoralXRayImageStorageForProcessing	
CTImageStorage	
EnhancedCTImageStorage	
UltrasoundImageStorageRetired	
UltrasoundImageStorage	
UltrasoundMultiFrameImageStorageRetired	
UltrasoundMultiFrameImageStorage	
MRImageStorage	
EnhancedMRImageStorage	
MRSpectroscopyStorage	
NuclearMedicineImageStorageRetired	
SecondaryCaptureImageStorage	
MultiframeSingleBitSecondaryCaptureImageStorage	
MultiframeGrayscaleByteSecondaryCaptureImageStorage	
MultiframeGrayscaleWordSecondaryCaptureImageStorage	
MultiframeTrueColorSecondaryCaptureImageStorage	
StandaloneOverlayStorage	
StandaloneCurveStorage	
LeadECGWaveformStorage	
GeneralECGWaveformStorage	
AmbulatoryECGWaveformStorage	
HemodynamicWaveformStorage	
CardiacElectrophysiologyWaveformStorage	
BasicVoiceAudioWaveformStorage	
StandaloneModalityLUTStorage	
StandaloneVOILUTStorage	
GrayscaleSoftcopyPresentationStateStorageSOPClass	
XRayAngiographicImageStorage	
XRayRadiofluoroscopingImageStorage	
XRayAngiographicBiPlaneImageStorageRetired	
NuclearMedicineImageStorage	
RawDataStorage	

SpacialRegistrationStorage	
SpacialFiducialsStorage	
PETImageStorage	
RTImageStorage	
RTDoseStorage	
RTStructureSetStorage	
RTPlanStorage	
CSANonImageStorage	
Philips3D	
EnhancedSR	
BasicTextSR	
HardcopyGrayscaleImageStorage	
ComprehensiveSR	
DetachedStudyManagementSOPClass	
EncapsulatedPDFStorage	
EncapsulatedCDAStorage	
StudyComponentManagementSOPClass	
DetachedVisitManagementSOPClass	
DetachedPatientManagementSOPClass	
VideoEndoscopicImageStorage	
GeneralElectricMagneticResonanceImageStorage	
GEPrivate3DModelStorage	
ToshibaPrivateDataStorage	
MammographyCADSR	
KeyObjectSelectionDocument	
HangingProtocolStorage	
ModalityPerformedProcedureStepSOPClass	
PhilipsPrivateMRSyntheticImageStorage	
VLPhotographicImageStorage	
SegmentationStorage	
RTIonPlanStorage	
XRay3DAngiographicImageStorage	
EnhancedXAImageStorage	
RTIonBeamsTreatmentRecordStorage	
SurfaceSegmentationStorage	
VLWholeSlideMicroscopyImageStorage	
RTTreatmentSummaryRecordStorage	
EnhancedUSVolumeStorage	
XRayRadiationDoseSR	

VLEndoscopicImageStorage	
BreastTomosynthesisImageStorage	
FujiPrivateCRImageStorage	
OphthalmicPhotography8BitImageStorage	
OphthalmicTomographyImageStorage	
VLMicroscopicImageStorage	
EnhancedPETImageStorage	
VideoPhotographicImageStorage	
XRay3DCraniofacialImageStorage	
IVOCTForPresentation	
IVOCTForProcessing	
LegacyConvertedEnhancedCTImageStorage	
LegacyConvertedEnhancedMRImageStorage	
LegacyConvertedEnhancedPETImageStorage	
BreastProjectionXRayImageStorageForPresentation	
BreastProjectionXRayImageStorageForProcessing	
HardcopyColorImageStorage	
EnhancedMRColorImageStorage	
FujiPrivateMammoCRImageStorage	
OphthalmicPhotography16BitImageStorage	
VideoMicroscopicImageStorage	
MS_END	

Examples

GenerateStandardSOPClasses.cxx, and MpegVideoInfo.cs.

12.189.2.2 ObjectType

`enum gdcm::MediaStorage::ObjectType`

Enumerator

NoObject	
Video	
Waveform	
Audio	
PDF	
URI	
Segmentation	

ObjectEnd	

12.189.3 Constructor & Destructor Documentation

12.189.3.1 MediaStorage()

```
gdcm::MediaStorage::MediaStorage (
            MSType type = MS_END)  [inline]
```

References MS_END.

Referenced by GuessFromModality(), and operator<<.

12.189.4 Member Function Documentation

12.189.4.1 GetModality()

```
const char * gdcm::MediaStorage::GetModality () const
```

12.189.4.2 GetModalityDimension()

```
unsigned int gdcm::MediaStorage::GetModalityDimension () const
```

12.189.4.3 GetMSString()

```
const char * gdcm::MediaStorage::GetMSString (
            MSType ts)  [static]
```

Return the Media String associated. Will return NULL for MS_END.

Examples

GenerateStandardSOPClasses.cxx.

Referenced by operator<<.

12.189.4.4 GetMSType()

```
MSType gdcm::MediaStorage::GetMSType (
            const char * str)  [static]
```

Examples

MetaImageMD5Activiz.cs, and TestReader.cxx.

12.189.4.5 GetNumberOfModality()

```
unsigned int gdcm::MediaStorage::GetNumberOfModality ()  [static]
```

12.189.4.6 GetNumberOfMSString()

```
unsigned int gdcm::MediaStorage::GetNumberOfMSString ()  [static]
```

12.189.4.7 GetNumberOfMSType()

```
unsigned int gdcm::MediaStorage::GetNumberOfMSType ()  [static]
```

12.189.4.8 GetString()

```
const char * gdcm::MediaStorage::GetString () const
```

Return the Media String of the object.

Examples

CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, GetSubSequenceData.cxx, MpegVideoInfo.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, and iU22tomultisc.cxx.

12.189.4.9 GuessFromModality()

```
void gdcm::MediaStorage::GuessFromModality (
            const char * modality,
            unsigned int dimension = 2)
```

References MediaStorage(), and operator<<.

12.189.4.10 IsImage()

```
bool gdcm::MediaStorage::IsImage (
            MSType ts)  [static]
```

Returns whether DICOM has a Pixel Data element (7fe0,0010)

Warning

MRSpectroscopyStorage could be image but are not

Examples

MetaImageMD5Activiz.cs.

12.189.4.11 IsUndefined()

```
bool gdcm::MediaStorage::IsUndefined () const  [inline]
```

Examples

TestReader.cxx.

References MS_END.

12.189.4.12 operator MSType()

```
gdcm::MediaStorage::operator MSType () const  [inline]
```

12.189.4.13 SetFromDataSet()

```
bool gdcm::MediaStorage::SetFromDataSet (
            DataSet const & ds)
```

Advanced user only (functions should be protected level...) Those function are lower level than SetFromFile

12.189.4.14 SetFromFile()

```
bool gdcm::MediaStorage::SetFromFile (
            File const & file)
```

Attempt to set the MediaStorage from a file: WARNING: When no MediaStorage & Modality are found BUT a PixelData element is found then MediaStorage is set to the default SecondaryCaptureImageStorage (return value is false in this case)

Examples

ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, TestReader.cxx, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.189.4.15 SetFromHeader()

```
bool gdcm::MediaStorage::SetFromHeader (
            FileMetaInformation const & fmi)
```

12.189.4.16 SetFromModality()

```
bool gdcm::MediaStorage::SetFromModality (
            DataSet const & ds)
```

12.189.4.17 SetFromSourceImageSequence()

```
void gdcm::MediaStorage::SetFromSourceImageSequence (
             DataSet const & ds)  [protected]
```

12.189.5 Friends And Related Symbol Documentation

12.189.5.1 operator<<

```
std::ostream & operator<< (
             std::ostream & os,
             const MediaStorage & ms)  [friend]
```

References MediaStorage(), GetMSString(), and operator<<.

Referenced by GuessFromModality(), and operator<<.

The documentation for this class was generated from the following file:

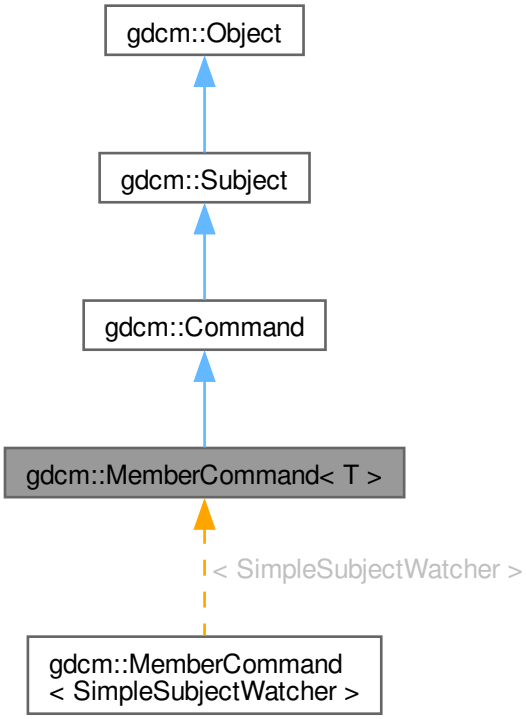
- gdcmMediaStorage.h

12.190 gdcm::MemberCommand< T > Class Template Reference

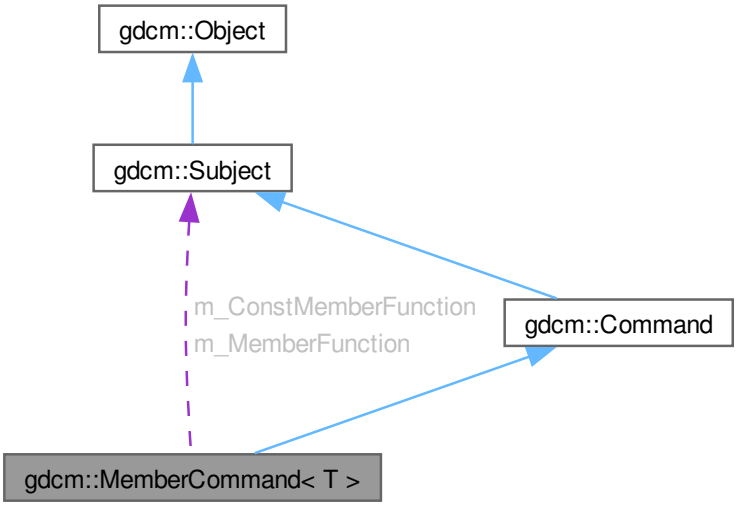
Command subclass that calls a pointer to a member function.

```
#include <gdcmCommand.h>
```

Inheritance diagram for gdcm::MemberCommand< T >:



Collaboration diagram for gdcm::MemberCommand< T >:



Public Types

- typedef MemberCommand Self
- typedef void(T::* TConstMemberFunctionPointer) (const Subject *, const Event &)
- typedef void(T::* TMemberFunctionPointer) (Subject *, const Event &)

Public Member Functions

- MemberCommand (const Self &)=delete
- void Execute (const Subject *caller, const Event &event) override
- void Execute (Subject *caller, const Event &event) override
- void operator= (const Self &)=delete
- void SetCallbackFunction (T *object, TConstMemberFunctionPointer memberFunction)
- void SetCallbackFunction (T *object, TMemberFunctionPointer memberFunction)

Public Member Functions inherited from gdcm::Command

- Command (const Command &)=delete
- void operator= (const Command &)=delete

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< MemberCommand > New ()

Protected Member Functions

- MemberCommand ()
- ~MemberCommand () override=default

Protected Member Functions inherited from gdcm::Command

- Command ()
- ~Command () override

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- TConstMemberFunctionPointer m_ConstMemberFunction
- TMemberFunctionPointer m_MemberFunction
- T * m_This

12.190.1 Detailed Description

template<class T>
class gdcm::MemberCommand< T >

Command subclass that calls a pointer to a member function.

MemberCommand calls a pointer to a member function with the same arguments as Execute on Command.

12.190.2 Member Typedef Documentation

12.190.2.1 Self

```
template<class T>
typedef MemberCommand gdcm::MemberCommand< T >::Self
```

Standard class typedefs.

12.190.2.2 TConstMemberFunctionPointer

```
template<class T>
typedef void(T::* gdcm::MemberCommand< T >::TConstMemberFunctionPointer) (const Subject *, const
Event &)
```

12.190.2.3 TMemberFunctionPointer

```
template<class T>
typedef void(T::* gdcm::MemberCommand< T >::TMemberFunctionPointer) (Subject *, const Event &)
```

pointer to a member function that takes a Subject* and the event

12.190.3 Constructor & Destructor Documentation

12.190.3.1 MemberCommand() [1/2]

```
template<class T>
gdcm::MemberCommand< T >::MemberCommand (
            const Self & )  [delete]
```

12.190.3.2 MemberCommand() [2/2]

```
template<class T>
gdcm::MemberCommand< T >::MemberCommand ()  [inline], [protected]
```

12.190.3.3 ~MemberCommand()

```
template<class T>
gdcm::MemberCommand< T >::~MemberCommand ()  [override], [protected], [default]
```

12.190.4 Member Function Documentation

12.190.4.1 Execute() [1/2]

```
template<class T>
void gdcm::MemberCommand< T >::Execute (
            const Subject * caller,
            const Event & event)  [inline], [override], [virtual]
```

Invoke the member function with a const object.

Implements gdcm::Command.

12.190.4.2 Execute() [2/2]

```
template<class T>
void gdcm::MemberCommand< T >::Execute (
            Subject * caller,
            const Event & event)  [inline], [override], [virtual]
```

Invoke the member function.

Implements gdcm::Command.

12.190.4.3 New()

```
template<class T>
SmartPointer< MemberCommand > gdcm::MemberCommand< T >::New ()  [inline], [static]
```

Method for creation through the object factory.

12.190.4.4 operator=()

```
template<class T>
void gdcm::MemberCommand< T >::operator= (
            const Self & )  [delete]
```

12.190.4.5 SetCallbackFunction() [1/2]

```
template<class T>
void gdcm::MemberCommand< T >::SetCallbackFunction (
            T * object,
            TConstMemberFunctionPointer memberFunction)  [inline]
```

12.190.4.6 SetCallbackFunction() [2/2]

```
template<class T>
void gdcm::MemberCommand< T >::SetCallbackFunction (
            T * object,
            TMemberFunctionPointer memberFunction)  [inline]
```

Run-time type information (and related methods). Set the callback function along with the object that it will be invoked on.

12.190.5 Member Data Documentation

12.190.5.1 m_ConstMemberFunction

```
template<class T>
TConstMemberFunctionPointer gdcm::MemberCommand< T >::m_ConstMemberFunction  [protected]
```

12.190.5.2 m_MemberFunction

```
template<class T>
TMemberFunctionPointer gdcm::MemberCommand< T >::m_MemberFunction  [protected]
```

12.190.5.3 m_This

```
template<class T>
T* gdcm::MemberCommand< T >::m_This  [protected]
```

The documentation for this class was generated from the following file:

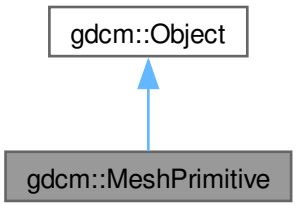
- gdcmCommand.h

12.191 gdcm::MeshPrimitive Class Reference

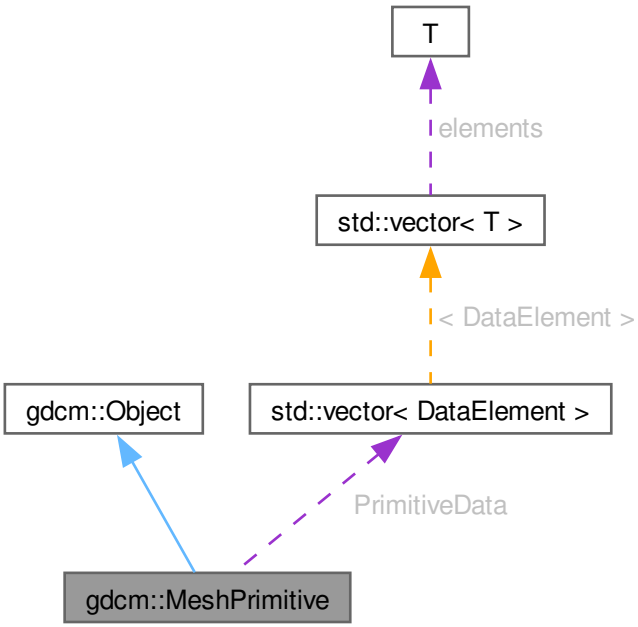
This class defines surface mesh primitives.

`#include <gdcmMeshPrimitive.h>`

Inheritance diagram for gdcm::MeshPrimitive:



Collaboration diagram for gdcm::MeshPrimitive:



Public Types

- enum MPType {
  VERTEX = 0 ,
  EDGE ,
  TRIANGLE ,
  TRIANGLE_STRIP ,
  TRIANGLE_FAN ,
  LINE ,
  FACET ,
  MPType_END }

  This enumeration defines primitive types.
- typedef std::vector< DataElement > PrimitivesData

Public Member Functions

- MeshPrimitive ()
- ~MeshPrimitive () override
- void AddPrimitiveData (DataElement const &de)
- unsigned int GetNumberOfPrimitivesData () const
- DataElement & GetPrimitiveData ()
- const DataElement & GetPrimitiveData () const
- DataElement & GetPrimitiveData (const unsigned int idx)
- const DataElement & GetPrimitiveData (const unsigned int idx) const
- PrimitivesData & GetPrimitivesData ()
- const PrimitivesData & GetPrimitivesData () const
- MPType GetPrimitiveType () const
- void SetPrimitiveData (const unsigned int idx, DataElement const &de)
- void SetPrimitiveData (DataElement const &de)
- void SetPrimitivesData (PrimitivesData const &DEs)
- void SetPrimitiveType (const MPType type)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static MPType GetMPType (const char *type)
- static const char * GetMPTypeString (const MPType type)

Protected Attributes

- PrimitivesData PrimitiveData
- MPType PrimitiveType

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.191.1 Detailed Description

This class defines surface mesh primitives.

It is designed from surface mesh primitives macro.

See also

PS 3.3 C.27.4

12.191.2 Member Typedef Documentation

12.191.2.1 PrimitivesData

```
typedef std::vector< DataElement > gdcm::MeshPrimitive::PrimitivesData
```

12.191.3 Member Enumeration Documentation

12.191.3.1 MPType

```
enum gdcm::MeshPrimitive::MPType
```

This enumeration defines primitive types.

See also

PS 3.3 C.27.4.1

Enumerator

VERTEX	
EDGE	
TRIANGLE	
TRIANGLE_STRIP	
TRIANGLE_FAN	
LINE	
FACET	
MPType_END	

12.191.4 Constructor & Destructor Documentation

12.191.4.1 MeshPrimitive()

```
gdcm::MeshPrimitive::MeshPrimitive ()
```

12.191.4.2 ~MeshPrimitive()

```
gdcm::MeshPrimitive::~MeshPrimitive ()  [override]
```

12.191.5 Member Function Documentation

12.191.5.1 AddPrimitiveData()

```
void gdcm::MeshPrimitive::AddPrimitiveData (
            DataElement const & de)
```

12.191.5.2 GetMPType()

```
MPType gdcm::MeshPrimitive::GetMPType (
            const char * type)  [static]
```

12.191.5.3 GetMPTypeString()

```
const char * gdcm::MeshPrimitive::GetMPTypeString (
            const MPType type)  [static]
```

12.191.5.4 GetNumberOfPrimitivesData()

```
unsigned int gdcm::MeshPrimitive::GetNumberOfPrimitivesData () const
```

12.191.5.5 GetPrimitiveData() [1/4]

```
DataElement & gdcm::MeshPrimitive::GetPrimitiveData ()
```

12.191.5.6 GetPrimitiveData() [2/4]

```
const DataElement & gdcm::MeshPrimitive::GetPrimitiveData () const
```

12.191.5.7 GetPrimitiveData() [3/4]

```
DataElement & gdcm::MeshPrimitive::GetPrimitiveData (
            const unsigned int idx)
```

12.191.5.8 GetPrimitiveData() [4/4]

```
const DataElement & gdcm::MeshPrimitive::GetPrimitiveData (
            const unsigned int idx) const
```

12.191.5.9 GetPrimitivesData() [1/2]

```
PrimitivesData & gdcm::MeshPrimitive::GetPrimitivesData ()
```

12.191.5.10 GetPrimitivesData() [2/2]

```
const PrimitivesData & gdcm::MeshPrimitive::GetPrimitivesData () const
```

12.191.5.11 GetPrimitiveType()

```
MPType gdcm::MeshPrimitive::GetPrimitiveType () const
```

12.191.5.12 SetPrimitiveData() [1/2]

```
void gdcm::MeshPrimitive::SetPrimitiveData (
            const unsigned int idx,
            DataElement const & de)
```

12.191.5.13 SetPrimitiveData() [2/2]

```
void gdcm::MeshPrimitive::SetPrimitiveData (
            DataElement const & de)
```

12.191.5.14 SetPrimitivesData()

```
void gdcm::MeshPrimitive::SetPrimitivesData (
            PrimitivesData const & DEs)
```

12.191.5.15 SetPrimitiveType()

```
void gdcm::MeshPrimitive::SetPrimitiveType (
            const MPType type)
```

12.191.6 Member Data Documentation

12.191.6.1 PrimitiveData

```
PrimitivesData gdcm::MeshPrimitive::PrimitiveData  [protected]
```

12.191.6.2 PrimitiveType

```
MPType gdcm::MeshPrimitive::PrimitiveType  [protected]
```

The documentation for this class was generated from the following file:

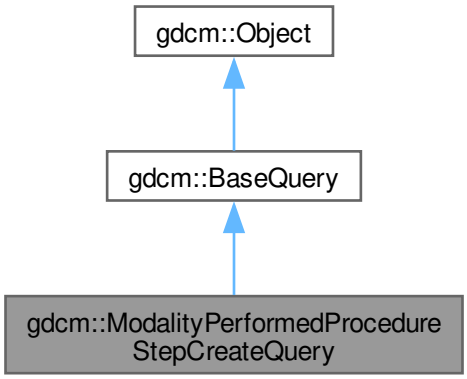
- gdcmMeshPrimitive.h

12.192 gdcm::ModalityPerformedProcedureStepCreateQuery Class Reference

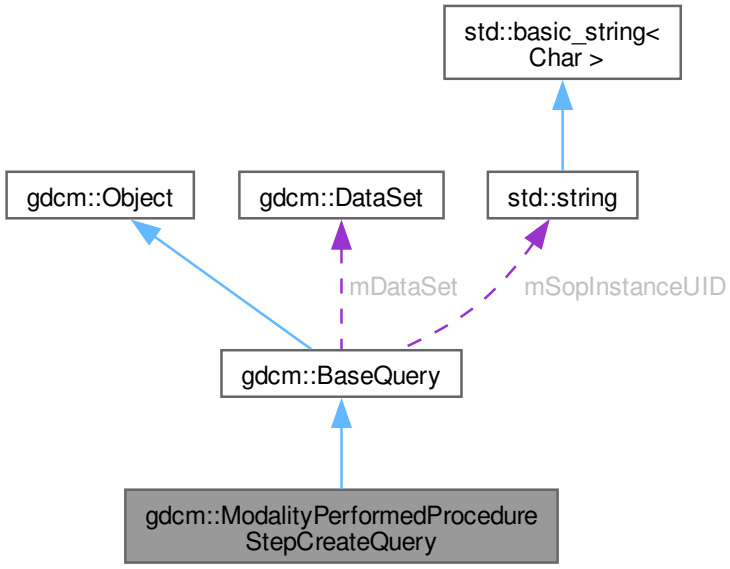
ModalityPerformedProcedureStepCreateQuery.

`#include <gdcmModalityPerformedProcedureStepCreateQuery.h>`

Inheritance diagram for gdcm::ModalityPerformedProcedureStepCreateQuery:



Collaboration diagram for gdcm::ModalityPerformedProcedureStepCreateQuery:



Public Member Functions

- ModalityPerformedProcedureStepCreateQuery (const std::string &iSopInstanceUID)
- UIDs::TSName GetAbstractSyntaxUID () const override
- gdcm::DataSet GetRequiredDataSet () const
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

12.192.1 Detailed Description

ModalityPerformedProcedureStepCreateQuery.

contains: the class which will produce a dataset for n-create for Modality Performed Procedure Step sop class

12.192.2 Constructor & Destructor Documentation

12.192.2.1 ModalityPerformedProcedureStepCreateQuery()

```
gdcm::ModalityPerformedProcedureStepCreateQuery::ModalityPerformedProcedureStepCreateQuery (
            const std::string & iSopInstanceUID)
```

12.192.3 Member Function Documentation

12.192.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::ModalityPerformedProcedureStepCreateQuery::GetAbstractSyntaxUID () const  [override],
[virtual]
```

Implements gdcm::BaseQuery.

12.192.3.2 GetRequiredDataSet()

```
gdcm::DataSet gdcm::ModalityPerformedProcedureStepCreateQuery::GetRequiredDataSet () const
```

12.192.3.3 ValidateQuery()

```
bool gdcm::ModalityPerformedProcedureStepCreateQuery::ValidateQuery (
            bool inStrict = true) const  [override], [virtual]
```

Implements gdcm::BaseQuery.

12.192.4 Friends And Related Symbol Documentation

12.192.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

The documentation for this class was generated from the following file:

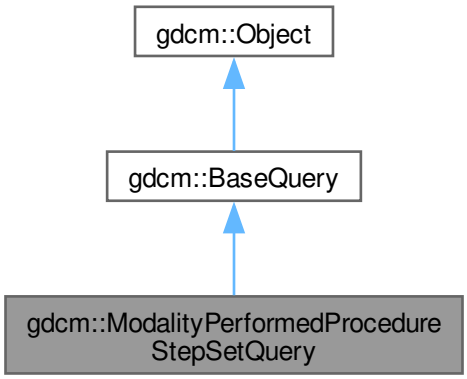
- gdcmModalityPerformedProcedureStepCreateQuery.h

12.193 gdcm::ModalityPerformedProcedureStepSetQuery Class Reference

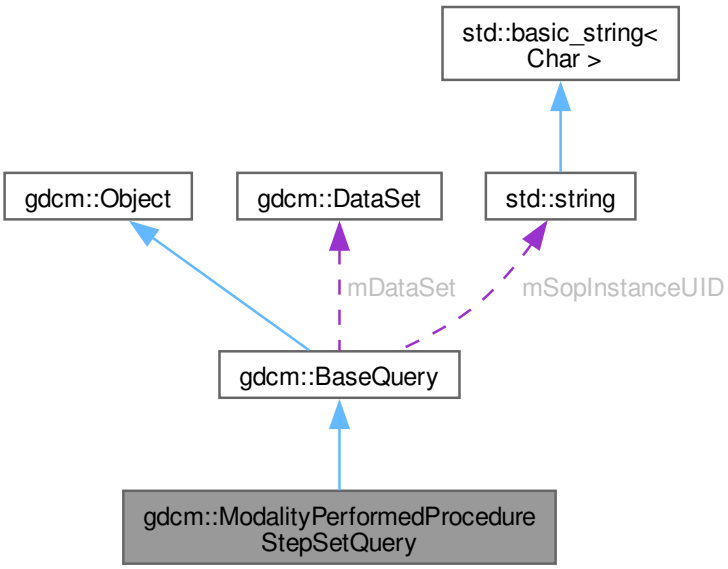
ModalityPerformedProcedureStepSetQuery.

`#include <gdcmModalityPerformedProcedureStepSetQuery.h>`

Inheritance diagram for gdcm::ModalityPerformedProcedureStepSetQuery:



Collaboration diagram for gdcm::ModalityPerformedProcedureStepSetQuery:



Public Member Functions

- ModalityPerformedProcedureStepSetQuery (const std::string &iSopInstanceUID)
- UIDs::TSName GetAbstractSyntaxUID () const override
- gdcm::DataSet GetRequiredDataSet () const
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

12.193.1 Detailed Description

ModalityPerformedProcedureStepSetQuery.

contains: the class which will produce a dataset for n-set for Modality Performed Procedure Step sop class

12.193.2 Constructor & Destructor Documentation

12.193.2.1 ModalityPerformedProcedureStepSetQuery()

```
gdcm::ModalityPerformedProcedureStepSetQuery::ModalityPerformedProcedureStepSetQuery (
            const std::string & iSopInstanceUID)
```

12.193.3 Member Function Documentation

12.193.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::ModalityPerformedProcedureStepSetQuery::GetAbstractSyntaxUID () const  [override],
[virtual]
```

Implements gdcm::BaseQuery.

12.193.3.2 GetRequiredDataSet()

```
gdcm::DataSet gdcm::ModalityPerformedProcedureStepSetQuery::GetRequiredDataSet () const
```

12.193.3.3 ValidateQuery()

```
bool gdcm::ModalityPerformedProcedureStepSetQuery::ValidateQuery (
            bool inStrict = true) const  [override], [virtual]
```

Implements gdcm::BaseQuery.

12.193.4 Friends And Related Symbol Documentation

12.193.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

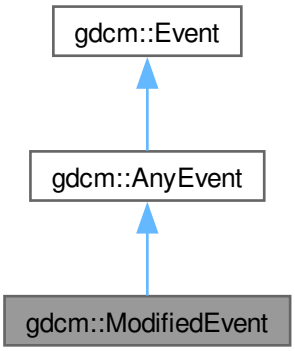
The documentation for this class was generated from the following file:

- gdcmModalityPerformedProcedureStepSetQuery.h

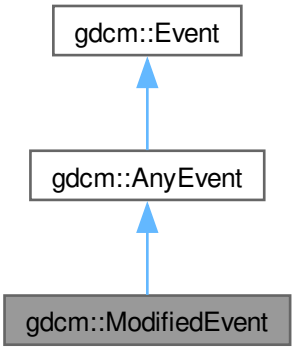
12.194 gdcm::ModifiedEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::ModifiedEvent:



Collaboration diagram for gdcm::ModifiedEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

12.195 gdcm::Module Class Reference

Class for representing a Module.

`#include <gdcmModule.h>`

Public Types

- typedef std::vector< std::string > ArrayIncludeMacrosType
- typedef std::map< Tag, ModuleEntry > MapModuleEntry

Public Member Functions

- Module ()=default
- void AddMacro (const char ∗include)
- void AddModuleEntry (const Tag &tag, const ModuleEntry &module)

  Will add a ModuleEntry directly at root-level. See Macro for nested-included level.
- void Clear ()
- bool FindModuleEntryInMacros (Macros const &macros, const Tag &tag) const
- const ModuleEntry & GetModuleEntryInMacros (Macros const &macros, const Tag &tag) const
- const char ∗ GetName () const
- void SetName (const char ∗name)
- bool Verify (const DataSet &ds, Usage const &usage) const

Friends

- std::ostream & operator<< (std::ostream &_os, const Module &_val)

12.195.1 Detailed Description

Class for representing a Module.

Note

Module: A set of Attributes within an Information Entity or Normalized IOD which are logically related to each other.

See also

Macro

Examples

TraverseModules.cxx.

12.195.2 Member Typedef Documentation

12.195.2.1 ArrayIncludeMacrosType

```
typedef std::vector<std::string> gdcm::Module::ArrayIncludeMacrosType
```

12.195.2.2 MapModuleEntry

```
typedef std::map<Tag, ModuleEntry> gdcm::Module::MapModuleEntry
```

12.195.3 Constructor & Destructor Documentation

12.195.3.1 Module()

```
gdcm::Module::Module ()  [default]
```

References Module(), and operator<<.

Referenced by Module(), and operator<<.

12.195.4 Member Function Documentation

12.195.4.1 AddMacro()

```
void gdcm::Module::AddMacro (
            const char * include)  [inline]
```

12.195.4.2 AddModuleEntry()

```
void gdcm::Module::AddModuleEntry (
            const Tag & tag,
            const ModuleEntry & module)  [inline]
```

Will add a ModuleEntry directly at root-level. See Macro for nested-included level.

12.195.4.3 Clear()

```
void gdcm::Module::Clear ()  [inline]
```

12.195.4.4 FindModuleEntryInMacros()

```
bool gdcm::Module::FindModuleEntryInMacros (
            Macros const & macros,
            const Tag & tag) const
```

Find or Get a ModuleEntry. ModuleEntry are either search are root-level or within nested-macro included in module.

Examples

TraverseModules.cxx.

12.195.4.5 GetModuleEntryInMacros()

```
const ModuleEntry & gdcm::Module::GetModuleEntryInMacros (
            Macros const & macros,
            const Tag & tag) const
```

12.195.4.6 GetName()

```
const char * gdcm::Module::GetName () const  [inline]
```

12.195.4.7 SetName()

```
void gdcm::Module::SetName (
            const char * name)  [inline]
```

12.195.4.8 Verify()

```
bool gdcm::Module::Verify (
            const DataSet & ds,
            Usage const & usage) const
```

12.195.5 Friends And Related Symbol Documentation

12.195.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Module & _val)  [friend]
```

References Module().

Referenced by Module().

The documentation for this class was generated from the following file:

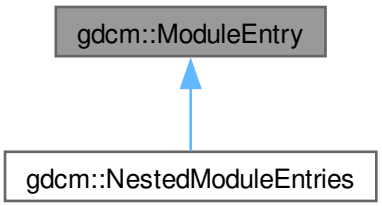
- gdcmModule.h

12.196 gdcm::ModuleEntry Class Reference

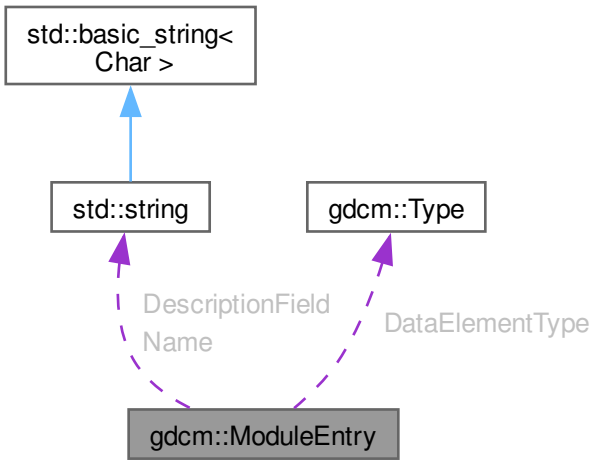
Class for representing a ModuleEntry.

`#include <gdcmModuleEntry.h>`

Inheritance diagram for gdcm::ModuleEntry:



Collaboration diagram for gdcm::ModuleEntry:



Public Types

- typedef std::string Description

Public Member Functions

- ModuleEntry (const char *name="", const char *type="3", const char *description="")
- virtual ~ModuleEntry ()=default
- const Description & GetDescription () const
- const char * GetName () const
- const Type & GetType () const
- void SetDescription (const char *d)
- void SetName (const char *name)
- void SetType (const Type &type)

Protected Attributes

- Type DataElementType
- Description DescriptionField
- std::string Name

Friends

- std::ostream & operator<< (std::ostream &_os, const ModuleEntry &_val)

12.196.1 Detailed Description

Class for representing a ModuleEntry.

Note

bla

See also

DictEntry

Examples

TraverseModules.cxx.

12.196.2 Member Typedef Documentation

12.196.2.1 Description

```
typedef std::string gdcm::ModuleEntry::Description
```

12.196.3 Constructor & Destructor Documentation

12.196.3.1 ModuleEntry()

```
gdcm::ModuleEntry::ModuleEntry (
            const char * name = "",
            const char * type = "3",
            const char * description = "")  [inline]
```

References DataElementType, DescriptionField, gdcm::Type::GetTypeType(), and Name.

Referenced by gdcm::NestedModuleEntries::NestedModuleEntries(), ~ModuleEntry(), gdcm::NestedModuleEntries::AddModuleEntry(), gdcm::NestedModuleEntries::GetModuleEntry(), gdcm::NestedModuleEntries::GetModuleEntry(), and operator<<.

12.196.3.2 ~ModuleEntry()

```
virtual gdcm::ModuleEntry::~ModuleEntry ()  [virtual], [default]
```

References ModuleEntry(), and operator<<.

12.196.4 Member Function Documentation

12.196.4.1 GetDescription()

```
const Description & gdcm::ModuleEntry::GetDescription () const  [inline]
```

References DescriptionField.

12.196.4.2 GetName()

```
const char * gdcm::ModuleEntry::GetName () const  [inline]
```

References Name.

12.196.4.3 GetType()

```
const Type & gdcm::ModuleEntry::GetType () const  [inline]
```

Examples

TraverseModules.cxx.

References DataElementType.

12.196.4.4 SetDescription()

```
void gdcm::ModuleEntry::SetDescription (
            const char * d)  [inline]
```

References DescriptionField.

12.196.4.5 SetName()

```
void gdcm::ModuleEntry::SetName (
            const char * name)  [inline]
```

References Name.

12.196.4.6 SetType()

```
void gdcm::ModuleEntry::SetType (
            const Type & type)  [inline]
```

References DataElementType.

12.196.5 Friends And Related Symbol Documentation

12.196.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const ModuleEntry & _val)  [friend]
```

References ModuleEntry(), DataElementType, DescriptionField, and Name.

Referenced by ~ModuleEntry().

12.196.6 Member Data Documentation

12.196.6.1 DataElementType

```
Type gdcm::ModuleEntry::DataElementType  [protected]
```

Referenced by ModuleEntry(), GetType(), operator<<, gdcm::NestedModuleEntries::operator<<, and SetType().

12.196.6.2 DescriptionField

```
Description gdcm::ModuleEntry::DescriptionField  [protected]
```

Referenced by ModuleEntry(), GetDescription(), operator<<, gdcm::NestedModuleEntries::operator<<, and SetDescription().

12.196.6.3 Name

```
std::string gdcm::ModuleEntry::Name  [protected]
```

Referenced by ModuleEntry(), GetName(), operator<<, gdcm::NestedModuleEntries::operator<<, and SetName().

The documentation for this class was generated from the following file:

- gdcmModuleEntry.h

12.197 gdcm::Modules Class Reference

Class for representing a Modules.

```
#include <gdcmModules.h>
```

Public Types

- typedef std::map< std::string, Module > ModuleMapType

Public Member Functions

- Modules ()=default
- void AddModule (const char *ref, const Module &module)
- void Clear ()
- const Module & GetModule (const char *name) const
- bool IsEmpty () const

Friends

- std::ostream & operator<< (std::ostream &_os, const Modules &_val)

12.197.1 Detailed Description

Class for representing a Modules.

Note

bla

See also

Module

Examples

TraverseModules.cxx.

12.197.2 Member Typedef Documentation

12.197.2.1 ModuleMapType

```
typedef std::map<std::string, Module> gdcm::Modules::ModuleMapType
```

12.197.3 Constructor & Destructor Documentation

12.197.3.1 Modules()

```
gdcm::Modules::Modules ()  [default]
```

References Modules(), and operator<<.

Referenced by Modules(), and operator<<.

12.197.4 Member Function Documentation

12.197.4.1 AddModule()

```
void gdcm::Modules::AddModule (
            const char * ref,
            const Module & module)  [inline]
```

12.197.4.2 Clear()

```
void gdcm::Modules::Clear ()  [inline]
```

12.197.4.3 GetModule()

```
const Module & gdcm::Modules::GetModule (
            const char * name) const  [inline]
```

Examples

TraverseModules.cxx.

12.197.4.4 IsEmpty()

```
bool gdcm::Modules::IsEmpty () const  [inline]
```

12.197.5 Friends And Related Symbol Documentation

12.197.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Modules & _val)  [friend]
```

References Modules().

Referenced by Modules().

The documentation for this class was generated from the following file:

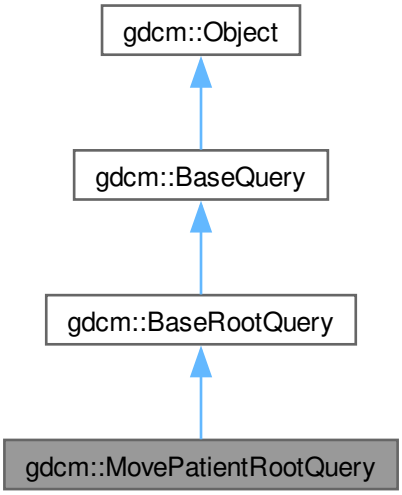
- gdcmModules.h

12.198 gdcm::MovePatientRootQuery Class Reference

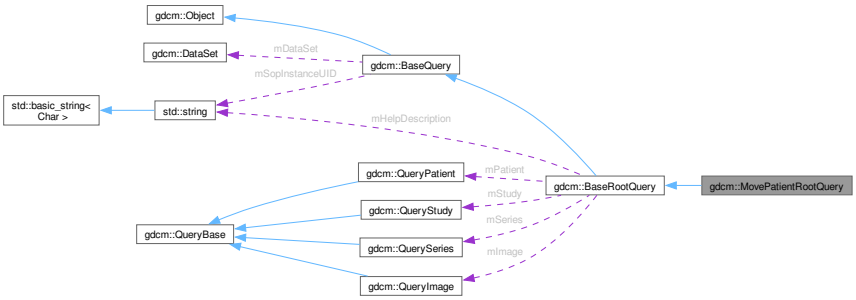
MovePatientRootQuery.

```
#include <gdcmMovePatientRootQuery.h>
```

Inheritance diagram for gdcm::MovePatientRootQuery:



Collaboration diagram for gdcm::MovePatientRootQuery:



Public Member Functions

- MovePatientRootQuery ()
- UIDs::TSName GetAbstractSyntaxUID () const override
- std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel) override
- void InitializeDataSet (const EQueryLevel &inQueryLevel) override
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseRootQuery

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Static Public Member Functions inherited from gdcm::BaseRootQuery

- static QueryBase * Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char *str)
- static const char * GetQueryLevelString (EQueryLevel ql)

Protected Member Functions inherited from gdcm::BaseRootQuery

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseRootQuery

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

12.198.1 Detailed Description

MovePatientRootQuery.

contains: the class which will produce a dataset for c-move with patient root

12.198.2 Constructor & Destructor Documentation

12.198.2.1 MovePatientRootQuery()

```
gdcm::MovePatientRootQuery::MovePatientRootQuery ()
```

12.198.3 Member Function Documentation

12.198.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::MovePatientRootQuery::GetAbstractSyntaxUID () const  [override], [virtual]
```

Implements gdcm::BaseQuery.

12.198.3.2 GetTagListByLevel()

```
std::vector< Tag > gdcm::MovePatientRootQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements gdcm::BaseRootQuery.

12.198.3.3 InitializeDataSet()

```
void gdcm::MovePatientRootQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implements gdcm::BaseRootQuery.

12.198.3.4 ValidateQuery()

```
bool gdcm::MovePatientRootQuery::ValidateQuery (
            bool inStrict = true) const  [override], [virtual]
```

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements gdcm::BaseRootQuery.

12.198.4 Friends And Related Symbol Documentation

12.198.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

The documentation for this class was generated from the following file:

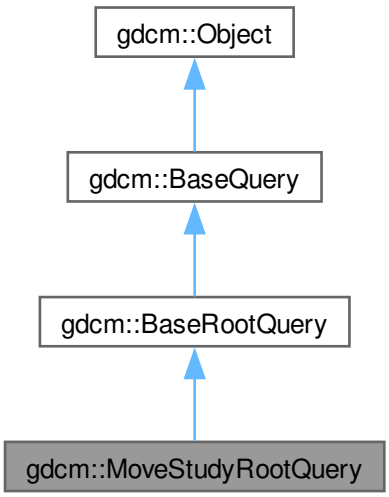
- gdcmMovePatientRootQuery.h

12.199 gdcm::MoveStudyRootQuery Class Reference

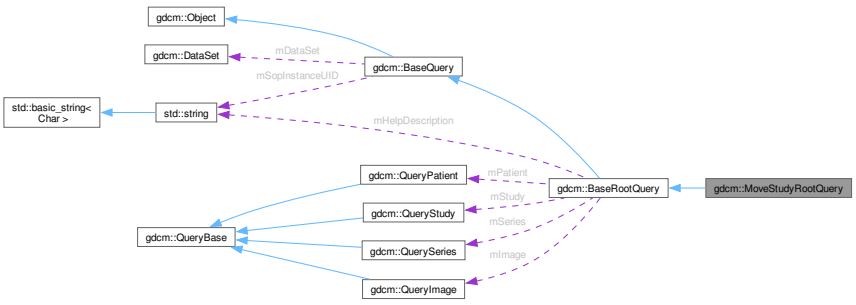
MoveStudyRootQuery.

`#include <gdcmMoveStudyRootQuery.h>`

Inheritance diagram for gdcm::MoveStudyRootQuery:



Collaboration diagram for gdcm::MoveStudyRootQuery:



Public Member Functions

- MoveStudyRootQuery ()
- UIDs::TSName GetAbstractSyntaxUID () const override
- std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel) override
- void InitializeDataSet (const EQueryLevel &inQueryLevel) override
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseRootQuery

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Static Public Member Functions inherited from gdcm::BaseRootQuery

- static QueryBase * Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char *str)
- static const char * GetQueryLevelString (EQueryLevel ql)

Protected Member Functions inherited from gdcm::BaseRootQuery

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseRootQuery

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

12.199.1 Detailed Description

MoveStudyRootQuery.

contains: the class which will produce a dataset for C-MOVE with study root

12.199.2 Constructor & Destructor Documentation

12.199.2.1 MoveStudyRootQuery()

```
gdcm::MoveStudyRootQuery::MoveStudyRootQuery ()
```

12.199.3 Member Function Documentation

12.199.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::MoveStudyRootQuery::GetAbstractSyntaxUID () const  [override], [virtual]
```

Implements gdcm::BaseQuery.

12.199.3.2 GetTagListByLevel()

```
std::vector< Tag > gdcm::MoveStudyRootQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements gdcm::BaseRootQuery.

12.199.3.3 InitializeDataSet()

```
void gdcm::MoveStudyRootQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implements gdcm::BaseRootQuery.

12.199.3.4 ValidateQuery()

```
bool gdcm::MoveStudyRootQuery::ValidateQuery (
            bool inStrict = true) const  [override], [virtual]
```

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements gdcm::BaseRootQuery.

12.199.4 Friends And Related Symbol Documentation

12.199.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

The documentation for this class was generated from the following file:

- gdcmMoveStudyRootQuery.h

12.200 gdcm::MrProtocol Class Reference

Class for MrProtocol.

`#include <gdcmMrProtocol.h>`

Classes

- struct Slice
- struct SliceArray
- struct Vector3

Public Member Functions

- MrProtocol ()
- ~MrProtocol ()
- bool FindMrProtocolByName (const char *name) const
- const char * GetMrProtocolByName (const char *name) const
- bool GetSliceArray (MrProtocol::SliceArray &sa) const
- int GetVersion () const
- bool Load (const ByteValue *bv, const char *str, int version)
- void Print (std::ostream &os) const

Friends

- std::ostream & operator<< (std::ostream &_os, const MrProtocol &d)

12.200.1 Detailed Description

Class for MrProtocol.

Examples

MrProtocol.cxx.

12.200.2 Constructor & Destructor Documentation

12.200.2.1 MrProtocol()

`gdcm::MrProtocol::MrProtocol ()`

Referenced by operator<<.

12.200.2.2 ~MrProtocol()

```
gdcm::MrProtocol::~MrProtocol ()
```

12.200.3 Member Function Documentation

12.200.3.1 FindMrProtocolByName()

```
bool gdcm::MrProtocol::FindMrProtocolByName (
            const char * name) const
```

12.200.3.2 GetMrProtocolByName()

```
const char * gdcm::MrProtocol::GetMrProtocolByName (
            const char * name) const
```

12.200.3.3 GetSliceArray()

```
bool gdcm::MrProtocol::GetSliceArray (
            MrProtocol::SliceArray & sa) const
```

12.200.3.4 GetVersion()

```
int gdcm::MrProtocol::GetVersion () const
```

12.200.3.5 Load()

```
bool gdcm::MrProtocol::Load (
            const ByteValue * bv,
            const char * str,
            int version)
```

12.200.3.6 Print()

```
void gdcm::MrProtocol::Print (
            std::ostream & os) const
```

Referenced by operator<<.

12.200.4 Friends And Related Symbol Documentation

12.200.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const MrProtocol & d)  [friend]
```

References MrProtocol(), and Print().

The documentation for this class was generated from the following file:

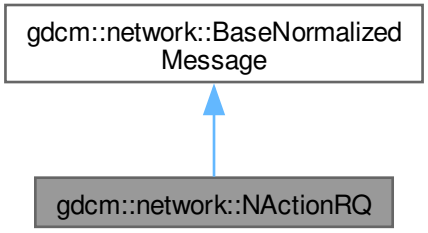
- gdcmMrProtocol.h

12.201 gdcm::network::NActionRQ Class Reference

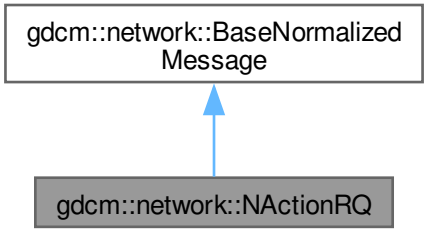
NActionRQ.

`#include <gdcmNActionMessages.h>`

Inheritance diagram for gdcm::network::NActionRQ:



Collaboration diagram for gdcm::network::NActionRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

12.201.1 Detailed Description

NActionRQ.

this file defines the messages for the NAction action

12.201.2 Member Function Documentation

12.201.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NActionRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

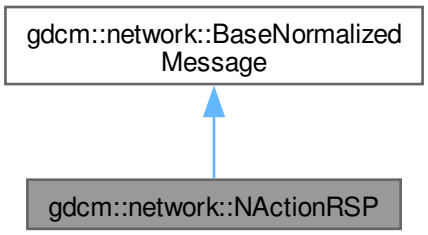
- gdcmNActionMessages.h

12.202 gdcm::network::NActionRSP Class Reference

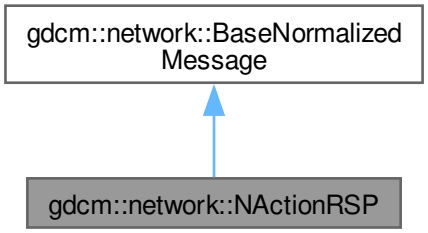
NActionRSP this file defines the messages for the NAction action.

```
#include <gdcmNActionMessages.h>
```

Inheritance diagram for gdcm::network::NActionRSP:



Collaboration diagram for gdcm::network::NActionRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

12.202.1 Detailed Description

NActionRSP this file defines the messages for the NAction action.

12.202.2 Member Function Documentation

12.202.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NActionRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

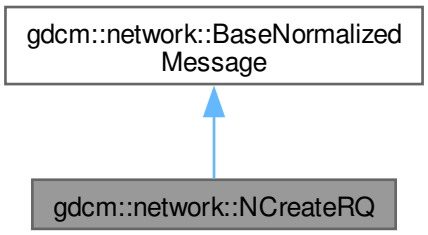
- gdcmNActionMessages.h

12.203 gdcm::network::NCreateRQ Class Reference

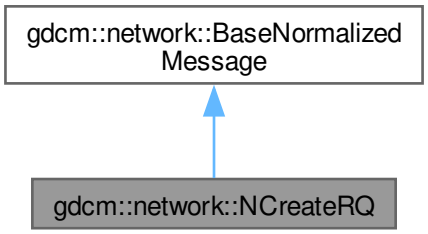
NCreateRQ.

`#include <gdcmNCreateMessages.h>`

Inheritance diagram for gdcm::network::NCreateRQ:



Collaboration diagram for gdcm::network::NCreateRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

12.203.1 Detailed Description

NCreateRQ.

this file defines the messages for the ncreate action

12.203.2 Member Function Documentation

12.203.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NCreateRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

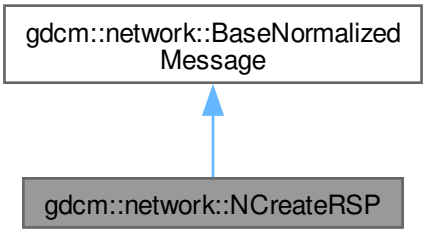
- gdcmNCreateMessages.h

12.204 gdcm::network::NCreateRSP Class Reference

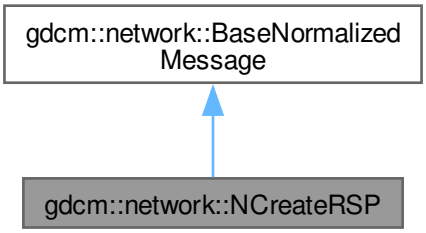
NCreateRSP this file defines the messages for the ncreate action.

```
#include <gdcmNCreateMessages.h>
```

Inheritance diagram for gdcm::network::NCreateRSP:



Collaboration diagram for gdcm::network::NCreateRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

12.204.1 Detailed Description

NCreateRSP this file defines the messages for the ncreate action.

12.204.2 Member Function Documentation

12.204.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NCreateRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

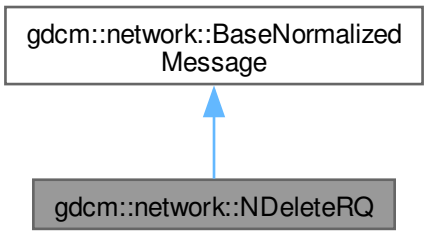
- gdcmNCreateMessages.h

12.205 gdcm::network::NDeleteRQ Class Reference

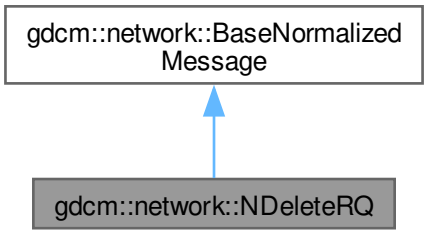
NDeleteRQ.

`#include <gdcmNDeleteMessages.h>`

Inheritance diagram for gdcm::network::NDeleteRQ:



Collaboration diagram for gdcm::network::NDeleteRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

12.205.1 Detailed Description

NDeleteRQ.

this file defines the messages for the ndelete action

12.205.2 Member Function Documentation

12.205.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NDeleteRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

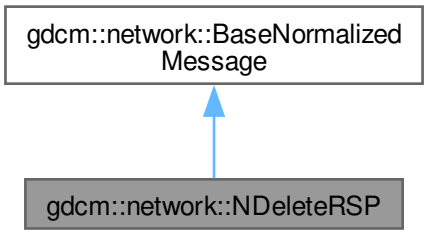
- gdcmNDeleteMessages.h

12.206 gdcm::network::NDeleteRSP Class Reference

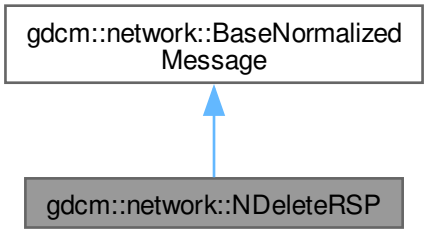
NDeleteRSP this file defines the messages for the ndelete action.

```
#include <gdcmNDeleteMessages.h>
```

Inheritance diagram for gdcm::network::NDeleteRSP:



Collaboration diagram for gdcm::network::NDeleteRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

12.206.1 Detailed Description

NDeleteRSP this file defines the messages for the ndelete action.

12.206.2 Member Function Documentation

12.206.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NDeleteRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

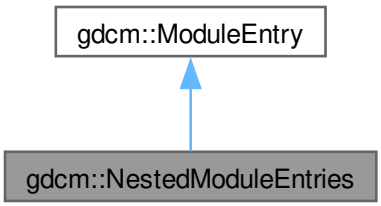
- gdcmNDeleteMessages.h

12.207 gdcm::NestedModuleEntries Class Reference

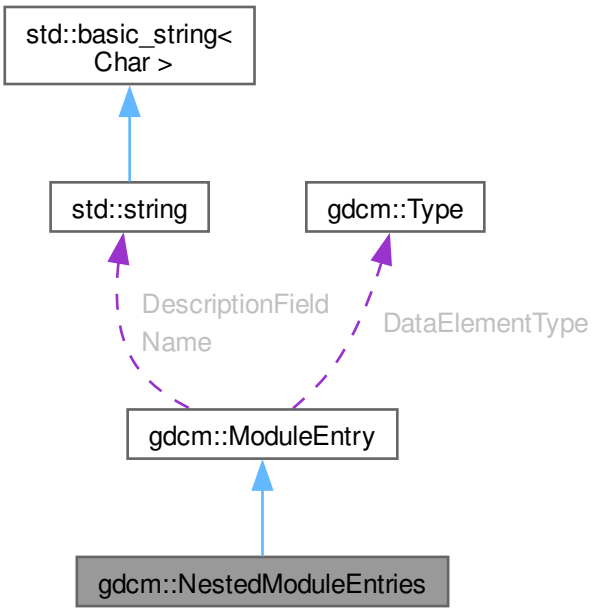
Class for representing a NestedModuleEntries.

`#include <gdcmNestedModuleEntries.h>`

Inheritance diagram for gdcm::NestedModuleEntries:



Collaboration diagram for gdcm::NestedModuleEntries:



Public Types

- typedef std::vector< ModuleEntry >::size_type SizeType

Public Types inherited from gdcm::ModuleEntry

- typedef std::string Description

Public Member Functions

- NestedModuleEntries (const char *name="", const char *type="3", const char *description="")
- void AddModuleEntry (const ModuleEntry &me)
- ModuleEntry & GetModuleEntry (SizeType idx)
- const ModuleEntry & GetModuleEntry (SizeType idx) const
- SizeType GetNumberOfModuleEntries ()

Public Member Functions inherited from gdcm::ModuleEntry

- ModuleEntry (const char *name="", const char *type="3", const char *description="")
- virtual ~ModuleEntry ()=default
- const Description & GetDescription () const
- const char * GetName () const
- const Type & GetType () const
- void SetDescription (const char *d)
- void SetName (const char *name)
- void SetType (const Type &type)

Friends

- std::ostream & operator<< (std::ostream &_os, const NestedModuleEntries &_val)

Additional Inherited Members

Protected Attributes inherited from gdcm::ModuleEntry

- Type DataElementType
- Description DescriptionField
- std::string Name

12.207.1 Detailed Description

Class for representing a NestedModuleEntries.

Note

bla

See also

ModuleEntry

12.207.2 Member Typedef Documentation

12.207.2.1 SizeType

```
typedef std::vector<ModuleEntry>::size_type gdcm::NestedModuleEntries::SizeType
```

12.207.3 Constructor & Destructor Documentation

12.207.3.1 NestedModuleEntries()

```
gdcm::NestedModuleEntries::NestedModuleEntries (
            const char * name = "",
            const char * type = "3",
            const char * description = "")  [inline]
```

References gdcm::ModuleEntry::ModuleEntry().

Referenced by operator<<.

12.207.4 Member Function Documentation

12.207.4.1 AddModuleEntry()

```
void gdcm::NestedModuleEntries::AddModuleEntry (
            const ModuleEntry & me)  [inline]
```

References gdcm::ModuleEntry::ModuleEntry().

12.207.4.2 GetModuleEntry() [1/2]

```
ModuleEntry & gdcm::NestedModuleEntries::GetModuleEntry (
            SizeType idx)  [inline]
```

References gdcm::ModuleEntry::ModuleEntry().

12.207.4.3 GetModuleEntry() [2/2]

```
const ModuleEntry & gdcm::NestedModuleEntries::GetModuleEntry (
            SizeType idx) const  [inline]
```

References gdcm::ModuleEntry::ModuleEntry().

12.207.4.4 GetNumberOfModuleEntries()

```
SizeType gdcm::NestedModuleEntries::GetNumberOfModuleEntries ()  [inline]
```

12.207.5 Friends And Related Symbol Documentation

12.207.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const NestedModuleEntries & _val)  [friend]
```

References NestedModuleEntries(), gdcm::ModuleEntry::DataElementType, gdcm::ModuleEntry::DescriptionField, and gdcm::ModuleEntry::Name.

The documentation for this class was generated from the following file:

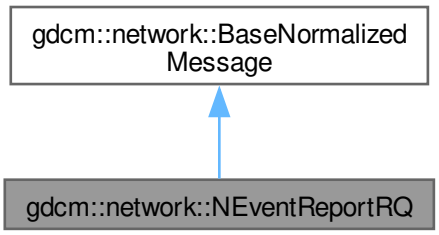
- gdcmNestedModuleEntries.h

12.208 gdcm::network::NEventReportRQ Class Reference

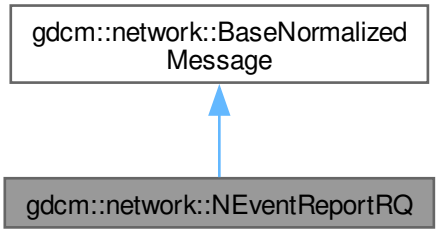
NEventReportRQ.

`#include <gdcmNEventReportMessages.h>`

Inheritance diagram for gdcm::network::NEventReportRQ:



Collaboration diagram for gdcm::network::NEventReportRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

12.208.1 Detailed Description

NEventReportRQ.

this file defines the messages for the neventreport action

12.208.2 Member Function Documentation

12.208.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NEventReportRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

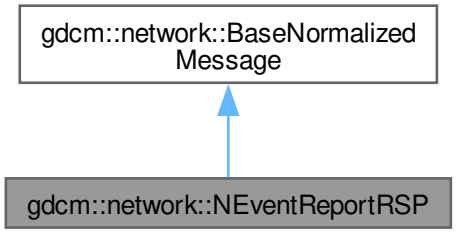
- gdcmNEventReportMessages.h

12.209 gdcm::network::NEventReportRSP Class Reference

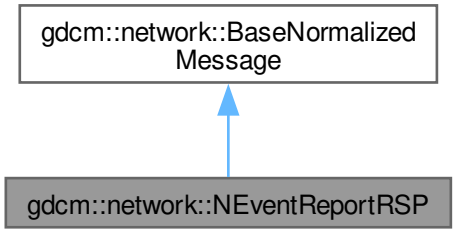
NEventReportRSP this file defines the messages for the neventreport action.

`#include <gdcmNEventReportMessages.h>`

Inheritance diagram for gdcm::network::NEventReportRSP:



Collaboration diagram for gdcm::network::NEventReportRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

12.209.1 Detailed Description

NEventReportRSP this file defines the messages for the neventreport action.

12.209.2 Member Function Documentation

12.209.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NEventReportRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

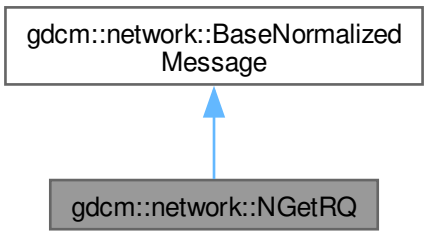
- gdcmNEventReportMessages.h

12.210 gdcm::network::NGetRQ Class Reference

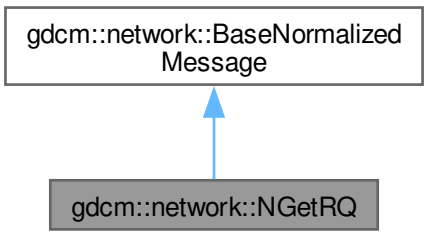
NGetRQ.

```
#include <gdcmNGetMessages.h>
```

Inheritance diagram for gdcm::network::NGetRQ:



Collaboration diagram for gdcm::network::NGetRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

12.210.1 Detailed Description

NGetRQ.

this file defines the messages for the nget action

12.210.2 Member Function Documentation

12.210.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NGetRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

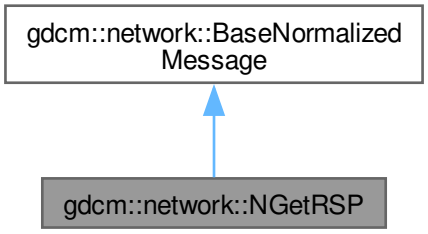
- gdcmNGetMessages.h

12.211 gdcm::network::NGetRSP Class Reference

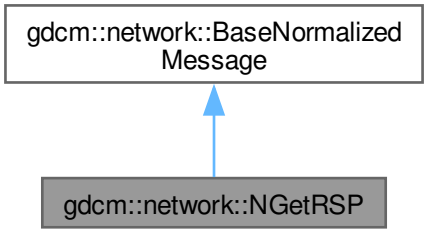
NGetRSP this file defines the messages for the nget action.

`#include <gdcmNGetMessages.h>`

Inheritance diagram for gdcm::network::NGetRSP:



Collaboration diagram for gdcm::network::NGetRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

12.211.1 Detailed Description

NGetRSP this file defines the messages for the nget action.

12.211.2 Member Function Documentation

12.211.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NGetRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

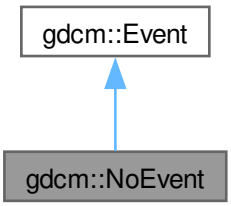
The documentation for this class was generated from the following file:

- gdcmNGetMessages.h

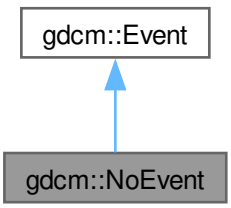
12.212 gdcm::NoEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::NoEvent:



Collaboration diagram for gdcm::NoEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

12.212.1 Detailed Description

Define some common GDCM events

The documentation for this class was generated from the following file:

- gdcmEvent.h

12.213 gdcm::network::NormalizedMessageFactory Class Reference

`#include <gdcmNormalizedMessageFactory.h>`

Static Public Member Functions

- static std::vector< PresentationDataValue > ConstructNAction (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< PresentationDataValue > ConstructNCreate (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< PresentationDataValue > ConstructNDelete (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< PresentationDataValue > ConstructNEventReport (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< PresentationDataValue > ConstructNGet (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< PresentationDataValue > ConstructNSet (const ULConnection &inConnection, const BaseQuery *inQuery)

12.213.1 Member Function Documentation

12.213.1.1 ConstructNAction()

```
std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::ConstructNAction (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.213.1.2 ConstructNCreate()

```
std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::ConstructNCreate (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.213.1.3 ConstructNDelete()

```
std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::ConstructNDelete (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.213.1.4 ConstructNEventReport()

```
std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::ConstructNEvent↩
Report (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.213.1.5 ConstructNGet()

```
std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::ConstructNGet (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.213.1.6 ConstructNSet()

```
std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::ConstructNSet (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

The documentation for this class was generated from the following file:

- gdcmNormalizedMessageFactory.h

12.214 gdcm::NormalizedNetworkFunctions Class Reference

Normalized Network Functions.

```
#include <gdcmNormalizedNetworkFunctions.h>
```

Static Public Member Functions

- static BaseQuery * ConstructQuery (const std::string &sopInstanceUID, const DataSet &queryds, ENQueryType queryType=eCreateMMPS)
- static bool NAction (const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle, const char *call)
- static bool NCreate (const char *remote, uint16_t portno, BaseQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle, const char *call)
- static bool NDelete (const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle, const char *call)
- static bool NEventReport (const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle, const char *call)
- static bool NGet (const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle, const char *call)
- static bool NSet (const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle, const char *call)

12.214.1 Detailed Description

Normalized Network Functions.

These functions provide a generic API to the DICOM functions implemented in GDCM. Advanced users can use this code as a template for building their own versions of these functions (for instance, to provide progress bars or some other way of handling returned query information), but for most users, these functions should be sufficient to interface with a PACS to a local machine. Note that these functions are not contained within a static class or some other class-style interface, because multiple connections can be instantiated in the same program. The DICOM standard is much more function oriented rather than class oriented in this instance, so the design of this API reflects that functional approach. These functions implements the following SCU operations:

- N-EVENT-REPORT
- N-GET
- N-SET
- N-ACTION
- N-CREATE
- N-DELETE

12.214.2 Member Function Documentation

12.214.2.1 ConstructQuery()

```
BaseQuery * gdcm::NormalizedNetworkFunctions::ConstructQuery (
            const std::string & sopInstanceUID,
            const DataSet & queryds,
            ENQueryType queryType = eCreateMMPS)  [static]
```

References gdcm::eCreateMMPS.

12.214.2.2 NAction()

```
bool gdcm::NormalizedNetworkFunctions::NAction (
            const char * remote,
            uint16_t portno,
            const BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call)  [static]
```

12.214.2.3 NCreate()

```
bool gdcm::NormalizedNetworkFunctions::NCreate (
            const char * remote,
            uint16_t portno,
            BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call)  [static]
```

12.214.2.4 NDelete()

```
bool gdcm::NormalizedNetworkFunctions::NDelete (
            const char * remote,
            uint16_t portno,
            const BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call)  [static]
```

12.214.2.5 NEventReport()

```
bool gdcm::NormalizedNetworkFunctions::NEventReport (
            const char * remote,
            uint16_t portno,
            const BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call)  [static]
```

12.214.2.6 NGet()

```
bool gdcm::NormalizedNetworkFunctions::NGet (
            const char * remote,
            uint16_t portno,
            const BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call)  [static]
```

12.214.2.7 NSet()

```
bool gdcm::NormalizedNetworkFunctions::NSet (
            const char * remote,
            uint16_t portno,
            const BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call)  [static]
```

The documentation for this class was generated from the following file:

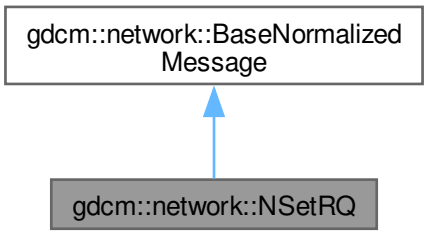
- gdcmNormalizedNetworkFunctions.h

12.215 gdcm::network::NSetRQ Class Reference

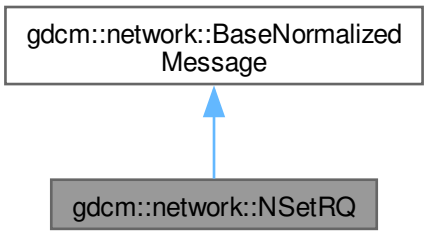
NSetRQ.

`#include <gdcmNSetMessages.h>`

Inheritance diagram for gdcm::network::NSetRQ:



Collaboration diagram for gdcm::network::NSetRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

12.215.1 Detailed Description

NSetRQ.

this file defines the messages for the nset action

12.215.2 Member Function Documentation

12.215.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NSetRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

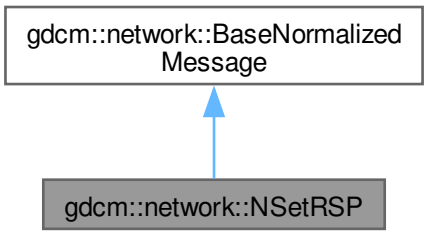
- gdcmNSetMessages.h

12.216 gdcm::network::NSetRSP Class Reference

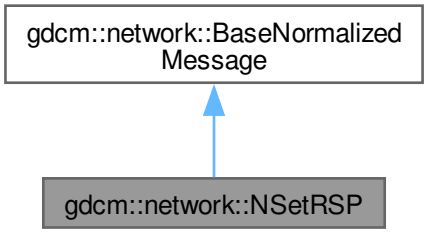
NSetRSP this file defines the messages for the nset action.

`#include <gdcmNSetMessages.h>`

Inheritance diagram for gdcm::network::NSetRSP:



Collaboration diagram for gdcm::network::NSetRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

12.216.1 Detailed Description

NSetRSP this file defines the messages for the nset action.

12.216.2 Member Function Documentation

12.216.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NSetRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

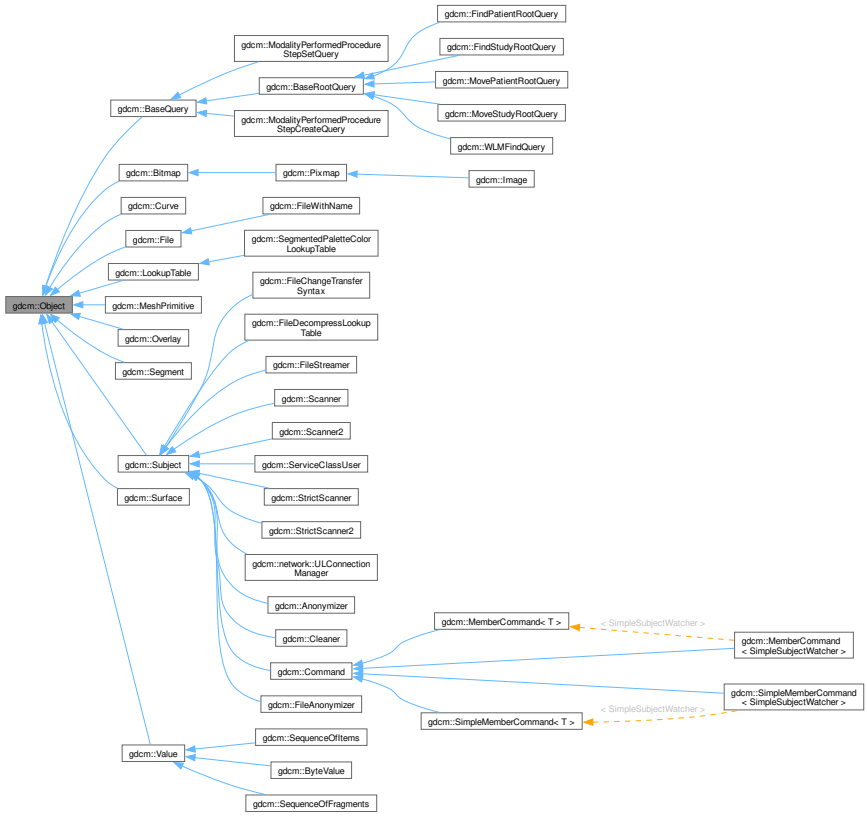
- gdcmNSetMessages.h

12.217 gdcm::Object Class Reference

Object.

`#include <gdcmObject.h>`

Inheritance diagram for gdcm::Object:



Public Member Functions

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Protected Member Functions

- void Register ()
- void UnRegister ()

Friends

- std::ostream & operator<< (std::ostream &os, const Object &obj)
- template<class ObjectType>
  class SmartPointer

12.217.1 Detailed Description

Object.

Note

main superclass for object that want to use SmartPointer invasive ref counting system

See also

SmartPointer

12.217.2 Constructor & Destructor Documentation

12.217.2.1 Object() [1/2]

```
gdcm::Object::Object ()  [inline]
```

Referenced by gdcm::LookupTable::LookupTable(), Object(), operator<<, operator=(), and SmartPointer.

12.217.2.2 ~Object()

```
virtual gdcm::Object::~Object ()  [inline], [virtual]
```

12.217.2.3 Object() [2/2]

```
gdcm::Object::Object (
            const Object & )  [inline]
```

Special requirement for copy/cstor, assignment operator.

References Object().

12.217.3 Member Function Documentation

12.217.3.1 operator=()

```
void gdcm::Object::operator= (
            const Object & )  [inline]
```

References Object().

12.217.3.2 Print()

```
virtual void gdcm::Object::Print (
            std::ostream & ) const  [inline], [virtual]
```

Reimplemented in gdcm::BaseQuery, gdcm::Bitmap, gdcm::ByteValue, gdcm::Curve, gdcm::Image, gdcm::LookupTable, gdcm::Overlay, gdcm::Pixmap, gdcm::Scanner2, gdcm::Scanner, gdcm::SegmentedPaletteColorLookupTable, gdcm::SequenceOfFragments, gdcm::SequenceOfItems, gdcm::StrictScanner2, and gdcm::StrictScanner.

Examples

ReadAndDumpDICOMDIR.cxx.

Referenced by gdcm::DataElement::operator<<, and operator<<.

12.217.3.3 Register()

```
void gdcm::Object::Register ()  [inline], [protected]
```

12.217.3.4 UnRegister()

```
void gdcm::Object::UnRegister ()  [inline], [protected]
```

12.217.4 Friends And Related Symbol Documentation

12.217.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const Object & obj)  [friend]
```

References Object(), and Print().

Referenced by SmartPointer.

12.217.4.2 SmartPointer

```
template<class ObjectType>
friend class SmartPointer  [friend]
```

References Object(), operator<<, and SmartPointer.

Referenced by gdcm::Segment::AddSurface(), gdcm::Segment::GetSurface(), gdcm::Bitmap::SetLUT(), gdcm::Surface::SetMeshPrimitive and SmartPointer.

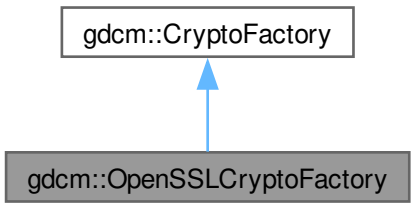
The documentation for this class was generated from the following file:

- gdcmObject.h

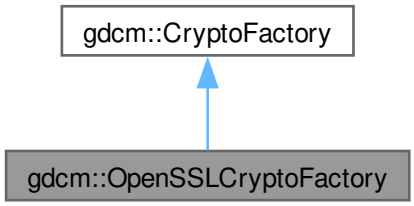
12.218 gdcm::OpenSSLCryptoFactory Class Reference

```
#include <gdcmOpenSSLCryptoFactory.h>
```

Inheritance diagram for gdcm::OpenSSLCryptoFactory:



Collaboration diagram for gdcm::OpenSSLCryptoFactory:



Public Member Functions

- OpenSSLCryptoFactory (CryptoLib id)
- CryptographicMessageSyntax * CreateCMSProvider ()

Protected Member Functions

- void InitOpenSSL ()

Protected Member Functions inherited from gdcm::CryptoFactory

- CryptoFactory ()=default
- CryptoFactory (CryptoLib id)
- ~CryptoFactory ()=default

Additional Inherited Members

Public Types inherited from gdcm::CryptoFactory

- enum CryptoLib {
  DEFAULT = 0 ,
  OPENSSL = 1 ,
  CAPI = 2 ,
  OPENSSLP7 = 3 }

Static Public Member Functions inherited from gdcm::CryptoFactory

- static CryptoFactory * GetFactoryInstance (CryptoLib id=DEFAULT)

12.218.1 Constructor & Destructor Documentation

12.218.1.1 OpenSSLCryptoFactory()

```
gdcm::OpenSSLCryptoFactory::OpenSSLCryptoFactory (
            CryptoLib id)  [inline]
```

References gdcm::CryptoFactory::CryptoFactory(), and gdcmDebugMacro.

Referenced by InitOpenSSL().

12.218.2 Member Function Documentation

12.218.2.1 CreateCMSProvider()

```
CryptographicMessageSyntax * gdcm::OpenSSLCryptoFactory::CreateCMSProvider ()  [inline], [virtual]
```

Implements gdcm::CryptoFactory.

References InitOpenSSL().

12.218.2.2 InitOpenSSL()

```
void gdcm::OpenSSLCryptoFactory::InitOpenSSL ()  [protected]
```

References OpenSSLCryptoFactory().

Referenced by CreateCMSProvider().

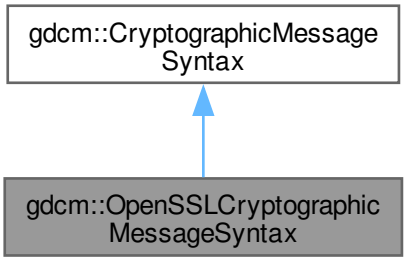
The documentation for this class was generated from the following file:

- gdcmOpenSSLCryptoFactory.h

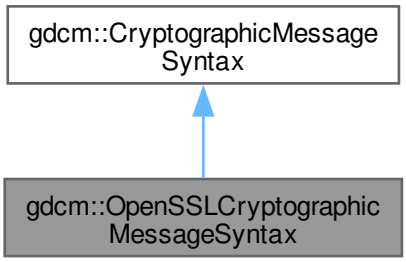
12.219 gdcm::OpenSSLCryptographicMessageSyntax Class Reference

```
#include <gdcmOpenSSLCryptographicMessageSyntax.h>
```

Inheritance diagram for gdcm::OpenSSLCryptographicMessageSyntax:



Collaboration diagram for gdcm::OpenSSLCryptographicMessageSyntax:



Public Member Functions

- OpenSSLCryptographicMessageSyntax ()
- ~OpenSSLCryptographicMessageSyntax ()
- bool Decrypt (char *output, size_t &outlen, const char *array, size_t len) const

  decrypt content from a PKCS#7 envelopedData structure
- bool Encrypt (char *output, size_t &outlen, const char *array, size_t len) const

  create a CMS envelopedData structure
- CipherTypes GetCipherType () const
- bool ParseCertificateFile (const char *filename)
- bool ParseKeyFile (const char *filename)
- void SetCipherType (CipherTypes type)
- bool SetPassword (const char *pass, size_t passLen)

Public Member Functions inherited from gdcm::CryptographicMessageSyntax

- CryptographicMessageSyntax ()=default
- CryptographicMessageSyntax (const CryptographicMessageSyntax &)=delete
- virtual ~CryptographicMessageSyntax ()=default
- void operator= (const CryptographicMessageSyntax &)=delete

Additional Inherited Members

Public Types inherited from gdcm::CryptographicMessageSyntax

- enum CipherTypes {
  DES3_CIPHER ,
  AES128_CIPHER ,
  AES192_CIPHER ,
  AES256_CIPHER }

12.219.1 Constructor & Destructor Documentation

12.219.1.1 OpenSSLCryptographicMessageSyntax()

```
gdcm::OpenSSLCryptographicMessageSyntax::OpenSSLCryptographicMessageSyntax ()
```

Referenced by Decrypt().

12.219.1.2 ~OpenSSLCryptographicMessageSyntax()

```
gdcm::OpenSSLCryptographicMessageSyntax::~OpenSSLCryptographicMessageSyntax ()
```

12.219.2 Member Function Documentation

12.219.2.1 Decrypt()

```
bool gdcm::OpenSSLCryptographicMessageSyntax::Decrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len) const  [virtual]
```

decrypt content from a PKCS#7 envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

References OpenSSLCryptographicMessageSyntax().

12.219.2.2 Encrypt()

```
bool gdcm::OpenSSLCryptographicMessageSyntax::Encrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len) const  [virtual]
```

create a CMS envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

12.219.2.3 GetCipherType()

```
CipherTypes gdcm::OpenSSLCryptographicMessageSyntax::GetCipherType () const  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.219.2.4 ParseCertificateFile()

```
bool gdcm::OpenSSLCryptographicMessageSyntax::ParseCertificateFile (
            const char * filename)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.219.2.5 ParseKeyFile()

```
bool gdcm::OpenSSLCryptographicMessageSyntax::ParseKeyFile (
            const char * filename)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.219.2.6 SetCipherType()

```
void gdcm::OpenSSLCryptographicMessageSyntax::SetCipherType (
            CipherTypes type)  [virtual]
```

Set Cipher Type. Default is: AES256_CIPHER

Implements gdcm::CryptographicMessageSyntax.

12.219.2.7 SetPassword()

```
bool gdcm::OpenSSLCryptographicMessageSyntax::SetPassword (
            const char * pass,
            size_t passLen)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

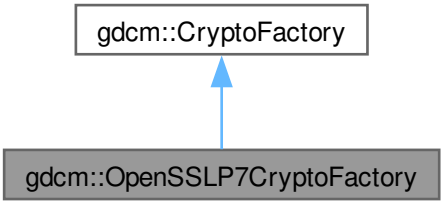
The documentation for this class was generated from the following file:

- gdcmOpenSSLCryptographicMessageSyntax.h

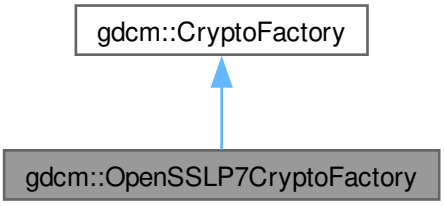
12.220 gdcm::OpenSSLP7CryptoFactory Class Reference

`#include <gdcmOpenSSLP7CryptoFactory.h>`

Inheritance diagram for gdcm::OpenSSLP7CryptoFactory:



Collaboration diagram for gdcm::OpenSSLP7CryptoFactory:



Public Member Functions

- OpenSSLP7CryptoFactory (CryptoLib id)
- CryptographicMessageSyntax * CreateCMSProvider ()

Additional Inherited Members

Public Types inherited from gdcm::CryptoFactory

- enum CryptoLib {
  DEFAULT = 0 ,
  OPENSSL = 1 ,
  CAPI = 2 ,
  OPENSSLP7 = 3 }

Static Public Member Functions inherited from gdcm::CryptoFactory

- static CryptoFactory * GetFactoryInstance (CryptoLib id=DEFAULT)

Protected Member Functions inherited from gdcm::CryptoFactory

- CryptoFactory ()=default
- CryptoFactory (CryptoLib id)
- ~CryptoFactory ()=default

12.220.1 Constructor & Destructor Documentation

12.220.1.1 OpenSSLP7CryptoFactory()

```
gdcm::OpenSSLP7CryptoFactory::OpenSSLP7CryptoFactory (
            CryptoLib id)  [inline]
```

References gdcm::CryptoFactory::CryptoFactory(), and gdcmDebugMacro.

12.220.2 Member Function Documentation

12.220.2.1 CreateCMSProvider()

```
CryptographicMessageSyntax * gdcm::OpenSSLP7CryptoFactory::CreateCMSProvider ()  [inline], [virtual]
```

Implements gdcm::CryptoFactory.

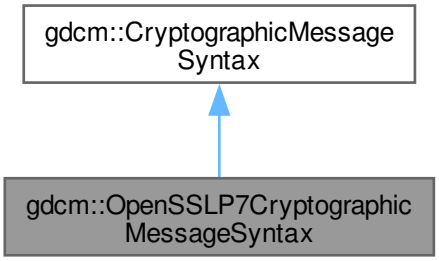
The documentation for this class was generated from the following file:

- gdcmOpenSSLP7CryptoFactory.h

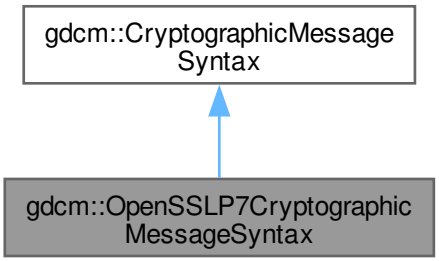
12.221 gdcm::OpenSSLP7CryptographicMessageSyntax Class Reference

`#include <gdcmOpenSSLP7CryptographicMessageSyntax.h>`

Inheritance diagram for gdcm::OpenSSLP7CryptographicMessageSyntax:



Collaboration diagram for gdcm::OpenSSLP7CryptographicMessageSyntax:



Public Member Functions

- OpenSSLP7CryptographicMessageSyntax ()
- ~OpenSSLP7CryptographicMessageSyntax ()
- bool Decrypt (char *output, size_t &outlen, const char *array, size_t len) const
  decrypt content from a PKCS#7 envelopedData structure
- bool Encrypt (char *output, size_t &outlen, const char *array, size_t len) const
  create a PKCS#7 envelopedData structure
- CipherTypes GetCipherType () const
- bool ParseCertificateFile (const char *filename)
- bool ParseKeyFile (const char *filename)
- void SetCipherType (CipherTypes type)
- bool SetPassword (const char *, size_t)

Public Member Functions inherited from gdcm::CryptographicMessageSyntax

- CryptographicMessageSyntax ()=default
- CryptographicMessageSyntax (const CryptographicMessageSyntax &)=delete
- virtual ~CryptographicMessageSyntax ()=default
- void operator= (const CryptographicMessageSyntax &)=delete

Additional Inherited Members

Public Types inherited from gdcm::CryptographicMessageSyntax

- enum CipherTypes {
  DES3_CIPHER ,
  AES128_CIPHER ,
  AES192_CIPHER ,
  AES256_CIPHER }

12.221.1 Detailed Description

Class for CryptographicMessageSyntax encryption. This is just a simple wrapper around openssl PKCS7_encrypt functionalities

See online documentation `http://www.openssl.org/docs/crypto/PKCS7_encrypt.html`

12.221.2 Constructor & Destructor Documentation

12.221.2.1 OpenSSLP7CryptographicMessageSyntax()

```
gdcm::OpenSSLP7CryptographicMessageSyntax::OpenSSLP7CryptographicMessageSyntax ()
```

Referenced by Decrypt().

12.221.2.2 ~OpenSSLP7CryptographicMessageSyntax()

```
gdcm::OpenSSLP7CryptographicMessageSyntax::~OpenSSLP7CryptographicMessageSyntax ()
```

12.221.3 Member Function Documentation

12.221.3.1 Decrypt()

```
bool gdcm::OpenSSLP7CryptographicMessageSyntax::Decrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len) const  [virtual]
```

decrypt content from a PKCS#7 envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

References OpenSSLP7CryptographicMessageSyntax().

12.221.3.2 Encrypt()

```
bool gdcm::OpenSSLP7CryptographicMessageSyntax::Encrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len) const  [virtual]
```

create a PKCS#7 envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

12.221.3.3 GetCipherType()

```
CipherTypes gdcm::OpenSSLP7CryptographicMessageSyntax::GetCipherType () const  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.221.3.4 ParseCertificateFile()

```
bool gdcm::OpenSSLP7CryptographicMessageSyntax::ParseCertificateFile (
            const char * filename)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.221.3.5 ParseKeyFile()

```
bool gdcm::OpenSSLP7CryptographicMessageSyntax::ParseKeyFile (
            const char * filename)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.221.3.6 SetCipherType()

```
void gdcm::OpenSSLP7CryptographicMessageSyntax::SetCipherType (
            CipherTypes type)  [virtual]
```

Set Cipher Type. Default is: AES256_CIPHER

Implements gdcm::CryptographicMessageSyntax.

12.221.3.7 SetPassword()

```
bool gdcm::OpenSSLP7CryptographicMessageSyntax::SetPassword (
            const char * ,
            size_t )  [inline], [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

References gdcmWarningMacro.

The documentation for this class was generated from the following file:

- gdcmOpenSSLP7CryptographicMessageSyntax.h

12.222 gdcm::Orientation Class Reference

class to handle Orientation

```
#include <gdcmOrientation.h>
```

Public Types

- enum OrientationType {
  UNKNOWN ,
  AXIAL ,
  CORONAL ,
  SAGITTAL ,
  OBLIQUE }

Public Member Functions

- Orientation ()
- ~Orientation ()=default
- void Print (std::ostream &) const

  Print.

Static Public Member Functions

- static const char * GetLabel (OrientationType type)

  Return the label of an Orientation.
- static double GetObliquityThresholdCosineValue ()
- static OrientationType GetType (const double dircos[6])
- static void SetObliquityThresholdCosineValue (double val)

  ObliquityThresholdCosineValue stuff.

Static Protected Member Functions

- static char GetMajorAxisFromPatientRelativeDirectionCosine (double x, double y, double z)

Friends

- std::ostream & operator<< (std::ostream &_os, const Orientation &o)

12.222.1 Detailed Description

class to handle Orientation

12.222.2 Member Enumeration Documentation

12.222.2.1 OrientationType

```
enum gdcm::Orientation::OrientationType
```

Enumerator

UNKNOWN	
AXIAL	
CORONAL	
SAGITTAL	
OBLIQUE	

Examples

FixOrientation.cxx.

12.222.3 Constructor & Destructor Documentation

12.222.3.1 Orientation()

```
gdcm::Orientation::Orientation ()
```

Referenced by operator<<.

12.222.3.2 ~Orientation()

```
gdcm::Orientation::~Orientation ()  [default]
```

12.222.4 Member Function Documentation

12.222.4.1 GetLabel()

```
const char * gdcm::Orientation::GetLabel (
            OrientationType type)  [static]
```

Return the label of an Orientation.

Examples

FixOrientation.cxx.

12.222.4.2 GetMajorAxisFromPatientRelativeDirectionCosine()

```
char gdcm::Orientation::GetMajorAxisFromPatientRelativeDirectionCosine (
            double x,
            double y,
            double z)  [static], [protected]
```

12.222.4.3 GetObliquityThresholdCosineValue()

```
double gdcm::Orientation::GetObliquityThresholdCosineValue ()  [static]
```

12.222.4.4 GetType()

```
OrientationType gdcm::Orientation::GetType (
            const double dircos[6])  [static]
```

Return the type of orientation from a direction cosines Input is an array of 6 double

Examples

FixOrientation.cxx.

12.222.4.5 Print()

```
void gdcm::Orientation::Print (
            std::ostream & ) const
```

Print.

Referenced by operator<<.

12.222.4.6 SetObliquityThresholdCosineValue()

```
void gdcm::Orientation::SetObliquityThresholdCosineValue (
             double val)  [static]
```

ObliquityThresholdCosineValue stuff.

12.222.5 Friends And Related Symbol Documentation

12.222.5.1 operator<<

```
std::ostream & operator<< (
             std::ostream & _os,
             const Orientation & o)  [friend]
```

References Orientation(), and Print().

The documentation for this class was generated from the following file:

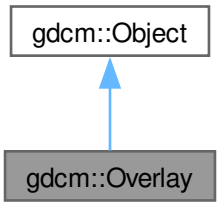
- gdcmOrientation.h

12.223 gdcm::Overlay Class Reference

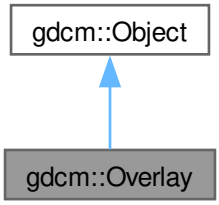
Overlay class.

```
#include <gdcmOverlay.h>
```

Inheritance diagram for gdcm::Overlay:



Collaboration diagram for gdcm::Overlay:



Public Types

- enum OverlayType {
  Invalid = 0 ,
  Graphics = 1 ,
  ROI = 2 }

Public Member Functions

- Overlay ()
- Overlay (Overlay const &ov)
- ~Overlay () override
- void Decompress (std::ostream &os) const

  Decode the internal OverlayData (packed bits) into unpacked representation.
- unsigned short GetBitPosition () const

  return bit position
- unsigned short GetBitsAllocated () const

  return bits allocated
- unsigned short GetColumns () const

  get columns
- const char * GetDescription () const

  get description
- unsigned short GetGroup () const

  Get Group number.
- const signed short * GetOrigin () const

  get origin
- const ByteValue & GetOverlayData () const
- unsigned short GetRows () const

  get rows
- const char * GetType () const

  get type
- OverlayType GetTypeAsEnum () const

- bool GetUnpackBuffer (char *buffer, size_t len) const
- size_t GetUnpackBufferLength () const
- bool GrabOverlayFromPixelData (DataSet const &ds)
- bool IsEmpty () const

  Return whether or not the Overlay is empty:
- bool IsInPixelData () const

  return if the Overlay is stored in the pixel data or not
- void IsInPixelData (bool b)

  Set whether or no the OverlayData is in the Pixel Data:
- bool IsZero () const

  return true if all bits are set to 0
- Overlay & operator= (Overlay const &ov)
- void Print (std::ostream &) const override

  Print.
- void SetBitPosition (unsigned short bitposition)

  set bit position
- void SetBitsAllocated (unsigned short bitsallocated)

  set bits allocated
- void SetColumns (unsigned short columns)

  set columns
- void SetDescription (const char *description)

  set description
- void SetFrameOrigin (unsigned short frameorigin)

  set frame origin
- void SetGroup (unsigned short group)

  Set Group number.
- void SetNumberOfFrames (unsigned int numberofframes)

  set number of frames
- void SetOrigin (const signed short origin[2])

  set origin
- void SetOverlay (const char *array, size_t length)

  set overlay from byte array + length
- void SetRows (unsigned short rows)

  set rows
- void SetType (const char *type)

  set type
- void Update (const DataElement &de)

  Update overlay from data element de:

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static const char * GetOverlayTypeAsString (OverlayType ot)
- static OverlayType GetOverlayTypeFromString (const char *)

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.223.1 Detailed Description

Overlay class.

Note

see AreOverlaysInPixelData

Todo Is there actually any way to recognize an overlay ? On images with multiple overlay I do not see any way to differentiate them (other than the group tag).

Example:

12.223.2 Member Enumeration Documentation

12.223.2.1 OverlayType

```
enum gdcm::Overlay::OverlayType
```

Enumerator

Invalid	
Graphics	
ROI	

12.223.3 Constructor & Destructor Documentation

12.223.3.1 Overlay() [1/2]

```
gdcm::Overlay::Overlay ()
```

Referenced by Overlay(), and operator=().

12.223.3.2 ~Overlay()

```
gdcm::Overlay::~Overlay ()  [override]
```

12.223.3.3 Overlay() [2/2]

```
gdcm::Overlay::Overlay (
            Overlay const & ov)
```

References Overlay().

12.223.4 Member Function Documentation

12.223.4.1 Decompress()

```
void gdcm::Overlay::Decompress (
            std::ostream & os) const
```

Decode the internal OverlayData (packed bits) into unpacked representation.

12.223.4.2 GetBitPosition()

```
unsigned short gdcm::Overlay::GetBitPosition () const
```

return bit position

12.223.4.3 GetBitsAllocated()

```
unsigned short gdcm::Overlay::GetBitsAllocated () const
```

return bits allocated

12.223.4.4 GetColumns()

```
unsigned short gdcm::Overlay::GetColumns () const
```

get columns

12.223.4.5 GetDescription()

```
const char * gdcm::Overlay::GetDescription () const
```

get description

12.223.4.6 GetGroup()

```
unsigned short gdcm::Overlay::GetGroup () const
```

Get Group number.

12.223.4.7 GetOrigin()

```
const signed short * gdcm::Overlay::GetOrigin () const
```

get origin

12.223.4.8 GetOverlayData()

```
const ByteValue & gdcm::Overlay::GetOverlayData () const
```

Return the Overlay Data as ByteValue: Not thread safe

12.223.4.9 GetOverlayTypeAsString()

```
const char * gdcm::Overlay::GetOverlayTypeAsString (
            OverlayType ot)  [static]
```

12.223.4.10 GetOverlayTypeFromString()

```
OverlayType gdcm::Overlay::GetOverlayTypeFromString (
            const char * )  [static]
```

12.223.4.11 GetRows()

```
unsigned short gdcm::Overlay::GetRows () const
```

get rows

12.223.4.12 GetType()

```
const char * gdcm::Overlay::GetType () const
```

get type

12.223.4.13 GetTypeAsEnum()

```
OverlayType gdcm::Overlay::GetTypeAsEnum () const
```

12.223.4.14 GetUnpackBuffer()

```
bool gdcm::Overlay::GetUnpackBuffer (
            char * buffer,
            size_t len) const
```

Retrieve the unpack buffer for Overlay. This is an error if the size if below GetUnpackBufferLength()

12.223.4.15 GetUnpackBufferLength()

```
size_t gdcm::Overlay::GetUnpackBufferLength () const
```

Retrieve the size of the buffer needed to hold the Overlay as specified by Col & Row parameters

12.223.4.16 GrabOverlayFromPixelData()

```
bool gdcm::Overlay::GrabOverlayFromPixelData (
            DataSet const & ds)
```

12.223.4.17 IsEmpty()

```
bool gdcm::Overlay::IsEmpty () const
```

Return whether or not the Overlay is empty:

12.223.4.18 IsInPixelData() [1/2]

```
bool gdcm::Overlay::IsInPixelData () const
```

return if the Overlay is stored in the pixel data or not

12.223.4.19 IsInPixelData() [2/2]

```
void gdcm::Overlay::IsInPixelData (
            bool b)
```

Set whether or no the OverlayData is in the Pixel Data:

12.223.4.20 IsZero()

```
bool gdcm::Overlay::IsZero () const
```

return true if all bits are set to 0

12.223.4.21 operator=()

```
Overlay & gdcm::Overlay::operator= (
            Overlay const & ov)
```

References Overlay().

12.223.4.22 Print()

```
void gdcm::Overlay::Print (
            std::ostream & ) const  [override], [virtual]
```

Print.

Reimplemented from gdcm::Object.

12.223.4.23 SetBitPosition()

```
void gdcm::Overlay::SetBitPosition (
            unsigned short bitposition)
```

set bit position

12.223.4.24 SetBitsAllocated()

```
void gdcm::Overlay::SetBitsAllocated (
            unsigned short bitsallocated)
```

set bits allocated

12.223.4.25 SetColumns()

```
void gdcm::Overlay::SetColumns (
            unsigned short columns)
```

set columns

12.223.4.26 SetDescription()

```
void gdcm::Overlay::SetDescription (
            const char * description)
```

set description

12.223.4.27 SetFrameOrigin()

```
void gdcm::Overlay::SetFrameOrigin (
            unsigned short frameorigin)
```

set frame origin

12.223.4.28 SetGroup()

```
void gdcm::Overlay::SetGroup (
            unsigned short group)
```

Set Group number.

12.223.4.29 SetNumberOfFrames()

```
void gdcm::Overlay::SetNumberOfFrames (
            unsigned int numberofframes)
```

set number of frames

12.223.4.30 SetOrigin()

```
void gdcm::Overlay::SetOrigin (
            const signed short origin[2])
```

set origin

12.223.4.31 SetOverlay()

```
void gdcm::Overlay::SetOverlay (
            const char * array,
            size_t length)
```

set overlay from byte array + length

12.223.4.32 SetRows()

```
void gdcm::Overlay::SetRows (
            unsigned short rows)
```

set rows

12.223.4.33 SetType()

```
void gdcm::Overlay::SetType (
            const char * type)
```

set type

12.223.4.34 Update()

```
void gdcm::Overlay::Update (
            const DataElement & de)
```

Update overlay from data element de:

The documentation for this class was generated from the following file:

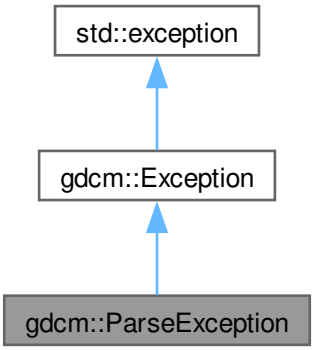
- gdcmOverlay.h

12.224 gdcm::ParseException Class Reference

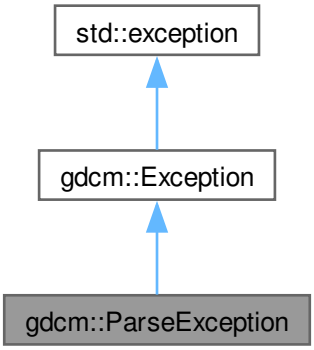
ParseException Standard exception handling object.

`#include <gdcmParseException.h>`

Inheritance diagram for gdcm::ParseException:



Collaboration diagram for gdcm::ParseException:



Public Member Functions

- ParseException ()=default
- ParseException (const ParseException &orig)
- ~ParseException () override throw ()
- const DataElement & GetLastElement () const
- ParseException & operator= (const ParseException &orig)
- void SetLastElement (DataElement &de)

Public Member Functions inherited from gdcm::Exception

- Exception (const char *desc="None", const char *file=__FILE__, unsigned int lineNumber=__LINE__, const char *func="")
- ~Exception () override throw ()
- const char * GetDescription () const

  Return the Description.
- const char * what () const override throw ()

  what implementation

12.224.1 Detailed Description

ParseException Standard exception handling object.

12.224.2 Constructor & Destructor Documentation

12.224.2.1 ParseException() [1/2]

```
gdcm::ParseException::ParseException () [default]
```

Referenced by ParseException(), and operator=().

12.224.2.2 ~ParseException()

```
gdcm::ParseException::~ParseException () throw ( ) [inline], [override]
```

12.224.2.3 ParseException() [2/2]

```
gdcm::ParseException::ParseException (
            const ParseException & orig) [inline]
```

References gdcm::Exception::Exception(), and ParseException().

12.224.3 Member Function Documentation

12.224.3.1 GetLastElement()

```
const DataElement & gdcm::ParseException::GetLastElement () const [inline]
```

12.224.3.2 operator=()

```
ParseException & gdcm::ParseException::operator= (
            const ParseException & orig) [inline]
```

Assignment operator.

References ParseException().

12.224.3.3 SetLastElement()

```
void gdcm::ParseException::SetLastElement (
            DataElement & de) [inline]
```

Equivalence operator.

Referenced by gdcm::BasicOffsetTable::Read(), gdcm::Fragment::ReadBacktrack(), and gdcm::Fragment::ReadValue().

The documentation for this class was generated from the following file:

- gdcmParseException.h

12.225 gdcm::Parser Class Reference

Parser ala XML_Parser from expat (SAX).

`#include <gdcmParser.h>`

Public Types

- typedef void(∗ EndElementHandler) (void ∗userData, const Tag &name)
- enum ErrorType {
  NoError ,
  NoMemoryError ,
  SyntaxError ,
  NoElementsError ,
  TagMismatchError ,
  DuplicateAttributeError ,
  JunkAfterDocElementError ,
  UndefinedEntityError ,
  UnexpectedStateError }
- typedef void(∗ StartElementHandler) (void ∗userData, const Tag &tag, const char ∗atts[ ])

Public Member Functions

- Parser ()
- ∼Parser ()
- unsigned long GetCurrentByteIndex () const
- ErrorType GetErrorCode () const
- void ∗ GetUserData () const
- bool Parse (const char ∗s, int len, bool isFinal)
- void SetElementHandler (StartElementHandler start, EndElementHandler end)
- void SetUserData (void ∗userData)

Static Public Member Functions

- static const char ∗ GetErrorString (ErrorType const &err)

Protected Member Functions

- char ∗ GetBuffer (int len)
- bool ParseBuffer (int len, bool isFinal)
- ErrorType Process ()

12.225.1 Detailed Description

Parser ala XML_Parser from expat (SAX).

Detailed description here

Note

Simple API for DICOM

12.225.2 Member Typedef Documentation

12.225.2.1 EndElementHandler

```
typedef void(* gdcm::Parser::EndElementHandler) (void *userData, const Tag &name)
```

12.225.2.2 StartElementHandler

```
typedef void(* gdcm::Parser::StartElementHandler) (void *userData, const Tag &tag, const char
*atts[])
```

12.225.3 Member Enumeration Documentation

12.225.3.1 ErrorType

```
enum gdcm::Parser::ErrorType
```

Enumerator

NoError	
NoMemoryError	
SyntaxError	
NoElementsError	
TagMismatchError	
DuplicateAttributeError	
JunkAfterDocElementError	
UndefinedEntityError	
UnexpectedStateError	

12.225.4 Constructor & Destructor Documentation

12.225.4.1 Parser()

```
gdcm::Parser::Parser ()  [inline]
```

References NoError.

12.225.4.2 ~Parser()

```
gdcm::Parser::~Parser ()  [inline]
```

12.225.5 Member Function Documentation

12.225.5.1 GetBuffer()

```
char * gdcm::Parser::GetBuffer (
            int len)  [protected]
```

12.225.5.2 GetCurrentByteIndex()

```
unsigned long gdcm::Parser::GetCurrentByteIndex () const
```

12.225.5.3 GetErrorCode()

```
ErrorType gdcm::Parser::GetErrorCode () const
```

12.225.5.4 GetErrorString()

```
const char * gdcm::Parser::GetErrorString (
            ErrorType const & err)  [static]
```

12.225.5.5 GetUserData()

```
void * gdcm::Parser::GetUserData () const
```

12.225.5.6 Parse()

```
bool gdcm::Parser::Parse (
            const char * s,
            int len,
            bool isFinal)
```

12.225.5.7 ParseBuffer()

```
bool gdcm::Parser::ParseBuffer (
            int len,
            bool isFinal)  [protected]
```

12.225.5.8 Process()

```
ErrorType gdcm::Parser::Process ()  [protected]
```

12.225.5.9 SetElementHandler()

```
void gdcm::Parser::SetElementHandler (
            StartElementHandler start,
            EndElementHandler end)
```

12.225.5.10 SetUserData()

```
void gdcm::Parser::SetUserData (
            void * userData)
```

The documentation for this class was generated from the following file:

- gdcmParser.h

12.226 gdcm::Patient Class Reference

See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54.

`#include <gdcmPatient.h>`

Public Member Functions

- Patient ()=default

12.226.1 Detailed Description

See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54.

12.226.2 Constructor & Destructor Documentation

12.226.2.1 Patient()

```
gdcm::Patient::Patient ()  [default]
```

The documentation for this class was generated from the following file:

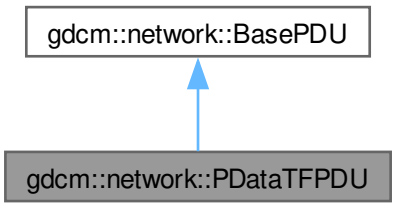
- gdcmPatient.h

12.227 gdcm::network::PDataTFPDU Class Reference

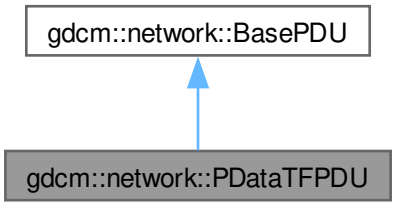
PDataTFPDU.

```
#include <gdcmPDataTFPDU.h>
```

Inheritance diagram for gdcm::network::PDataTFPDU:



Collaboration diagram for gdcm::network::PDataTFPDU:



Public Types

- typedef std::vector< PresentationDataValue >::size_type SizeType

Public Member Functions

- PDataTFPDU ()
- void AddPresentationDataValue (PresentationDataValue const &pdv)
- SizeType GetNumberOfPresentationDataValues () const
- PresentationDataValue const & GetPresentationDataValue (SizeType i) const
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

Protected Member Functions

- std::istream & ReadInto (std::istream &is, std::ostream &os)

12.227.1 Detailed Description

PDataTFPDU.

Table 9-22 P-DATA-TF PDU FIELDS

12.227.2 Member Typedef Documentation

12.227.2.1 SizeType

```
typedef std::vector<PresentationDataValue>::size_type gdcm::network::PDataTFPDU::SizeType
```

12.227.3 Constructor & Destructor Documentation

12.227.3.1 PDataTFPDU()

```
gdcm::network::PDataTFPDU::PDataTFPDU ()
```

12.227.4 Member Function Documentation

12.227.4.1 AddPresentationDataValue()

```
void gdcm::network::PDataTFPDU::AddPresentationDataValue (
            PresentationDataValue const & pdv)  [inline]
```

References Size().

12.227.4.2 GetNumberOfPresentationDataValues()

```
SizeType gdcm::network::PDataTFPDU::GetNumberOfPresentationDataValues () const  [inline]
```

12.227.4.3 GetPresentationDataValue()

```
PresentationDataValue const & gdcm::network::PDataTFPDU::GetPresentationDataValue (
            SizeType i) const  [inline]
```

12.227.4.4 IsLastFragment()

```
bool gdcm::network::PDataTFPDU::IsLastFragment () const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.227.4.5 Print()

```
void gdcm::network::PDataTFPDU::Print (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.227.4.6 Read()

```
std::istream & gdcm::network::PDataTFPDU::Read (
            std::istream & is)  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.227.4.7 ReadInto()

```
std::istream & gdcm::network::PDataTFPDU::ReadInto (
            std::istream & is,
            std::ostream & os)  [protected]
```

12.227.4.8 Size()

```
size_t gdcm::network::PDataTFPDU::Size () const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

Referenced by AddPresentationDataValue().

12.227.4.9 Write()

```
const std::ostream & gdcm::network::PDataTFPDU::Write (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

The documentation for this class was generated from the following file:

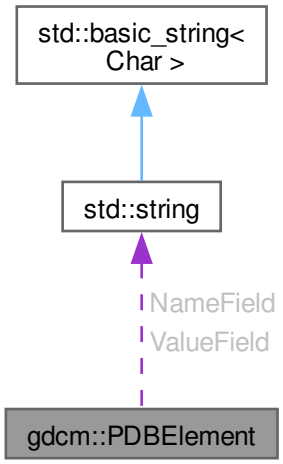
- gdcmPDataTFPDU.h

12.228 gdcm::PDBElement Class Reference

Class to represent a PDB Element.

```
#include <gdcmPDBElement.h>
```

Collaboration diagram for gdcm::PDBElement:



Public Member Functions

- PDBElement ()=default
- const char * GetName () const

  Set/Get Name.
- const char * GetValue () const

  Set/Get Value.
- bool operator== (const PDBElement &de) const
- void SetName (const char *name)
- void SetValue (const char *value)

Protected Attributes

- std::string NameField
- std::string ValueField

Friends

- std::ostream & operator<< (std::ostream &os, const PDBElement &val)

12.228.1 Detailed Description

Class to represent a PDB Element.

See also

PDBHeader

12.228.2 Constructor & Destructor Documentation

12.228.2.1 PDBElement()

```
gdcm::PDBElement::PDBElement () [default]
```

References PDBElement(), and operator<<.

Referenced by PDBElement(), operator<<, and operator==().

12.228.3 Member Function Documentation

12.228.3.1 GetName()

```
const char * gdcm::PDBElement::GetName () const [inline]
```

Set/Get Name.

References NameField.

12.228.3.2 GetValue()

```
const char * gdcm::PDBElement::GetValue () const  [inline]
```

Set/Get Value.

References ValueField.

12.228.3.3 operator==()

```
bool gdcm::PDBElement::operator== (
            const PDBElement & de) const  [inline]
```

References PDBElement(), NameField, and ValueField.

12.228.3.4 SetName()

```
void gdcm::PDBElement::SetName (
            const char * name)  [inline]
```

References NameField.

12.228.3.5 SetValue()

```
void gdcm::PDBElement::SetValue (
            const char * value)  [inline]
```

References ValueField.

12.228.4 Friends And Related Symbol Documentation

12.228.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const PDBElement & val)  [friend]
```

References PDBElement(), NameField, and ValueField.

Referenced by PDBElement().

12.228.5 Member Data Documentation

12.228.5.1 NameField

```
std::string gdcm::PDBElement::NameField  [protected]
```

Referenced by GetName(), operator<<, operator==(), and SetName().

12.228.5.2 ValueField

```
std::string gdcm::PDBElement::ValueField  [protected]
```

Referenced by GetValue(), operator<<, operator==(), and SetValue().

The documentation for this class was generated from the following file:

- gdcmPDBElement.h

12.229 gdcm::PDBHeader Class Reference

Class for PDBHeader.

```
#include <gdcmPDBHeader.h>
```

Public Member Functions

- PDBHeader ()=default
- ~PDBHeader ()=default
- bool FindPDBElementByName (const char *name)

  Return true if the PDB element matching name is found or not.
- const PDBElement & GetPDBElementByName (const char *name)
- bool LoadFromDataElement (DataElement const &de)

  Load the PDB Header from a DataElement of a DataSet.
- void Print (std::ostream &os) const

  Print.

Static Public Member Functions

- static const PrivateTag & GetPDBInfoTag ()

  Return the Private Tag where the PDB header is stored within a DICOM DataSet.

Protected Member Functions

- const PDBElement & GetPDBEEnd () const

Friends

- std::ostream & operator<< (std::ostream &_os, const PDBHeader &d)

12.229.1 Detailed Description

Class for PDBHeader.

GEMS MR Image have an Attribute (0025,1b,GEMS_SERS_01) which store the Acquisition parameter of the MR Image. It is compressed and can therefore not be used as is. This class de-encapsulated the Protocol Data Block and allow users to query element by name.

Warning

Everything you do with this code is at your own risk, since decoding process was not written from specification documents.

: the API of this class might change.

: SEDESC is not always pure ASCII it can contains latin1

See also

CSAHeader

12.229.2 Constructor & Destructor Documentation

12.229.2.1 PDBHeader()

```
gdcm::PDBHeader::PDBHeader ()  [default]
```

Referenced by operator<<.

12.229.2.2 ~PDBHeader()

```
gdcm::PDBHeader::~PDBHeader ()  [default]
```

12.229.3 Member Function Documentation

12.229.3.1 FindPDBElementByName()

```
bool gdcm::PDBHeader::FindPDBElementByName (
            const char * name)
```

Return true if the PDB element matching name is found or not.

12.229.3.2 GetPDBEEnd()

```
const PDBElement & gdcm::PDBHeader::GetPDBEEnd () const  [protected]
```

12.229.3.3 GetPDBElementByName()

```
const PDBElement & gdcm::PDBHeader::GetPDBElementByName (
            const char * name)
```

Lookup in the PDB header if a PDB element match the name 'name':

Warning

Case Sensitive

12.229.3.4 GetPDBInfoTag()

```
const PrivateTag & gdcm::PDBHeader::GetPDBInfoTag ()  [static]
```

Return the Private Tag where the PDB header is stored within a DICOM DataSet.

12.229.3.5 LoadFromDataElement()

```
bool gdcm::PDBHeader::LoadFromDataElement (
            DataElement const & de)
```

Load the PDB Header from a DataElement of a DataSet.

12.229.3.6 Print()

```
void gdcm::PDBHeader::Print (
            std::ostream & os) const
```

Print.

Referenced by operator<<.

12.229.4 Friends And Related Symbol Documentation

12.229.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const PDBHeader & d)  [friend]
```

References PDBHeader(), and Print().

The documentation for this class was generated from the following file:

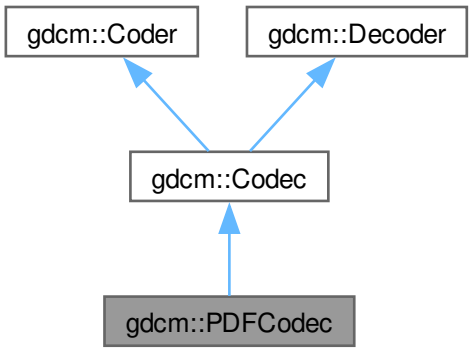
- gdcmPDBHeader.h

12.230 gdcm::PDFCodec Class Reference

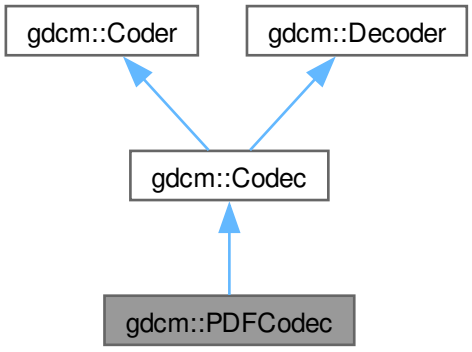
PDFCodec class.

```
#include <gdcmPDFCodec.h>
```

Inheritance diagram for gdcm::PDFCodec:



Collaboration diagram for gdcm::PDFCodec:



Public Member Functions

- PDFCodec ()
- ~PDFCodec () override
- bool CanCode (TransferSyntax const &) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &) const override

  Return whether this decoder support this transfer syntax (can decode it).
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Member Functions inherited from gdcm::Decoder

- virtual bool DecodeByStreams (std::istream &, std::ostream &)

12.230.1 Detailed Description

PDFCodec class.

12.230.2 Constructor & Destructor Documentation

12.230.2.1 PDFCodec()

```
gdcm::PDFCodec::PDFCodec ()
```

12.230.2.2 ~PDFCodec()

```
gdcm::PDFCodec::~PDFCodec ()  [override]
```

12.230.3 Member Function Documentation

12.230.3.1 CanCode()

```
bool gdcm::PDFCodec::CanCode (
            TransferSyntax const & ) const  [inline], [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Implements gdcm::Coder.

12.230.3.2 CanDecode()

```
bool gdcm::PDFCodec::CanDecode (
            TransferSyntax const & ) const  [inline], [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Implements gdcm::Decoder.

12.230.3.3 Decode()

```
bool gdcm::PDFCodec::Decode (
            DataElement const & ,
            DataElement & )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::Decoder.

The documentation for this class was generated from the following file:

- gdcmPDFCodec.h

12.231 gdcm::network::PDUFactory Class Reference

PDUFactory basically, given an initial byte, construct the.

```
#include <gdcmPDUFactory.h>
```

Static Public Member Functions

- static BasePDU * ConstructAbortPDU ()
- static BasePDU * ConstructPDU (uint8_t itemtype)
- static BasePDU * ConstructReleasePDU ()
- static std::vector< BasePDU * > CreateCEchoPDU (const ULConnection &inConnection)
- static std::vector< BasePDU * > CreateCFindPDU (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)
- static std::vector< BasePDU * > CreateCMovePDU (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)
- static std::vector< BasePDU * > CreateCStoreRQPDU (const ULConnection &inConnection, const File &file, bool writeDataSet=true)
- static std::vector< BasePDU * > CreateCStoreRSPPDU (const DataSet *inDataSet, const BasePDU *inPC)
- static std::vector< BasePDU * > CreateNActionPDU (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< BasePDU * > CreateNCreatePDU (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< BasePDU * > CreateNDeletePDU (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< BasePDU * > CreateNEventReportPDU (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< BasePDU * > CreateNGetPDU (const ULConnection &inConnection, const BaseQuery *in↩ Query)
- static std::vector< BasePDU * > CreateNSetPDU (const ULConnection &inConnection, const BaseQuery *in↩ Query)
- static EEventID DetermineEventByPDU (const BasePDU *inPDU)
- static std::vector< PresentationDataValue > GetPDVs (const std::vector< BasePDU * > &inDataPDUs)

12.231.1 Detailed Description

PDUFactory basically, given an initial byte, construct the.

appropriate PDU. This way, the event loop doesn't have to know about all the different PDU types.

12.231.2 Member Function Documentation

12.231.2.1 ConstructAbortPDU()

```
BasePDU * gdcm::network::PDUFactory::ConstructAbortPDU ()  [static]
```

12.231.2.2 ConstructPDU()

```
BasePDU * gdcm::network::PDUFactory::ConstructPDU (
            uint8_t itemtype)  [static]
```

12.231.2.3 ConstructReleasePDU()

```
BasePDU * gdcm::network::PDUFactory::ConstructReleasePDU ()  [static]
```

12.231.2.4 CreateCEchoPDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateCEchoPDU (
            const ULConnection & inConnection)  [static]
```

12.231.2.5 CreateCFindPDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateCFindPDU (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery)  [static]
```

12.231.2.6 CreateCMovePDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateCMovePDU (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery)  [static]
```

12.231.2.7 CreateCStoreRQPDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateCStoreRQPDU (
            const ULConnection & inConnection,
            const File & file,
            bool writeDataSet = true)  [static]
```

12.231.2.8 CreateCStoreRSPPDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateCStoreRSPPDU (
            const DataSet * inDataSet,
            const BasePDU * inPC)  [static]
```

12.231.2.9 CreateNActionPDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNActionPDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.231.2.10 CreateNCreatePDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNCreatePDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.231.2.11 CreateNDeletePDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNDeletePDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.231.2.12 CreateNEventReportPDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNEventReportPDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.231.2.13 CreateNGetPDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNGetPDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.231.2.14 CreateNSetPDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNSetPDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.231.2.15 DetermineEventByPDU()

```
EEventID gdcm::network::PDUFactory::DetermineEventByPDU (
            const BasePDU * inPDU)  [static]
```

12.231.2.16 GetPDVs()

```
std::vector< PresentationDataValue > gdcm::network::PDUFactory::GetPDVs (
            const std::vector< BasePDU * > & inDataPDUs)  [static]
```

The documentation for this class was generated from the following file:

- gdcmPDUFactory.h

12.232 gdcm::PersonName Class Reference

PersonName class.

`#include <gdcmPersonName.h>`

Public Member Functions

- unsigned int GetMaxLength () const
- unsigned int GetNumberOfComponents () const
- void Print (std::ostream &os) const
- void SetBlob (const std::vector< char > &v)
- void SetComponents (const char *comp1="", const char *comp2="", const char *comp3="", const char *comp4="", const char *comp5="")
- void SetComponents (const char *components[ ])

Public Attributes

- char Component [MaxNumberOfComponents][MaxLength+1]

Static Public Attributes

- static const unsigned int MaxLength = 64
- static const unsigned int MaxNumberOfComponents = 5
- static const char Padding = ' '
- static const char Separator = '^'

12.232.1 Detailed Description

PersonName class.

12.232.2 Member Function Documentation

12.232.2.1 GetMaxLength()

```
unsigned int gdcm::PersonName::GetMaxLength () const  [inline]
```

References MaxLength.

Referenced by SetComponents().

12.232.2.2 GetNumberOfComponents()

```
unsigned int gdcm::PersonName::GetNumberOfComponents () const  [inline]
```

References Component.

12.232.2.3 Print()

```
void gdcm::PersonName::Print (
            std::ostream & os) const  [inline]
```

References Component.

12.232.2.4 SetBlob()

```
void gdcm::PersonName::SetBlob (
            const std::vector< char > & v)  [inline]
```

12.232.2.5 SetComponents() [1/2]

```
void gdcm::PersonName::SetComponents (
            const char * comp1 = "",
            const char * comp2 = "",
            const char * comp3 = "",
            const char * comp4 = "",
            const char * comp5 = "")  [inline]
```

References SetComponents().

Referenced by SetComponents().

12.232.2.6 SetComponents() [2/2]

```
void gdcm::PersonName::SetComponents (
            const char * components[])  [inline]
```

References Component, and GetMaxLength().

12.232.3 Member Data Documentation

12.232.3.1 Component

```
char gdcm::PersonName::Component[MaxNumberOfComponents][MaxLength+1]
```

Referenced by GetNumberOfComponents(), Print(), and SetComponents().

12.232.3.2 MaxLength

```
const unsigned int gdcm::PersonName::MaxLength = 64  [static]
```

Referenced by GetMaxLength().

12.232.3.3 MaxNumberOfComponents

```
const unsigned int gdcm::PersonName::MaxNumberOfComponents = 5  [static]
```

12.232.3.4 Padding

```
const char gdcm::PersonName::Padding = ' '  [static]
```

12.232.3.5 Separator

```
const char gdcm::PersonName::Separator = '^'  [static]
```

The documentation for this class was generated from the following file:

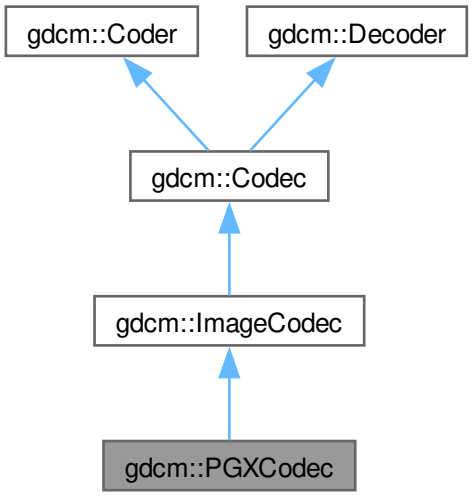
- gdcmPersonName.h

12.233 gdcm::PGXCodec Class Reference

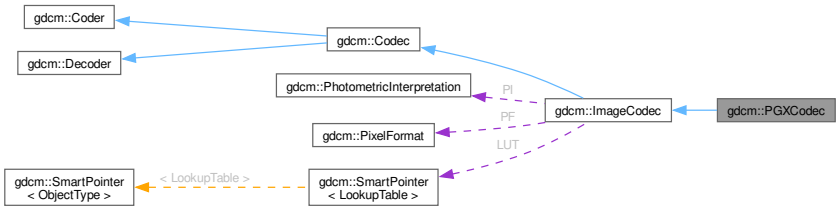
Class to do PGX.

`#include <gdcmPGXCodec.h>`

Inheritance diagram for gdcm::PGXCodec:



Collaboration diagram for gdcm::PGXCodec:



Public Member Functions

- PGXCodec ()
- ~PGXCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool Read (const char *filename, DataElement &out) const
- bool Write (const char *filename, const DataElement &out) const

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- bool Decode (DataElement const &is_, DataElement &os) override

  Decode.
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.233.1 Detailed Description

Class to do PGX.

See PGX as used in JPEG 2000 implementation and reference images

12.233.2 Constructor & Destructor Documentation

12.233.2.1 PGXCodec()

```
gdcm::PGXCodec::PGXCodec ()
```

12.233.2.2 ~PGXCodec()

```
gdcm::PGXCodec::~PGXCodec ()  [override]
```

12.233.3 Member Function Documentation

12.233.3.1 CanCode()

```
bool gdcm::PGXCodec::CanCode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

12.233.3.2 CanDecode()

```
bool gdcm::PGXCodec::CanDecode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.233.3.3 Clone()

```
ImageCodec * gdcm::PGXCodec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.233.3.4 GetHeaderInfo()

```
bool gdcm::PGXCodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.233.3.5 Read()

```
bool gdcm::PGXCodec::Read (
            const char * filename,
            DataElement & out) const
```

12.233.3.6 Write()

```
bool gdcm::PGXCodec::Write (
            const char * filename,
            const DataElement & out) const
```

The documentation for this class was generated from the following file:

- gdcmPGXCodec.h

12.234 gdcm::PhotometricInterpretation Class Reference

Class to represent an PhotometricInterpretation.

```
#include <gdcmPhotometricInterpretation.h>
```

Public Types

- enum PIType {
  UNKNOWN = 0 ,
  MONOCHROME1 ,
  MONOCHROME2 ,
  PALETTE_COLOR ,
  RGB ,
  HSV ,
  ARGB ,
  CMYK ,
  YBR_FULL ,
  YBR_FULL_422 ,
  YBR_PARTIAL_422 ,
  YBR_PARTIAL_420 ,
  YBR_ICT ,
  YBR_RCT ,
  PI_END }

Public Member Functions

- PhotometricInterpretation (PIType pi=UNKNOWN)
- unsigned short GetSamplesPerPixel () const

  return the value for Sample Per Pixel associated with a particular Photometric Interpretation
- const char * GetString () const
- PIType GetType () const
- bool IsLossless () const
- bool IsLossy () const
- bool IsSameColorSpace (PhotometricInterpretation const &pi) const
- operator PIType () const

Static Public Member Functions

- static const char * GetPIString (PIType pi)
- static PIType GetPIType (const char *pi)
- static bool IsRetired (PIType pi)

Friends

- std::ostream & operator<< (std::ostream &os, const PhotometricInterpretation &pi)

12.234.1 Detailed Description

Class to represent an PhotometricInterpretation.

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, ExtractImageRegion.cs, FileChangeTS.cs, FileChangeTSLossy.cs, HelloVizWorld.cxx, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

12.234.2 Member Enumeration Documentation

12.234.2.1 PIType

```
enum gdcm::PhotometricInterpretation::PIType
```

Enumerator

UNKNOWN	
MONOCHROME1	
MONOCHROME2	
PALETTE_COLOR	
RGB	
HSV	
ARGB	
CMYK	
YBR_FULL	
YBR_FULL_422	
YBR_PARTIAL_422	
YBR_PARTIAL_420	
YBR_ICT	
YBR_RCT	
PI_END	

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, and MpegVideoInfo.cs.

12.234.3 Constructor & Destructor Documentation

12.234.3.1 PhotometricInterpretation()

```
gdcm::PhotometricInterpretation::PhotometricInterpretation (
            PIType pi = UNKNOWN)  [inline]
```

References UNKNOWN.

Referenced by GetSamplesPerPixel(), IsSameColorSpace(), and operator<<.

12.234.4 Member Function Documentation

12.234.4.1 GetPIString()

```
const char * gdcm::PhotometricInterpretation::GetPIString (
            PIType pi)  [static]
```

Referenced by operator<<.

12.234.4.2 GetPIType()

```
PIType gdcm::PhotometricInterpretation::GetPIType (
            const char * pi)  [static]
```

12.234.4.3 GetSamplesPerPixel()

```
unsigned short gdcm::PhotometricInterpretation::GetSamplesPerPixel () const
```

return the value for Sample Per Pixel associated with a particular Photometric Interpretation

References PhotometricInterpretation(), and operator<<.

12.234.4.4 GetString()

```
const char * gdcm::PhotometricInterpretation::GetString () const
```

12.234.4.5 GetType()

```
PIType gdcm::PhotometricInterpretation::GetType () const  [inline]
```

12.234.4.6 IsLossless()

```
bool gdcm::PhotometricInterpretation::IsLossless () const
```

12.234.4.7 IsLossy()

```
bool gdcm::PhotometricInterpretation::IsLossy () const
```

12.234.4.8 IsRetired()

```
bool gdcm::PhotometricInterpretation::IsRetired (
            PIType pi)  [static]
```

12.234.4.9 IsSameColorSpace()

```
bool gdcm::PhotometricInterpretation::IsSameColorSpace (
            PhotometricInterpretation const & pi) const
```

References PhotometricInterpretation().

12.234.4.10 operator PIType()

```
gdcm::PhotometricInterpretation::operator PIType () const  [inline]
```

12.234.5 Friends And Related Symbol Documentation

12.234.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const PhotometricInterpretation & pi)  [friend]
```

References PhotometricInterpretation(), and GetPIString().

Referenced by GetSamplesPerPixel().

The documentation for this class was generated from the following file:

- gdcmPhotometricInterpretation.h

12.235 gdcm::PixelFormat Class Reference

PixelFormat.

```
#include <gdcmPixelFormat.h>
```

Public Types

- enum ScalarType {
  UINT8 ,
  INT8 ,
  UINT12 ,
  INT12 ,
  UINT16 ,
  INT16 ,
  UINT32 ,
  INT32 ,
  UINT64 ,
  INT64 ,
  FLOAT16 ,
  FLOAT32 ,
  FLOAT64 ,
  SINGLEBIT ,
  UNKNOWN }

Public Member Functions

- PixelFormat ()
- PixelFormat (ScalarType st)
- PixelFormat (unsigned short samplesperpixel, unsigned short bitsallocated=8, unsigned short bitsstored=8, unsigned short highbit=7, unsigned short pixelrepresentation=0)
- unsigned short GetBitsAllocated () const

  BitsAllocated see Tag (0028,0100) US Bits Allocated.
- unsigned short GetBitsStored () const

  BitsStored see Tag (0028,0101) US Bits Stored.
- unsigned short GetHighBit () const

  HighBit see Tag (0028,0102) US High Bit.
- int64_t GetMax () const

  return the max possible of the pixel
- int64_t GetMin () const

  return the min possible of the pixel
- unsigned short GetPixelRepresentation () const

  PixelRepresentation: 0 or 1, see Tag (0028,0103) US Pixel Representation.
- uint8_t GetPixelSize () const
- unsigned short GetSamplesPerPixel () const
- ScalarType GetScalarType () const

  ScalarType does not take into account the sample per pixel.
- const char * GetScalarTypeAsString () const
- bool IsCompatible (const TransferSyntax &ts) const
- bool IsValid () const

  return IsValid
- operator ScalarType () const
- bool operator!= (const PixelFormat &pf) const
- bool operator!= (ScalarType st) const
- bool operator== (const PixelFormat &pf) const
- bool operator== (ScalarType st) const
- void Print (std::ostream &os) const

  Print.
- void SetBitsAllocated (unsigned short ba)
- void SetBitsStored (unsigned short bs)
- void SetHighBit (unsigned short hb)
- void SetPixelRepresentation (unsigned short pr)
- void SetSamplesPerPixel (unsigned short spp)
- void SetScalarType (ScalarType st)

Protected Member Functions

- bool Validate ()

  When image with 24/24/23 was read, need to validate.

Friends

- class Bitmap
- std::ostream & operator<< (std::ostream &_os, const PixelFormat &pf)

12.235.1 Detailed Description

PixelFormat.

By default the Pixel Type will be instantiated with the following parameters:

- SamplesPerPixel : 1
- BitsAllocated : 8
- BitsStored : 8
- HighBit : 7
- PixelRepresentation : 0

Fundamentally PixelFormat is very close to what DICOM allows. It will be very hard to extend this class for the upcoming DICOM standard where Floating 32 and 64bits will be allowed.

It is also very hard for this class to fully support 64bits integer type (see GetMin / GetMax signature restricted to 64bits signed).

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, FixJAIBugJPEGLS.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, MpegVideoInfo.cs, RescaleImage.cs, TemplateEmptyImage.cxx, csa2img.cxx, iU22tomultisc.cxx, and threadgdcm.cxx.

12.235.2 Member Enumeration Documentation

12.235.2.1 ScalarType

```
enum gdcm::PixelFormat::ScalarType
```

Enumerator

UINT8	
INT8	
UINT12	
INT12	
UINT16	
INT16	
UINT32	
INT32	
UINT64	

INT64	
FLOAT16	
FLOAT32	
FLOAT64	
SINGLEBIT	
UNKNOWN	

Examples

GetArray.cs.

12.235.3 Constructor & Destructor Documentation

12.235.3.1 PixelFormat() [1/3]

```
gdcm::PixelFormat::PixelFormat ()  [inline]
```

References PixelFormat().

Referenced by PixelFormat(), Bitmap, operator!=(), operator<<, and operator==().

12.235.3.2 PixelFormat() [2/3]

```
gdcm::PixelFormat::PixelFormat (
            unsigned short samplesperpixel,
            unsigned short bitsallocated = 8,
            unsigned short bitsstored = 8,
            unsigned short highbit = 7,
            unsigned short pixelrepresentation = 0)  [inline], [explicit]
```

12.235.3.3 PixelFormat() [3/3]

```
gdcm::PixelFormat::PixelFormat (
            ScalarType st)
```

12.235.4 Member Function Documentation

12.235.4.1 GetBitsAllocated()

```
unsigned short gdcm::PixelFormat::GetBitsAllocated () const  [inline]
```

BitsAllocated see Tag (0028,0100) US Bits Allocated.

Examples

GetJPEGSamplePrecision.cxx.

12.235.4.2 GetBitsStored()

```
unsigned short gdcm::PixelFormat::GetBitsStored () const  [inline]
```

BitsStored see Tag (0028,0101) US Bits Stored.

Examples

GetJPEGSamplePrecision.cxx.

12.235.4.3 GetHighBit()

```
unsigned short gdcm::PixelFormat::GetHighBit () const  [inline]
```

HighBit see Tag (0028,0102) US High Bit.

12.235.4.4 GetMax()

```
int64_t gdcm::PixelFormat::GetMax () const
```

return the max possible of the pixel

12.235.4.5 GetMin()

```
int64_t gdcm::PixelFormat::GetMin () const
```

return the min possible of the pixel

12.235.4.6 GetPixelRepresentation()

```
unsigned short gdcm::PixelFormat::GetPixelRepresentation () const  [inline]
```

PixelRepresentation: 0 or 1, see Tag (0028,0103) US Pixel Representation.

12.235.4.7 GetPixelSize()

```
uint8_t gdcm::PixelFormat::GetPixelSize () const
```

return the size of the pixel This is the number of words it would take to store one pixel

Warning

the return value takes into account the SamplesPerPixel

in the rare case when BitsAllocated == 12, the function assume word padding and value returned will be identical as if BitsAllocated == 16

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, and threadgdcm.cxx.

12.235.4.8 GetSamplesPerPixel()

```
unsigned short gdcm::PixelFormat::GetSamplesPerPixel () const
```

Samples Per Pixel see (0028,0002) US Samples Per Pixel DICOM - only allows 1, 3 and 4 as valid value. Other value are undefined behavior.

Examples

threadgdcm.cxx.

12.235.4.9 GetScalarType()

```
ScalarType gdcm::PixelFormat::GetScalarType () const
```

ScalarType does not take into account the sample per pixel.

Examples

GetArray.cs.

Referenced by operator ScalarType(), operator!=(), and operator==().

12.235.4.10 GetScalarTypeAsString()

```
const char * gdcm::PixelFormat::GetScalarTypeAsString () const
```

Examples

GetArray.cs.

12.235.4.11 IsCompatible()

```
bool gdcm::PixelFormat::IsCompatible (
            const TransferSyntax & ts) const
```

12.235.4.12 IsValid()

```
bool gdcm::PixelFormat::IsValid () const
```

return IsValid

12.235.4.13 operator ScalarType()

```
gdcm::PixelFormat::operator ScalarType () const  [inline]
```

References GetScalarType().

12.235.4.14 operator"!=() [1/2]

```
bool gdcm::PixelFormat::operator!= (
            const PixelFormat & pf) const  [inline]
```

References PixelFormat().

12.235.4.15 operator"!=() [2/2]

```
bool gdcm::PixelFormat::operator!= (
            ScalarType st) const  [inline]
```

References GetScalarType().

12.235.4.16 operator==() [1/2]

```
bool gdcm::PixelFormat::operator== (
            const PixelFormat & pf) const  [inline]
```

References PixelFormat().

12.235.4.17 operator==() [2/2]

```
bool gdcm::PixelFormat::operator== (
            ScalarType st) const  [inline]
```

References GetScalarType().

12.235.4.18 Print()

```
void gdcm::PixelFormat::Print (
            std::ostream & os) const
```

Print.

Referenced by operator<<.

12.235.4.19 SetBitsAllocated()

```
void gdcm::PixelFormat::SetBitsAllocated (
            unsigned short ba)  [inline]
```

12.235.4.20 SetBitsStored()

```
void gdcm::PixelFormat::SetBitsStored (
            unsigned short bs)  [inline]
```

References SetHighBit().

12.235.4.21 SetHighBit()

```
void gdcm::PixelFormat::SetHighBit (
            unsigned short hb)  [inline]
```

Referenced by SetBitsStored().

12.235.4.22 SetPixelRepresentation()

```
void gdcm::PixelFormat::SetPixelRepresentation (
            unsigned short pr)  [inline]
```

Examples

TemplateEmptyImage.cxx.

12.235.4.23 SetSamplesPerPixel()

```
void gdcm::PixelFormat::SetSamplesPerPixel (
            unsigned short spp)  [inline]
```

Examples

CreateARGBImage.cxx, and CreateCMYKImage.cxx.

References gdcmAssertMacro.

12.235.4.24 SetScalarType()

```
void gdcm::PixelFormat::SetScalarType (
            ScalarType st)
```

Set PixelFormat based only on the ScalarType

Warning

: You need to call SetScalarType *before* SetSamplesPerPixel

12.235.4.25 Validate()

```
bool gdcm::PixelFormat::Validate ()  [protected]
```

When image with 24/24/23 was read, need to validate.

12.235.5 Friends And Related Symbol Documentation

12.235.5.1 Bitmap

```
friend class Bitmap  [friend]
```

References PixelFormat(), Bitmap, and operator<<.

Referenced by Bitmap.

12.235.5.2 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const PixelFormat & pf)  [friend]
```

References PixelFormat(), and Print().

Referenced by Bitmap.

The documentation for this class was generated from the following file:

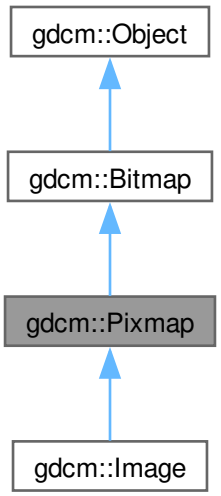
- gdcmPixelFormat.h

12.236 gdcm::Pixmap Class Reference

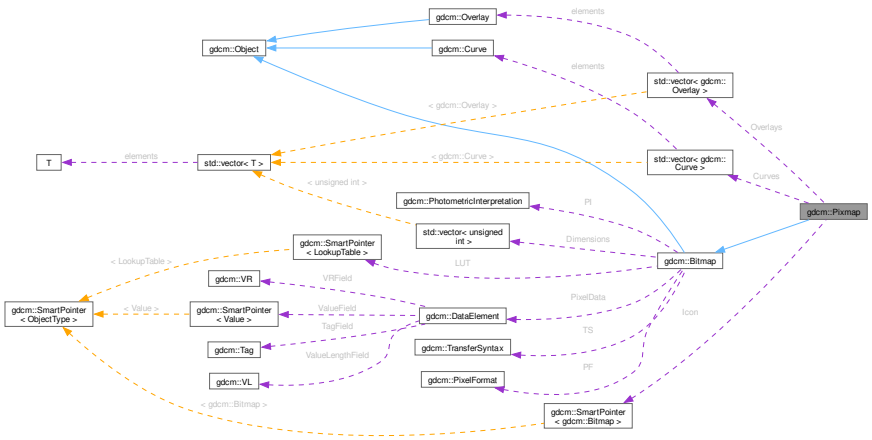
Pixmap class.

`#include <gdcmPixmap.h>`

Inheritance diagram for gdcm::Pixmap:



Collaboration diagram for gdcm::Pixmap:



Public Member Functions

- Pixmap ()
- ~Pixmap () override
- bool AreOverlaysInPixelData () const override

  returns if Overlays are stored in the unused bit of the pixel data:
- Curve & GetCurve (size_t i=0)

  Curve: group 50xx.
- const Curve & GetCurve (size_t i=0) const
- IconImage & GetIconImage ()
- const IconImage & GetIconImage () const

  Set/Get Icon Image.
- size_t GetNumberOfCurves () const
- size_t GetNumberOfOverlays () const
- Overlay & GetOverlay (size_t i=0)

  Overlay: group 60xx.
- const Overlay & GetOverlay (size_t i=0) const
- void Print (std::ostream &) const override
- void RemoveOverlay (size_t i)
- void SetIconImage (IconImage const &ii)
- void SetNumberOfCurves (size_t n)
- void SetNumberOfOverlays (size_t n)
- bool UnusedBitsPresentInPixelData () const override

  returns if there are unused bits in the pixel data

Public Member Functions inherited from gdcm::Bitmap

- Bitmap ()
- ~Bitmap () override
- void Clear ()
- bool GetBuffer (char *buffer) const

  Access the raw data.
- unsigned long GetBufferLength () const
- unsigned int GetColumns () const
- DataElement & GetDataElement ()
- const DataElement & GetDataElement () const
- unsigned int GetDimension (unsigned int idx) const
- const unsigned int * GetDimensions () const

  Return the dimension of the pixel data, first dimension (x), then 2nd (y), then 3rd (z)...
- LookupTable & GetLUT ()
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const

  INTERNAL do not use.
- unsigned int GetNumberOfDimensions () const

  Return the number of dimension of the pixel data bytes; for example 2 for a 2D matrices of values.
- const PhotometricInterpretation & GetPhotometricInterpretation () const

  return the photometric interpretation
- PixelFormat & GetPixelFormat ()

- const PixelFormat & GetPixelFormat () const

  Get/Set PixelFormat.
- unsigned int GetPlanarConfiguration () const

  return the planar configuration
- unsigned int GetRows () const
- const TransferSyntax & GetTransferSyntax () const
- bool IsEmpty () const
- bool IsLossy () const

  Return whether or not the image was compressed using a lossy compressor or not.
- bool IsTransferSyntaxCompatible (TransferSyntax const &ts) const
- void SetColumns (unsigned int col)
- void SetDataElement (DataElement const &de)
- void SetDimension (unsigned int idx, unsigned int dim)
- void SetDimensions (const unsigned int dims[3])
- void SetLossyFlag (bool f)

  Specifically set that the image was compressed using a lossy compression mechanism.
- void SetLUT (LookupTable const &lut)

  Set/Get LUT.
- void SetNeedByteSwap (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)
- void SetRows (unsigned int rows)
- void SetTransferSyntax (TransferSyntax const &ts)

  Transfer syntax.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Attributes

- std::vector< Curve > Curves
- SmartPointer< IconImage > Icon
- std::vector< Overlay > Overlays

Protected Attributes inherited from gdcm::Bitmap

- std::vector< unsigned int > Dimensions
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- DataElement PixelData
- unsigned int PlanarConfiguration
- TransferSyntax TS

Additional Inherited Members

Protected Types inherited from gdcm::Bitmap

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::Bitmap

- bool ComputeLossyFlag ()
- bool GetBuffer2 (std::ostream &os) const
- bool TryJPEG2000Codec (char *buffer, bool &lossyflag) const
- bool TryJPEG2000Codec2 (std::ostream &os) const
- bool TryJPEGCodec (char *buffer, bool &lossyflag) const
- bool TryJPEGCodec2 (std::ostream &os) const
- bool TryJPEGLSCodec (char *buffer, bool &lossyflag) const
- bool TryKAKADUCodec (char *buffer, bool &lossyflag) const
- bool TryPVRGCodec (char *buffer, bool &lossyflag) const
- bool TryRAWCodec (char *buffer, bool &lossyflag) const
- bool TryRLECodec (char *buffer, bool &lossyflag) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.236.1 Detailed Description

Pixmap class.

A bitmap based image. Used as parent for both IconImage and the main Pixel Data Image It does not contains any World Space information (IPP, IOP)

See also

PixmapReader

Examples

FileChangeTS.cs, FileChangeTSLossy.cs, and StandardizeFiles.cs.

12.236.2 Constructor & Destructor Documentation

12.236.2.1 Pixmap()

```
gdcm::Pixmap::Pixmap ()
```

12.236.2.2 ~Pixmap()

```
gdcm::Pixmap::~Pixmap ()  [override]
```

12.236.3 Member Function Documentation

12.236.3.1 AreOverlaysInPixelData()

```
bool gdcm::Pixmap::AreOverlaysInPixelData () const  [override], [virtual]
```

returns if Overlays are stored in the unused bit of the pixel data:

Reimplemented from gdcm::Bitmap.

12.236.3.2 GetCurve() [1/2]

```
Curve & gdcm::Pixmap::GetCurve (
            size_t i = 0)  [inline]
```

Curve: group 50xx.

References Curves.

12.236.3.3 GetCurve() [2/2]

```
const Curve & gdcm::Pixmap::GetCurve (
            size_t i = 0) const  [inline]
```

References Curves.

12.236.3.4 GetIconImage() [1/2]

```
IconImage & gdcm::Pixmap::GetIconImage ()  [inline]
```

References Icon.

12.236.3.5 GetIconImage() [2/2]

```
const IconImage & gdcm::Pixmap::GetIconImage () const  [inline]
```

Set/Get Icon Image.

References Icon.

12.236.3.6 GetNumberOfCurves()

```
size_t gdcm::Pixmap::GetNumberOfCurves () const  [inline]
```

References Curves.

12.236.3.7 GetNumberOfOverlays()

```
size_t gdcm::Pixmap::GetNumberOfOverlays () const  [inline]
```

References Overlays.

12.236.3.8 GetOverlay() [1/2]

```
Overlay & gdcm::Pixmap::GetOverlay (
            size_t i = 0)  [inline]
```

Overlay: group 60xx.

References Overlays.

12.236.3.9 GetOverlay() [2/2]

```
const Overlay & gdcm::Pixmap::GetOverlay (
            size_t i = 0) const  [inline]
```

References Overlays.

12.236.3.10 Print()

```
void gdcm::Pixmap::Print (
            std::ostream & ) const  [override], [virtual]
```

Reimplemented from gdcm::Bitmap.

12.236.3.11 RemoveOverlay()

```
void gdcm::Pixmap::RemoveOverlay (
            size_t i)  [inline]
```

References Overlays.

12.236.3.12 SetIconImage()

```
void gdcm::Pixmap::SetIconImage (
            IconImage const & ii)  [inline]
```

References Icon.

12.236.3.13 SetNumberOfCurves()

```
void gdcm::Pixmap::SetNumberOfCurves (
            size_t n)  [inline]
```

References Curves.

12.236.3.14 SetNumberOfOverlays()

```
void gdcm::Pixmap::SetNumberOfOverlays (
            size_t n)  [inline]
```

References Overlays.

12.236.3.15 UnusedBitsPresentInPixelData()

```
bool gdcm::Pixmap::UnusedBitsPresentInPixelData () const  [override], [virtual]
```

returns if there are unused bits in the pixel data

Reimplemented from gdcm::Bitmap.

12.236.4 Member Data Documentation

12.236.4.1 Curves

```
std::vector<Curve> gdcm::Pixmap::Curves  [protected]
```

Referenced by GetCurve(), GetCurve(), GetNumberOfCurves(), and SetNumberOfCurves().

12.236.4.2 Icon

```
SmartPointer<IconImage> gdcm::Pixmap::Icon  [protected]
```

Referenced by GetIconImage(), GetIconImage(), and SetIconImage().

12.236.4.3 Overlays

```
std::vector<Overlay> gdcm::Pixmap::Overlays  [protected]
```

Referenced by GetNumberOfOverlays(), GetOverlay(), GetOverlay(), RemoveOverlay(), and SetNumberOfOverlays().

The documentation for this class was generated from the following file:

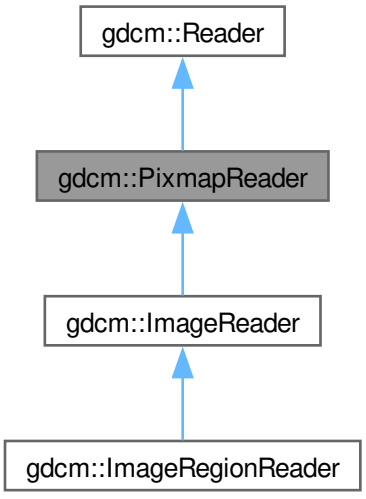
- gdcmPixmap.h

12.237 gdcm::PixmapReader Class Reference

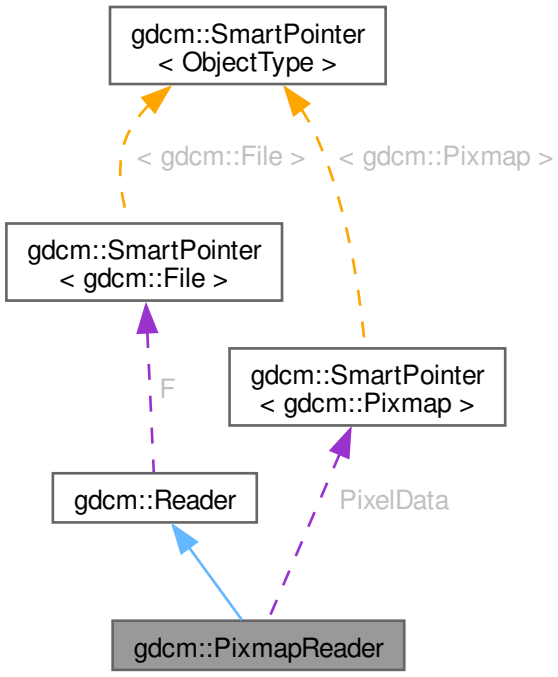
PixmapReader.

```
#include <gdcmPixmapReader.h>
```

Inheritance diagram for gdcm::PixmapReader:



Collaboration diagram for gdcm::PixmapReader:



Public Member Functions

- PixmapReader ()
- ~PixmapReader () override
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const

  Return the read image (need to call Read() first).
- bool Read () override

Public Member Functions inherited from gdcm::Reader

- Reader ()
- virtual ~Reader ()
- bool CanRead () const
- File & GetFile ()

  Set/Get File.
- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const

- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

  Will only read the specified selected private tags.
- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Member Functions

- virtual bool ReadACRNEMAImage ()
- virtual bool ReadImage (MediaStorage const &ms)
- bool ReadImageInternal (MediaStorage const &ms, bool handlepixeldata=true)

Protected Member Functions inherited from gdcm::Reader

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Protected Attributes

- SmartPointer< Pixmap > PixelData

Protected Attributes inherited from gdcm::Reader

- SmartPointer< File > F

12.237.1 Detailed Description

PixmapReader.

Note

its role is to convert the DICOM DataSet into a Pixmap representation By default it is also loading the lookup table and overlay when found as they impact the rendering or the image

See PS 3.3-2008, Table C.7-11b IMAGE PIXEL MACRO ATTRIBUTES for the list of attribute that belong to what gdcm calls a 'Pixmap'

Warning

the API ReadUpToTag and ReadSelectedTag

See also

Pixmap

Examples

StandardizeFiles.cs.

12.237.2 Constructor & Destructor Documentation

12.237.2.1 PixmapReader()

```
gdcm::PixmapReader::PixmapReader ()
```

12.237.2.2 ~PixmapReader()

```
gdcm::PixmapReader::~PixmapReader ()  [override]
```

12.237.3 Member Function Documentation

12.237.3.1 GetPixmap() [1/2]

```
Pixmap & gdcm::PixmapReader::GetPixmap ()
```

12.237.3.2 GetPixmap() [2/2]

```
const Pixmap & gdcm::PixmapReader::GetPixmap () const
```

Return the read image (need to call Read() first).

Examples

StandardizeFiles.cs.

12.237.3.3 Read()

```
bool gdcm::PixmapReader::Read ()  [override], [virtual]
```

Read the DICOM image. There are two reason for failure:

1. The input filename is not DICOM
2. The input DICOM file does not contains an Pixmap.

Reimplemented from gdcm::Reader.

Examples

StandardizeFiles.cs.

12.237.3.4 ReadACRNEMAImage()

```
virtual bool gdcm::PixmapReader::ReadACRNEMAImage ()  [protected], [virtual]
```

Reimplemented in gdcm::ImageReader.

12.237.3.5 ReadImage()

```
virtual bool gdcm::PixmapReader::ReadImage (
            MediaStorage const & ms)  [protected], [virtual]
```

Reimplemented in gdcm::ImageReader.

12.237.3.6 ReadImageInternal()

```
bool gdcm::PixmapReader::ReadImageInternal (
            MediaStorage const & ms,
            bool handlepixeldata = true)  [protected]
```

12.237.4 Member Data Documentation

12.237.4.1 PixelData

```
SmartPointer<Pixmap> gdcm::PixmapReader::PixelData  [protected]
```

The documentation for this class was generated from the following file:

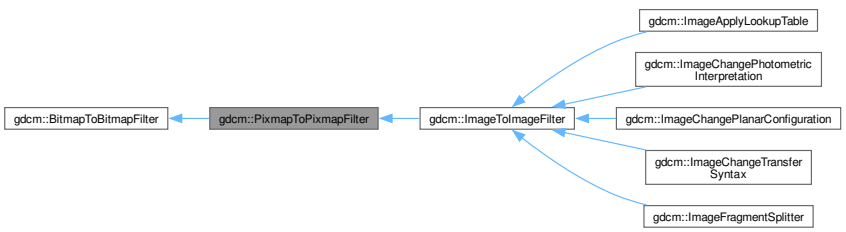
- gdcmPixmapReader.h

12.238 gdcm::PixmapToPixmapFilter Class Reference

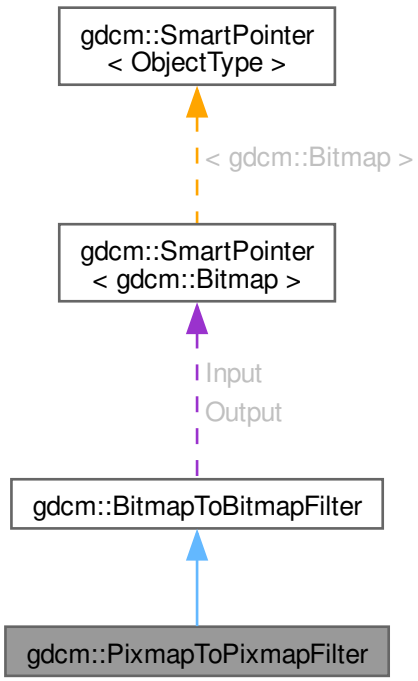
PixmapToPixmapFilter class.

```
#include <gdcmPixmapToPixmapFilter.h>
```

Inheritance diagram for gdcm::PixmapToPixmapFilter:



Collaboration diagram for gdcm::PixmapToPixmapFilter:



Public Member Functions

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

12.238.1 Detailed Description

PixmapToPixmapFilter class.

Super class for all filter taking an image and producing an output image

Examples

StandardizeFiles.cs.

12.238.2 Constructor & Destructor Documentation

12.238.2.1 PixmapToPixmapFilter()

```
gdcm::PixmapToPixmapFilter::PixmapToPixmapFilter ()
```

12.238.2.2 ~PixmapToPixmapFilter()

```
gdcm::PixmapToPixmapFilter::~PixmapToPixmapFilter ()  [default]
```

12.238.3 Member Function Documentation

12.238.3.1 GetInput()

```
Pixmap & gdcm::PixmapToPixmapFilter::GetInput ()
```

12.238.3.2 GetOutput()

```
const Pixmap & gdcm::PixmapToPixmapFilter::GetOutput () const
```

Get Output image.

12.238.3.3 GetOutputAsPixmap()

```
const Pixmap & gdcm::PixmapToPixmapFilter::GetOutputAsPixmap () const
```

The documentation for this class was generated from the following file:

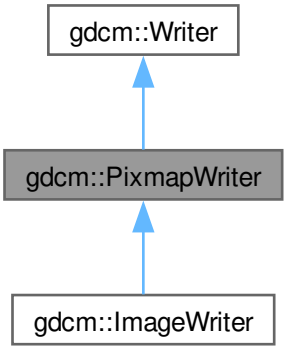
- gdcmPixmapToPixmapFilter.h

12.239 gdcm::PixmapWriter Class Reference

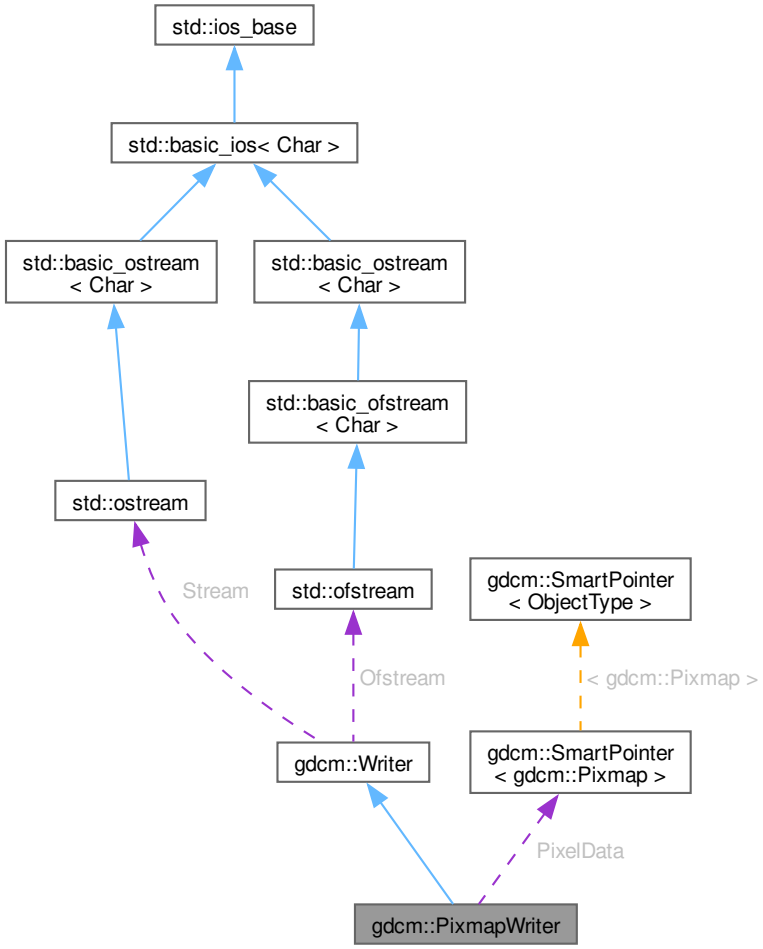
PixmapWriter.

```
#include <gdcmPixmapWriter.h>
```

Inheritance diagram for gdcm::PixmapWriter:



Collaboration diagram for gdcm::PixmapWriter:



Public Member Functions

- PixmapWriter ()
- ~PixmapWriter () override
- virtual Pixmap & GetImage ()
- virtual const Pixmap & GetImage () const
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const
- virtual void SetImage (Pixmap const &img)
- void SetPixmap (Pixmap const &img)
- bool Write () override

  Write.

Public Member Functions inherited from gdcm::Writer

- Writer ()
- virtual ~Writer ()
- void CheckFileMetaInformationOff ()
- void CheckFileMetaInformationOn ()
- File & GetFile ()
- void SetCheckFileMetaInformation (bool b)

  Undocumented function, do not use (= leave default).
- void SetFile (const File &f)

  Set/Get the DICOM file (DataSet + Header).
- void SetFileName (const char *filename_native)

  Set the filename of DICOM file to write:
- void SetStream (std::ostream &output_stream)

  Set user ostream buffer.

Protected Member Functions

- void DoIconImage (DataSet &ds, Pixmap const &image)
- bool PrepareWrite (MediaStorage const &refms)

Protected Member Functions inherited from gdcm::Writer

- bool GetCheckFileMetaInformation () const
- std::ostream * GetStreamPtr () const
- void SetWriteDataSetOnly (bool b)

Protected Attributes

- SmartPointer< Pixmap > PixelData

Protected Attributes inherited from gdcm::Writer

- std::ofstream * Ofstream
- std::ostream * Stream

12.239.1 Detailed Description

PixmapWriter.

This class will takes two inputs:

1. The DICOM DataSet
2. The Image input It will override any info from the Image over the DataSet.

For instance when one read in a lossy compressed image and write out as unencapsulated (ie implicitly lossless) then some attribute are definitely needed to mark this dataset as Lossy (typically 0028,2114)

Examples

StandardizeFiles.cs.

12.239.2 Constructor & Destructor Documentation

12.239.2.1 PixmapWriter()

```
gdcm::PixmapWriter::PixmapWriter ()
```

12.239.2.2 ~PixmapWriter()

```
gdcm::PixmapWriter::~PixmapWriter ()  [override]
```

12.239.3 Member Function Documentation

12.239.3.1 DoIconImage()

```
void gdcm::PixmapWriter::DoIconImage (
            DataSet & ds,
            Pixmap const & image)  [protected]
```

12.239.3.2 GetImage() [1/2]

```
virtual Pixmap & gdcm::PixmapWriter::GetImage ()  [inline], [virtual]
```

Reimplemented in gdcm::ImageWriter.

References PixelData.

12.239.3.3 GetImage() [2/2]

```
virtual const Pixmap & gdcm::PixmapWriter::GetImage () const  [inline], [virtual]
```

Set/Get Pixmap to be written It will overwrite anything Pixmap infos found in DataSet (see parent class to see how to pass dataset)

Reimplemented in gdcm::ImageWriter.

References PixelData.

12.239.3.4 GetPixmap() [1/2]

```
Pixmap & gdcm::PixmapWriter::GetPixmap ()  [inline]
```

References PixelData.

12.239.3.5 GetPixmap() [2/2]

```
const Pixmap & gdcm::PixmapWriter::GetPixmap () const  [inline]
```

References PixelData.

12.239.3.6 PrepareWrite()

```
bool gdcm::PixmapWriter::PrepareWrite (
            MediaStorage const & refms)  [protected]
```

12.239.3.7 SetImage()

```
virtual void gdcm::PixmapWriter::SetImage (
            Pixmap const & img)  [virtual]
```

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, DecompressImage.cs, GenFakeImage.cxx, GetSubSequenceData.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, and TemplateEmptyImage.cxx.

12.239.3.8 SetPixmap()

```
void gdcm::PixmapWriter::SetPixmap (
            Pixmap const & img)
```

Examples

StandardizeFiles.cs.

12.239.3.9 Write()

```
bool gdcm::PixmapWriter::Write ()  [override], [virtual]
```

Write.

Reimplemented from gdcm::Writer.

Examples

StandardizeFiles.cs.

12.239.4 Member Data Documentation

12.239.4.1 PixelData

```
SmartPointer<Pixmap> gdcm::PixmapWriter::PixelData  [protected]
```

Referenced by GetImage(), GetImage(), GetPixmap(), and GetPixmap().

The documentation for this class was generated from the following file:

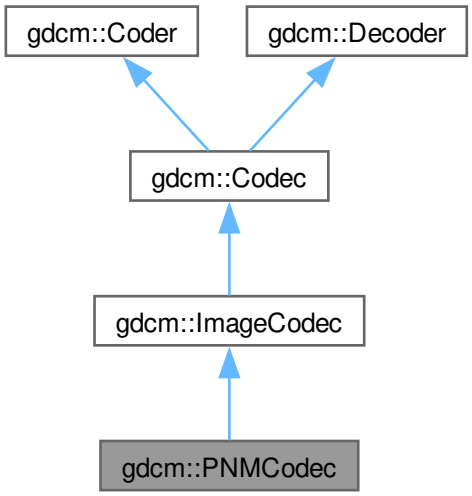
- gdcmPixmapWriter.h

12.240 gdcm::PNMCodec Class Reference

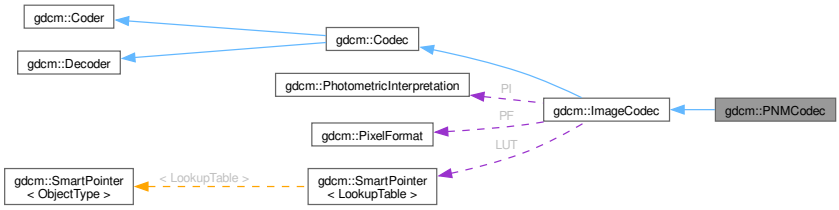
Class to do PNM.

```
#include <gdcmPNMCodec.h>
```

Inheritance diagram for gdcm::PNMCodec:



Collaboration diagram for gdcm::PNMCodec:



Public Member Functions

- PNMCodec ()
- ~PNMCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- unsigned long GetBufferLength () const
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool Read (const char *filename, DataElement &out) const
- void SetBufferLength (unsigned long l)
- bool Write (const char *filename, const DataElement &out) const

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- bool Decode (DataElement const &is_, DataElement &os) override

  Decode.
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)

- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.240.1 Detailed Description

Class to do PNM.

PNM is the Portable anymap file format. The main web page can be found at: `http://netpbm.sourceforge.net/`

Note

Only support P5 & P6 PNM file (binary grayscale and binary rgb)

Examples

ExtractIconFromFile.cxx.

12.240.2 Constructor & Destructor Documentation

12.240.2.1 PNMCodec()

```
gdcm::PNMCodec::PNMCodec ()
```

12.240.2.2 ~PNMCodec()

```
gdcm::PNMCodec::~PNMCodec ()  [override]
```

12.240.3 Member Function Documentation

12.240.3.1 CanCode()

```
bool gdcm::PNMCodec::CanCode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

12.240.3.2 CanDecode()

```
bool gdcm::PNMCodec::CanDecode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.240.3.3 Clone()

```
ImageCodec * gdcm::PNMCodec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.240.3.4 GetBufferLength()

```
unsigned long gdcm::PNMCodec::GetBufferLength () const  [inline]
```

12.240.3.5 GetHeaderInfo()

```
bool gdcm::PNMCodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.240.3.6 Read()

```
bool gdcm::PNMCodec::Read (
            const char * filename,
            DataElement & out) const
```

12.240.3.7 SetBufferLength()

```
void gdcm::PNMCodec::SetBufferLength (
            unsigned long l)  [inline]
```

12.240.3.8 Write()

```
bool gdcm::PNMCodec::Write (
            const char * filename,
            const DataElement & out) const
```

Examples

ExtractIconFromFile.cxx.

The documentation for this class was generated from the following file:

- gdcmPNMCodec.h

12.241 gdcm::Preamble Class Reference

DICOM Preamble (Part 10).

```
#include <gdcmPreamble.h>
```

Public Member Functions

- Preamble ()
- Preamble (Preamble const &)
- ~Preamble ()
- void Clear ()

  Clear.
- void Create ()
- const char * GetInternal () const

  Get internal pointer to preamble.
- VL GetLength () const

  Return size of Preamble.
- bool IsEmpty () const

  Check if Preamble is empty.
- Preamble & operator= (Preamble const &)
- void Print (std::ostream &os) const

  Print Preamble.
- std::istream & Read (std::istream &is)

  Read Preamble.
- void Remove ()
- void Valid ()

  Set Preamble to the default one.
- std::ostream const & Write (std::ostream &os) const

  Write Preamble.

Protected Member Functions

- bool IsValid () const

Friends

- std::ostream & operator<< (std::ostream &_os, const Preamble &_val)

12.241.1 Detailed Description

DICOM Preamble (Part 10).

12.241.2 Constructor & Destructor Documentation

12.241.2.1 Preamble() [1/2]

```
gdcm::Preamble::Preamble ()
```

Referenced by Preamble(), ~Preamble(), operator<<, and operator=().

12.241.2.2 ~Preamble()

```
gdcm::Preamble::~Preamble ()
```

References Preamble(), and operator<<.

12.241.2.3 Preamble() [2/2]

```
gdcm::Preamble::Preamble (
            Preamble const & )  [inline]
```

References Preamble(), and Create().

12.241.3 Member Function Documentation

12.241.3.1 Clear()

```
void gdcm::Preamble::Clear ()
```

Clear.

12.241.3.2 Create()

```
void gdcm::Preamble::Create ()
```

Referenced by Preamble(), and operator=().

12.241.3.3 GetInternal()

```
const char * gdcm::Preamble::GetInternal () const  [inline]
```

Get internal pointer to preamble.

12.241.3.4 GetLength()

```
VL gdcm::Preamble::GetLength () const  [inline]
```

Return size of Preamble.

12.241.3.5 IsEmpty()

```
bool gdcm::Preamble::IsEmpty () const  [inline]
```

Check if Preamble is empty.

12.241.3.6 IsValid()

```
bool gdcm::Preamble::IsValid () const  [inline], [protected]
```

12.241.3.7 operator=()

```
Preamble & gdcm::Preamble::operator= (
            Preamble const & )  [inline]
```

References Preamble(), and Create().

12.241.3.8 Print()

```
void gdcm::Preamble::Print (
            std::ostream & os) const
```

Print Preamble.

12.241.3.9 Read()

```
std::istream & gdcm::Preamble::Read (
            std::istream & is)
```

Read Preamble.

12.241.3.10 Remove()

```
void gdcm::Preamble::Remove ()
```

12.241.3.11 Valid()

```
void gdcm::Preamble::Valid ()
```

Set Preamble to the default one.

12.241.3.12 Write()

```
std::ostream const & gdcm::Preamble::Write (
            std::ostream & os) const
```

Write Preamble.

12.241.4 Friends And Related Symbol Documentation

12.241.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Preamble & _val)  [friend]
```

References Preamble().

Referenced by ~Preamble().

The documentation for this class was generated from the following file:

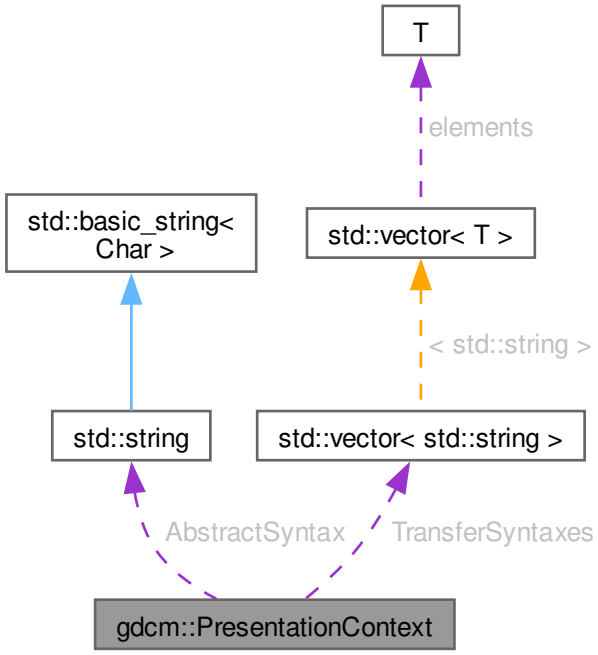
- gdcmPreamble.h

12.242 gdcm::PresentationContext Class Reference

PresentationContext.

`#include <gdcmPresentationContext.h>`

Collaboration diagram for gdcm::PresentationContext:



Public Types

- typedef TransferSyntaxArrayType::size_type SizeType
- typedef std::vector< std::string > TransferSyntaxArrayType

Public Member Functions

- PresentationContext ()
- PresentationContext (UIDs::TSName asname, UIDs::TSName tsname=UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM
- void AddTransferSyntax (const char *tsstr)
- const char * GetAbstractSyntax () const
- SizeType GetNumberOfTransferSyntaxes () const
- uint8_t GetPresentationContextID () const
- const char * GetTransferSyntax (SizeType i) const
- bool operator== (const PresentationContext &pc) const
- void Print (std::ostream &os) const
- void SetAbstractSyntax (const char *absyn)
- void SetPresentationContextID (uint8_t id)

Protected Attributes

- std::string AbstractSyntax
- uint8_t ID
- std::vector< std::string > TransferSyntaxes

12.242.1 Detailed Description

PresentationContext.

See also

PresentationContextAC PresentationContextRQ

12.242.2 Member Typedef Documentation

12.242.2.1 SizeType

```
typedef TransferSyntaxArrayType::size_type gdcm::PresentationContext::SizeType
```

12.242.2.2 TransferSyntaxArrayType

```
typedef std::vector<std::string> gdcm::PresentationContext::TransferSyntaxArrayType
```

12.242.3 Constructor & Destructor Documentation

12.242.3.1 PresentationContext() [1/2]

```
gdcm::PresentationContext::PresentationContext ()
```

Referenced by operator==().

12.242.3.2 PresentationContext() [2/2]

```
gdcm::PresentationContext::PresentationContext (
            UIDs::TSName asname,
            UIDs::TSName tsname = UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM)
```

Initialize Presentation Context with AbstractSyntax set to asname and with a single TransferSyntax set to tsname (default to Implicit VR LittleEndian when not specified).

References gdcm::UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM.

12.242.4 Member Function Documentation

12.242.4.1 AddTransferSyntax()

```
void gdcm::PresentationContext::AddTransferSyntax (
            const char * tsstr)
```

12.242.4.2 GetAbstractSyntax()

```
const char * gdcm::PresentationContext::GetAbstractSyntax () const  [inline]
```

References AbstractSyntax.

12.242.4.3 GetNumberOfTransferSyntaxes()

```
SizeType gdcm::PresentationContext::GetNumberOfTransferSyntaxes () const  [inline]
```

References TransferSyntaxes.

12.242.4.4 GetPresentationContextID()

```
uint8_t gdcm::PresentationContext::GetPresentationContextID () const
```

12.242.4.5 GetTransferSyntax()

```
const char * gdcm::PresentationContext::GetTransferSyntax (
            SizeType i) const  [inline]
```

References TransferSyntaxes.

12.242.4.6 operator==()

```
bool gdcm::PresentationContext::operator== (
            const PresentationContext & pc) const  [inline]
```

References PresentationContext(), AbstractSyntax, and TransferSyntaxes.

12.242.4.7 Print()

```
void gdcm::PresentationContext::Print (
            std::ostream & os) const
```

12.242.4.8 SetAbstractSyntax()

```
void gdcm::PresentationContext::SetAbstractSyntax (
            const char * absyn)  [inline]
```

References AbstractSyntax.

12.242.4.9 SetPresentationContextID()

```
void gdcm::PresentationContext::SetPresentationContextID (
            uint8_t id)
```

12.242.5 Member Data Documentation

12.242.5.1 AbstractSyntax

```
std::string gdcm::PresentationContext::AbstractSyntax  [protected]
```

Referenced by GetAbstractSyntax(), operator==(), and SetAbstractSyntax().

12.242.5.2 ID

```
uint8_t gdcm::PresentationContext::ID  [protected]
```

12.242.5.3 TransferSyntaxes

```
std::vector<std::string> gdcm::PresentationContext::TransferSyntaxes  [protected]
```

Referenced by GetNumberOfTransferSyntaxes(), GetTransferSyntax(), and operator==().

The documentation for this class was generated from the following file:

- gdcmPresentationContext.h

12.243 gdcm::network::PresentationContextAC Class Reference

PresentationContextAC.

```
#include <gdcmPresentationContextAC.h>
```

Public Member Functions

- PresentationContextAC ()
- uint8_t GetPresentationContextID () const
- uint8_t GetReason () const
- TransferSyntaxSub const & GetTransferSyntax () const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetPresentationContextID (uint8_t id)
- void SetReason (uint8_t r)
- void SetTransferSyntax (TransferSyntaxSub const &ts)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.243.1 Detailed Description

PresentationContextAC.

Table 9-18 PRESENTATION CONTEXT ITEM FIELDS

See also

PresentationContext

12.243.2 Constructor & Destructor Documentation

12.243.2.1 PresentationContextAC()

```
gdcm::network::PresentationContextAC::PresentationContextAC ()
```

12.243.3 Member Function Documentation

12.243.3.1 GetPresentationContextID()

```
uint8_t gdcm::network::PresentationContextAC::GetPresentationContextID () const  [inline]
```

12.243.3.2 GetReason()

```
uint8_t gdcm::network::PresentationContextAC::GetReason () const  [inline]
```

12.243.3.3 GetTransferSyntax()

```
TransferSyntaxSub const & gdcm::network::PresentationContextAC::GetTransferSyntax () const  [inline]
```

12.243.3.4 Print()

```
void gdcm::network::PresentationContextAC::Print (
            std::ostream & os) const
```

12.243.3.5 Read()

```
std::istream & gdcm::network::PresentationContextAC::Read (
            std::istream & is)
```

12.243.3.6 SetPresentationContextID()

```
void gdcm::network::PresentationContextAC::SetPresentationContextID (
            uint8_t id)
```

12.243.3.7 SetReason()

```
void gdcm::network::PresentationContextAC::SetReason (
            uint8_t r)  [inline]
```

12.243.3.8 SetTransferSyntax()

```
void gdcm::network::PresentationContextAC::SetTransferSyntax (
            TransferSyntaxSub const & ts)
```

12.243.3.9 Size()

```
size_t gdcm::network::PresentationContextAC::Size () const
```

12.243.3.10 Write()

```
const std::ostream & gdcm::network::PresentationContextAC::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

- gdcmPresentationContextAC.h

12.244 gdcm::PresentationContextGenerator Class Reference

PresentationContextGenerator.

`#include <gdcmPresentationContextGenerator.h>`

Public Types

- typedef std::vector< PresentationContext > PresentationContextArrayType
- typedef PresentationContextArrayType::size_type SizeType

Public Member Functions

- PresentationContextGenerator ()
- bool AddFromFile (const File &file)
- bool GenerateFromFilenames (const Directory::FilenamesType &files)
- bool GenerateFromUID (UIDs::TSName asname)

  Generate the PresentationContext array from a UID (eg. VerificationSOPClass).
- PresentationContextArrayType const & GetPresentationContexts ()
- void SetDefaultTransferSyntax (const TransferSyntax &ts)

  Not implemented for now. GDCM internally uses Implicit Little Endian.
- void SetMergeModeToAbstractSyntax ()
- void SetMergeModeToTransferSyntax ()

Protected Member Functions

- bool AddPresentationContext (const char *absyn, const char *ts)
- const char * GetDefaultTransferSyntax () const

12.244.1 Detailed Description

PresentationContextGenerator.

This class is responsible for generating the proper PresentationContext that will be used in subsequent operation during a DICOM Query/Retrieve association. The step of the association is very sensible as special care need to be taken to explicitly define what instance are going to be send and how they are encoded.

For example a PresentationContext will express that negotiation requires that CT Image Storage are send using JPEG Lossless, while US Image Storage are sent using RLE Transfer Syntax.

Two very different API are exposed one which will always default to little endian transfer syntax see GenerateFromUID() This API is used for C-ECHO, C-FIND and C-MOVE (SCU). Another API: GenerateFromFilenames() is used for C-STORE (SCU) as it will loop over all filenames argument to detect the actual encoding. and therefore find the proper encoding to be used.

Two modes are available. The default mode (SetMergeModeToAbstractSyntax) append PresentationContext (one AbstractSyntax and one TransferSyntax), as long a they are different. Eg MR Image Storage/JPEG2000 and MR Image Storage/JPEGLossless would be considered different. the other mode SetMergeModeToTransferSyntax merge any new TransferSyntax to the already existing PresentationContext in order to re-use the same AbstractSyntax.

See also

PresentationContext

Examples

CStoreQtProgress.cxx.

12.244.2 Member Typedef Documentation

12.244.2.1 PresentationContextArrayType

```
typedef std::vector<PresentationContext> gdcm::PresentationContextGenerator::PresentationContextArrayType
```

12.244.2.2 SizeType

```
typedef PresentationContextArrayType::size_type gdcm::PresentationContextGenerator::SizeType
```

12.244.3 Constructor & Destructor Documentation

12.244.3.1 PresentationContextGenerator()

```
gdcm::PresentationContextGenerator::PresentationContextGenerator ()
```

12.244.4 Member Function Documentation

12.244.4.1 AddFromFile()

```
bool gdcm::PresentationContextGenerator::AddFromFile (
            const File & file)
```

Add a single PresentationContext from a single File. Call multiple times when dealing with multiple files.

12.244.4.2 AddPresentationContext()

```
bool gdcm::PresentationContextGenerator::AddPresentationContext (
            const char * absyn,
            const char * ts)  [protected]
```

12.244.4.3 GenerateFromFilenames()

```
bool gdcm::PresentationContextGenerator::GenerateFromFilenames (
            const Directory::FilenamesType & files)
```

Generate the PresentationContext array from a File-Set. File specified needs to be valid DICOM files. Used for C-STORE operations

Examples

CStoreQtProgress.cxx.

12.244.4.4 GenerateFromUID()

```
bool gdcm::PresentationContextGenerator::GenerateFromUID (
            UIDs::TSName asname)
```

Generate the PresentationContext array from a UID (eg. VerificationSOPClass).

12.244.4.5 GetDefaultTransferSyntax()

```
const char * gdcm::PresentationContextGenerator::GetDefaultTransferSyntax () const  [protected]
```

12.244.4.6 GetPresentationContexts()

```
PresentationContextArrayType const & gdcm::PresentationContextGenerator::GetPresentationContexts
() [inline]
```

Examples

CStoreQtProgress.cxx.

12.244.4.7 SetDefaultTransferSyntax()

```
void gdcm::PresentationContextGenerator::SetDefaultTransferSyntax (
            const TransferSyntax & ts)
```

Not implemented for now. GDCM internally uses Implicit Little Endian.

12.244.4.8 SetMergeModeToAbstractSyntax()

```
void gdcm::PresentationContextGenerator::SetMergeModeToAbstractSyntax ()
```

12.244.4.9 SetMergeModeToTransferSyntax()

```
void gdcm::PresentationContextGenerator::SetMergeModeToTransferSyntax ()
```

The documentation for this class was generated from the following file:

- gdcmPresentationContextGenerator.h

12.245 gdcm::network::PresentationContextRQ Class Reference

PresentationContextRQ.

`#include <gdcmPresentationContextRQ.h>`

Public Types

- typedef std::vector< TransferSyntaxSub >::size_type SizeType

Public Member Functions

- PresentationContextRQ ()
- PresentationContextRQ (const PresentationContext &pc)
- PresentationContextRQ (UIDs::TSName asname, UIDs::TSName tsname=UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDI
- void AddTransferSyntax (TransferSyntaxSub const &ts)
- AbstractSyntax & GetAbstractSyntax ()
- AbstractSyntax const & GetAbstractSyntax () const
- SizeType GetNumberOfTransferSyntaxes () const
- uint8_t GetPresentationContextID () const
- TransferSyntaxSub & GetTransferSyntax (SizeType i)
- TransferSyntaxSub const & GetTransferSyntax (SizeType i) const
- std::vector< TransferSyntaxSub > const & GetTransferSyntaxes () const
- bool operator== (const PresentationContextRQ &pc) const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetAbstractSyntax (AbstractSyntax const &absyn)
- void SetPresentationContextID (uint8_t id)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.245.1 Detailed Description

PresentationContextRQ.

Table 9-13 PRESENTATION CONTEXT ITEM FIELDS

See also

PresentationContextAC

12.245.2 Member Typedef Documentation

12.245.2.1 SizeType

`typedef std::vector<TransferSyntaxSub>::size_type gdcm::network::PresentationContextRQ::SizeType`

12.245.3 Constructor & Destructor Documentation

12.245.3.1 PresentationContextRQ() [1/3]

```
gdcm::network::PresentationContextRQ::PresentationContextRQ ()
```

Referenced by operator==().

12.245.3.2 PresentationContextRQ() [2/3]

```
gdcm::network::PresentationContextRQ::PresentationContextRQ (
            UIDs::TSName asname,
            UIDs::TSName tsname = UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM)
```

Initialize Presentation Context with AbstractSyntax set to asname and with a single TransferSyntax set to tsname (dfault to Implicit VR LittleEndian when not specified).

References gdcm::UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM.

12.245.3.3 PresentationContextRQ() [3/3]

```
gdcm::network::PresentationContextRQ::PresentationContextRQ (
            const PresentationContext & pc)
```

12.245.4 Member Function Documentation

12.245.4.1 AddTransferSyntax()

```
void gdcm::network::PresentationContextRQ::AddTransferSyntax (
            TransferSyntaxSub const & ts)
```

12.245.4.2 GetAbstractSyntax() [1/2]

```
AbstractSyntax & gdcm::network::PresentationContextRQ::GetAbstractSyntax ()  [inline]
```

12.245.4.3 GetAbstractSyntax() [2/2]

```
AbstractSyntax const & gdcm::network::PresentationContextRQ::GetAbstractSyntax () const  [inline]
```

12.245.4.4 GetNumberOfTransferSyntaxes()

```
SizeType gdcm::network::PresentationContextRQ::GetNumberOfTransferSyntaxes () const  [inline]
```

12.245.4.5 GetPresentationContextID()

```
uint8_t gdcm::network::PresentationContextRQ::GetPresentationContextID () const
```

12.245.4.6 GetTransferSyntax() [1/2]

```
TransferSyntaxSub & gdcm::network::PresentationContextRQ::GetTransferSyntax (
            SizeType i)  [inline]
```

12.245.4.7 GetTransferSyntax() [2/2]

```
TransferSyntaxSub const & gdcm::network::PresentationContextRQ::GetTransferSyntax (
            SizeType i) const  [inline]
```

12.245.4.8 GetTransferSyntaxes()

```
std::vector< TransferSyntaxSub > const & gdcm::network::PresentationContextRQ::GetTransfer↩
Syntaxes () const  [inline]
```

12.245.4.9 operator==()

```
bool gdcm::network::PresentationContextRQ::operator== (
            const PresentationContextRQ & pc) const  [inline]
```

References PresentationContextRQ().

12.245.4.10 Print()

```
void gdcm::network::PresentationContextRQ::Print (
            std::ostream & os) const
```

12.245.4.11 Read()

```
std::istream & gdcm::network::PresentationContextRQ::Read (
            std::istream & is)
```

12.245.4.12 SetAbstractSyntax()

```
void gdcm::network::PresentationContextRQ::SetAbstractSyntax (
            AbstractSyntax const & absyn)
```

12.245.4.13 SetPresentationContextID()

```
void gdcm::network::PresentationContextRQ::SetPresentationContextID (
            uint8_t id)
```

12.245.4.14 Size()

```
size_t gdcm::network::PresentationContextRQ::Size () const
```

12.245.4.15 Write()

```
const std::ostream & gdcm::network::PresentationContextRQ::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

- gdcmPresentationContextRQ.h

12.246 gdcm::network::PresentationDataValue Class Reference

PresentationDataValue.

```
#include <gdcmPresentationDataValue.h>
```

Public Member Functions

- PresentationDataValue ()
- const std::string & GetBlob () const
- bool GetIsCommand () const
- bool GetIsLastFragment () const
- uint8_t GetMessageHeader () const
- uint8_t GetPresentationContextID () const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- std::istream & ReadInto (std::istream &is, std::ostream &os)
- void SetBlob (const std::string &partialblob)
- void SetCommand (bool inCommand)
- void SetDataSet (const DataSet &ds)
- void SetLastFragment (bool inLast)
- void SetMessageHeader (uint8_t messageheader)
- void SetPresentationContextID (uint8_t id)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

Static Public Member Functions

- static DataSet ConcatenatePDVBlobs (const std::vector< PresentationDataValue > &inPDVs)
- static DataSet ConcatenatePDVBlobsAsExplicit (const std::vector< PresentationDataValue > &inPDVs)

12.246.1 Detailed Description

PresentationDataValue.

Table 9-23 PRESENTATION-DATA-VALUE ITEM FIELDS

12.246.2 Constructor & Destructor Documentation

12.246.2.1 PresentationDataValue()

```
gdcm::network::PresentationDataValue::PresentationDataValue ()
```

12.246.3 Member Function Documentation

12.246.3.1 ConcatenatePDVBlobs()

```
DataSet gdcm::network::PresentationDataValue::ConcatenatePDVBlobs (
            const std::vector< PresentationDataValue > & inPDVs)  [static]
```

Warning

DataSet will be read as Implicit Little Endian TS

12.246.3.2 ConcatenatePDVBlobsAsExplicit()

```
DataSet gdcm::network::PresentationDataValue::ConcatenatePDVBlobsAsExplicit (
            const std::vector< PresentationDataValue > & inPDVs)  [static]
```

12.246.3.3 GetBlob()

```
const std::string & gdcm::network::PresentationDataValue::GetBlob () const
```

12.246.3.4 GetIsCommand()

```
bool gdcm::network::PresentationDataValue::GetIsCommand () const
```

12.246.3.5 GetIsLastFragment()

```
bool gdcm::network::PresentationDataValue::GetIsLastFragment () const
```

12.246.3.6 GetMessageHeader()

```
uint8_t gdcm::network::PresentationDataValue::GetMessageHeader () const  [inline]
```

12.246.3.7 GetPresentationContextID()

```
uint8_t gdcm::network::PresentationDataValue::GetPresentationContextID () const  [inline]
```

12.246.3.8 Print()

```
void gdcm::network::PresentationDataValue::Print (
            std::ostream & os) const
```

12.246.3.9 Read()

```
std::istream & gdcm::network::PresentationDataValue::Read (
            std::istream & is)
```

12.246.3.10 ReadInto()

```
std::istream & gdcm::network::PresentationDataValue::ReadInto (
            std::istream & is,
            std::ostream & os)
```

12.246.3.11 SetBlob()

```
void gdcm::network::PresentationDataValue::SetBlob (
            const std::string & partialblob)
```

12.246.3.12 SetCommand()

```
void gdcm::network::PresentationDataValue::SetCommand (
            bool inCommand)
```

12.246.3.13 SetDataSet()

```
void gdcm::network::PresentationDataValue::SetDataSet (
            const DataSet & ds)
```

Set DataSet. Write DataSet in implicit.

Warning

size of dataset should be below maxpdusize

12.246.3.14 SetLastFragment()

```
void gdcm::network::PresentationDataValue::SetLastFragment (
            bool inLast)
```

12.246.3.15 SetMessageHeader()

```
void gdcm::network::PresentationDataValue::SetMessageHeader (
            uint8_t messageheader)  [inline]
```

12.246.3.16 SetPresentationContextID()

```
void gdcm::network::PresentationDataValue::SetPresentationContextID (
            uint8_t id)  [inline]
```

12.246.3.17 Size()

```
size_t gdcm::network::PresentationDataValue::Size () const
```

12.246.3.18 Write()

```
const std::ostream & gdcm::network::PresentationDataValue::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

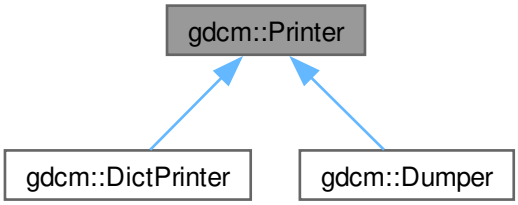
- gdcmPresentationDataValue.h

12.247 gdcm::Printer Class Reference

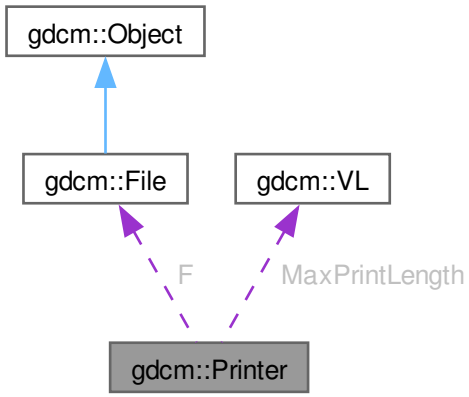
Printer class.

`#include <gdcmPrinter.h>`

Inheritance diagram for gdcm::Printer:



Collaboration diagram for gdcm::Printer:



Public Types

- enum PrintStyles {
  VERBOSE_STYLE = 0 ,
  CONDENSED_STYLE ,
  XML ,
  CXX }

Public Member Functions

- Printer ()
- ~Printer ()=default
- PrintStyles GetPrintStyle () const

  Get PrintStyle value.
- void Print (std::ostream &os)

  Print.
- void PrintDataSet (const DataSet &ds, std::ostream &os, const std::string &s="")

  Print an individual dataset.
- void SetColor (bool c)

  Set color mode or not.
- void SetFile (File const &f)

  Set file.
- void SetStyle (PrintStyles ps)

  Set PrintStyle value.

Protected Member Functions

- VR PrintDataElement (std::ostringstream &os, const Dicts &dicts, const DataSet &ds, const DataElement &de, std::ostream &out, std::string const &indent)
- void PrintSQ (const SequenceOfItems *sqi, std::ostream &os, std::string const &indent)

Protected Attributes

- const File * F
- VL MaxPrintLength
- PrintStyles PrintStyle

12.247.1 Detailed Description

Printer class.

Examples

DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, and DumpToshibaDTI2.cxx.

12.247.2 Member Enumeration Documentation

12.247.2.1 PrintStyles

```
enum gdcm::Printer::PrintStyles
```

Enumerator

VERBOSE_STYLE	
CONDENSED_STYLE	
XML	
CXX	

12.247.3 Constructor & Destructor Documentation

12.247.3.1 Printer()

```
gdcm::Printer::Printer ()
```

12.247.3.2 ~Printer()

```
gdcm::Printer::~Printer ()  [default]
```

12.247.4 Member Function Documentation

12.247.4.1 GetPrintStyle()

```
PrintStyles gdcm::Printer::GetPrintStyle () const  [inline]
```

Get PrintStyle value.

References PrintStyle.

12.247.4.2 Print()

```
void gdcm::Printer::Print (
            std::ostream & os)
```

Print.

Examples

DumpSiemensBase64.cxx.

12.247.4.3 PrintDataElement()

```
VR gdcm::Printer::PrintDataElement (
             std::ostringstream & os,
             const Dicts & dicts,
             const DataSet & ds,
             const DataElement & de,
             std::ostream & out,
             std::string const & indent)  [protected]
```

12.247.4.4 PrintDataSet()

```
void gdcm::Printer::PrintDataSet (
             const DataSet & ds,
             std::ostream & os,
             const std::string & s = "")
```

Print an individual dataset.

12.247.4.5 PrintSQ()

```
void gdcm::Printer::PrintSQ (
             const SequenceOfItems * sqi,
             std::ostream & os,
             std::string const & indent)  [protected]
```

12.247.4.6 SetColor()

```
void gdcm::Printer::SetColor (
             bool c)
```

Set color mode or not.

12.247.4.7 SetFile()

```
void gdcm::Printer::SetFile (
             File const & f)  [inline]
```

Set file.

Examples

DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, and DumpToshibaDTI2.cxx.

References F.

12.247.4.8 SetStyle()

```
void gdcm::Printer::SetStyle (
            PrintStyles ps)  [inline]
```

Set PrintStyle value.

References PrintStyle.

12.247.5 Member Data Documentation

12.247.5.1 F

```
const File* gdcm::Printer::F  [protected]
```

Referenced by SetFile().

12.247.5.2 MaxPrintLength

```
VL gdcm::Printer::MaxPrintLength  [protected]
```

12.247.5.3 PrintStyle

```
PrintStyles gdcm::Printer::PrintStyle  [protected]
```

Referenced by gdcm::Dumper::Dumper(), GetPrintStyle(), and SetStyle().

The documentation for this class was generated from the following file:

- gdcmPrinter.h

12.248 gdcm::PrivateDict Class Reference

Private Dict.

```
#include <gdcmDict.h>
```

Public Member Functions

- PrivateDict ()=default
- ~PrivateDict ()=default
- void AddDictEntry (const PrivateTag &tag, const DictEntry &de)
- bool FindDictEntry (const PrivateTag &tag) const
- const DictEntry & GetDictEntry (const PrivateTag &tag) const
- bool IsEmpty () const
- void PrintXML () const
- bool RemoveDictEntry (const PrivateTag &tag)

Protected Member Functions

- void LoadDefault ()

Friends

- class Dicts
- std::ostream & operator<< (std::ostream &os, const PrivateDict &val)

12.248.1 Detailed Description

Private Dict.

12.248.2 Constructor & Destructor Documentation

12.248.2.1 PrivateDict()

```
gdcm::PrivateDict::PrivateDict ()  [default]
```

Referenced by LoadDefault(), and operator<<.

12.248.2.2 ~PrivateDict()

```
gdcm::PrivateDict::~PrivateDict ()  [default]
```

12.248.3 Member Function Documentation

12.248.3.1 AddDictEntry()

```
void gdcm::PrivateDict::AddDictEntry (
            const PrivateTag & tag,
            const DictEntry & de)  [inline]
```

References GetDictEntry(), gdcm::DictEntry::GetVM(), gdcm::DictEntry::GetVR(), gdcm::DictEntry::SetVM(), gdcm::DictEntry::SetVR(), and gdcm::VR::UN.

12.248.3.2 FindDictEntry()

```
bool gdcm::PrivateDict::FindDictEntry (
            const PrivateTag & tag) const  [inline]
```

12.248.3.3 GetDictEntry()

```
const DictEntry & gdcm::PrivateDict::GetDictEntry (
            const PrivateTag & tag) const  [inline]
```

Referenced by AddDictEntry().

12.248.3.4 IsEmpty()

```
bool gdcm::PrivateDict::IsEmpty () const  [inline]
```

12.248.3.5 LoadDefault()

```
void gdcm::PrivateDict::LoadDefault ()  [protected]
```

References PrivateDict().

12.248.3.6 PrintXML()

```
void gdcm::PrivateDict::PrintXML () const  [inline]
```

References gdcm::Tag::GetElement(), gdcm::Tag::GetGroup(), gdcm::DictEntry::GetName(), gdcm::PrivateTag::GetOwner(), gdcm::DictEntry::GetVM(), and gdcm::DictEntry::GetVR().

12.248.3.7 RemoveDictEntry()

```
bool gdcm::PrivateDict::RemoveDictEntry (
            const PrivateTag & tag)  [inline]
```

Remove entry 'tag'. Return true on success (element was found and remove). return false if element was not found.

12.248.4 Friends And Related Symbol Documentation

12.248.4.1 Dicts

```
friend class Dicts  [friend]
```

References Dicts.

Referenced by Dicts.

12.248.4.2 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const PrivateDict & val)  [friend]
```

References PrivateDict().

The documentation for this class was generated from the following file:

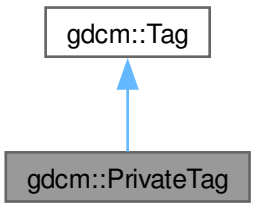
- gdcmDict.h

12.249 gdcm::PrivateTag Class Reference

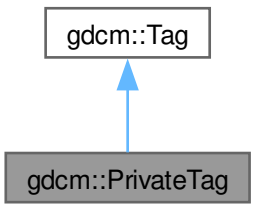
Class to represent a Private DICOM Data Element (Attribute) Tag (Group, Element, Owner).

`#include <gdcmPrivateTag.h>`

Inheritance diagram for gdcm::PrivateTag:



Collaboration diagram for gdcm::PrivateTag:



Public Member Functions

- PrivateTag (Tag const &t, const char *owner="")
- PrivateTag (uint16_t group=0, uint16_t element=0, const char *owner="")
- DataElement GetAsDataElement () const
- const char * GetOwner () const
- bool operator!= (const PrivateTag &_val) const
- bool operator!= (const Tag &_val) const
- bool operator< (const PrivateTag &_val) const
- PrivateTag & operator= (const PrivateTag &_val)
- bool operator== (const PrivateTag &_val) const
- bool operator== (const Tag &_val) const
- bool ReadFromCommaSeparatedString (const char *str)
- void SetOwner (const char *owner)

Public Member Functions inherited from gdcm::Tag

- Tag (const Tag &_val)
- Tag (uint16_t group, uint16_t element)

  *Constructor with 2*uint16_t.*
- Tag (uint32_t tag=0)

  *Constructor with 1*uint32_t Prefer the cstor that takes two uint16_t.*
- uint16_t GetElement () const

  Returns the 'Element number' of the given Tag.
- uint32_t GetElementTag () const

  Returns the full tag value of the given Tag.
- uint16_t GetGroup () const

  Returns the 'Group number' of the given Tag.
- uint32_t GetLength () const

  return the length of tag (read: size on disk)
- Tag GetPrivateCreator () const

  Return the Private Creator Data Element tag of a private data element.
- bool IsGroupLength () const

  return whether the tag correspond to a group length tag:
- bool IsGroupXX (const Tag &t) const

  e.g 6002,3000 belong to groupXX: 6000,3000
- bool IsIllegal () const

  return if the tag is considered to be an illegal tag
- bool IsPrivate () const
- bool IsPrivateCreator () const
- bool IsPublic () const
- bool operator!= (const Tag &_val) const
- bool operator< (const Tag &_val) const
- bool operator<= (const Tag &t2) const
- Tag & operator= (const Tag &_val)
- bool operator== (const Tag &_val) const
- uint16_t & operator[ ] (const unsigned int &_id)

  Returns the Group or Element of the given Tag, depending on id (0/1).

- const uint16_t & operator[ ] (const unsigned int &_id) const

  Returns the Group or Element of the given Tag, depending on id (0/1).
- std::string PrintAsContinuousString () const
- std::string PrintAsContinuousUpperCaseString () const

  Same as PrintAsContinuousString, but hexadecimal [a-f] are printed using upper case.
- std::string PrintAsPipeSeparatedString () const
- template<typename TSwap>
  std::istream & Read (std::istream &is)

  Read a tag from binary representation.
- bool ReadFromCommaSeparatedString (const char *str)
- bool ReadFromContinuousString (const char *str)
- bool ReadFromPipeSeparatedString (const char *str)
- void SetElement (uint16_t element)

  Sets the 'Element number' of the given Tag.
- void SetElementTag (uint16_t group, uint16_t element)

  Sets the 'Group number' & 'Element number' of the given Tag.
- void SetElementTag (uint32_t tag)

  Sets the full tag value of the given Tag.
- void SetGroup (uint16_t group)

  Sets the 'Group number' of the given Tag.
- void SetPrivateCreator (Tag const &t)

  Set private creator:
- template<typename TSwap>
  const std::ostream & Write (std::ostream &os) const

  Write a tag in binary rep.

Friends

- std::ostream & operator<< (std::ostream &_os, const PrivateTag &_val)

12.249.1 Detailed Description

Class to represent a Private DICOM Data Element (Attribute) Tag (Group, Element, Owner).

Note

private tag have element value in: [0x10,0xff], for instance 0x0009,0x0000 is NOT a private tag

Examples

ChangePrivateTags.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ELSCINT1WaveToText.cxx, FileStreaming.cs, GetSubSequenceData.cxx, MrProtocol.cxx, PublicDict.cxx, ReadGEMSSDO.cxx, csa2img.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.249.2 Constructor & Destructor Documentation

12.249.2.1 PrivateTag() [1/2]

```
gdcm::PrivateTag::PrivateTag (
            uint16_t group = 0,
            uint16_t element = 0,
            const char * owner = "")  [inline]
```

References gdcm::Tag::Tag(), and gdcm::Tag::SetElement().

Referenced by operator!=(), operator<(), operator<<, operator=(), and operator==().

12.249.2.2 PrivateTag() [2/2]

```
gdcm::PrivateTag::PrivateTag (
            Tag const & t,
            const char * owner = "")  [inline]
```

References gdcm::Tag::Tag(), gdcm::Tag::GetElement(), and gdcm::Tag::SetElement().

12.249.3 Member Function Documentation

12.249.3.1 GetAsDataElement()

```
DataElement gdcm::PrivateTag::GetAsDataElement () const
```

12.249.3.2 GetOwner()

```
const char * gdcm::PrivateTag::GetOwner () const  [inline]
```

Examples

PublicDict.cxx.

Referenced by gdcm::PrivateDict::PrintXML().

12.249.3.3 operator"!=() [1/2]

```
bool gdcm::PrivateTag::operator!= (
            const PrivateTag & _val) const  [inline]
```

References PrivateTag(), and gdcm::Tag::GetElementTag().

12.249.3.4 operator"!=() [2/2]

```
bool gdcm::PrivateTag::operator!= (
            const Tag & _val) const  [inline]
```

References gdcm::Tag::Tag(), and gdcm::Tag::GetElementTag().

12.249.3.5 operator<()

```
bool gdcm::PrivateTag::operator< (
            const PrivateTag & _val) const
```

References PrivateTag().

12.249.3.6 operator=()

```
PrivateTag & gdcm::PrivateTag::operator= (
            const PrivateTag & _val)  [inline]
```

References PrivateTag(), gdcm::Tag::GetElementTag(), and gdcm::Tag::SetElementTag().

12.249.3.7 operator==() [1/2]

```
bool gdcm::PrivateTag::operator== (
            const PrivateTag & _val) const  [inline]
```

References PrivateTag(), and gdcm::Tag::GetElementTag().

12.249.3.8 operator==() [2/2]

```
bool gdcm::PrivateTag::operator== (
            const Tag & _val) const  [inline]
```

References gdcm::Tag::Tag(), and gdcm::Tag::GetElementTag().

12.249.3.9 ReadFromCommaSeparatedString()

```
bool gdcm::PrivateTag::ReadFromCommaSeparatedString (
            const char * str)
```

Read PrivateTag from a string. Element number will be truncated to 8bits. Eg: "1234,5678,GDCM" is private tag: (1234,78,"GDCM")

12.249.3.10 SetOwner()

```
void gdcm::PrivateTag::SetOwner (
            const char * owner)  [inline]
```

References gdcm::String<'\\', 64 >::Trim().

12.249.4 Friends And Related Symbol Documentation

12.249.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const PrivateTag & _val)  [friend]
```

References PrivateTag(), and operator<<.

Referenced by operator<<.

The documentation for this class was generated from the following file:

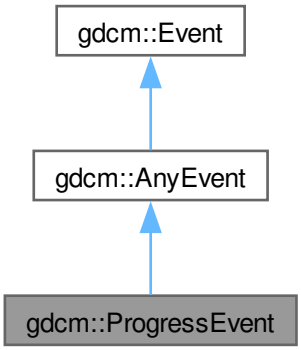
- gdcmPrivateTag.h

12.250 gdcm::ProgressEvent Class Reference

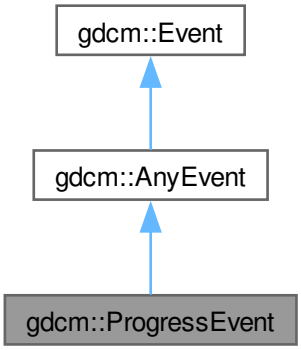
ProgressEvent.

```
#include <gdcmProgressEvent.h>
```

Inheritance diagram for gdcm::ProgressEvent:



Collaboration diagram for gdcm::ProgressEvent:



Public Types

- typedef ProgressEvent Self
- typedef AnyEvent Superclass

Public Member Functions

- ProgressEvent (const Self &s)
- ProgressEvent (double p=0)
- ~ProgressEvent () override=default
- bool CheckEvent (const ::gdcm::Event *e) const override
- const char * GetEventName () const override
- double GetProgress () const
- ::gdcm::Event * MakeObject () const override
- void operator= (const Self &)=delete
- void SetProgress (double p)

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

12.250.1 Detailed Description

ProgressEvent.

Special type of event triggered during

See also

AnyEvent

Examples

BasicAnonymizer.cs, Cleaner.cs, and ClinicalTrialIdentificationWorkflow.cs.

12.250.2 Member Typedef Documentation

12.250.2.1 Self

```
typedef ProgressEvent gdcm::ProgressEvent::Self
```

12.250.2.2 Superclass

```
typedef AnyEvent gdcm::ProgressEvent::Superclass
```

12.250.3 Constructor & Destructor Documentation

12.250.3.1 ProgressEvent() [1/2]

```
gdcm::ProgressEvent::ProgressEvent (
            double p = 0)  [inline]
```

12.250.3.2 ~ProgressEvent()

```
gdcm::ProgressEvent::~ProgressEvent ()  [override], [default]
```

12.250.3.3 ProgressEvent() [2/2]

```
gdcm::ProgressEvent::ProgressEvent (
            const Self & s)  [inline]
```

12.250.4 Member Function Documentation

12.250.4.1 CheckEvent()

```
bool gdcm::ProgressEvent::CheckEvent (
            const ::gdcm::Event * e) const  [inline], [override]
```

12.250.4.2 GetEventName()

```
const char * gdcm::ProgressEvent::GetEventName () const  [inline], [override], [virtual]
```

Return the StringName associated with the event.

Implements gdcm::Event.

12.250.4.3 GetProgress()

```
double gdcm::ProgressEvent::GetProgress () const  [inline]
```

Examples

BasicAnonymizer.cs, Cleaner.cs, and ClinicalTrialIdentificationWorkflow.cs.

12.250.4.4 MakeObject()

```
::gdcm::Event * gdcm::ProgressEvent::MakeObject () const  [inline], [override], [virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implements gdcm::Event.

12.250.4.5 operator=()

```
void gdcm::ProgressEvent::operator= (
            const Self & )  [delete]
```

12.250.4.6 SetProgress()

```
void gdcm::ProgressEvent::SetProgress (
            double p)  [inline]
```

The documentation for this class was generated from the following file:

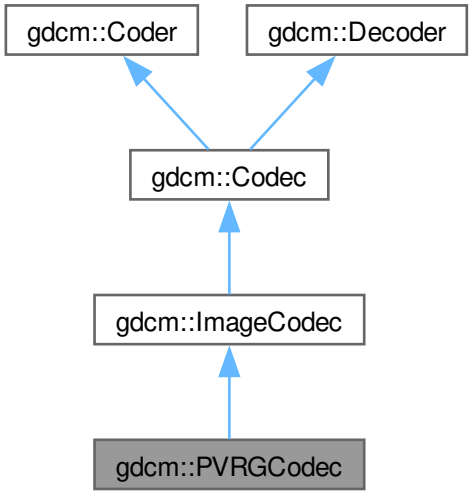
- gdcmProgressEvent.h

12.251 gdcm::PVRGCodec Class Reference

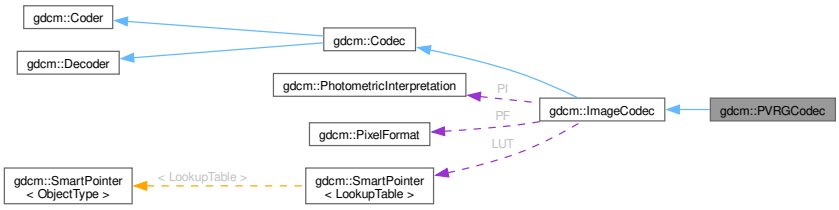
PVRGCodec.

`#include <gdcmPVRGCodec.h>`

Inheritance diagram for gdcm::PVRGCodec:



Collaboration diagram for gdcm::PVRGCodec:



Public Member Functions

- PVRGCodec ()
- ~PVRGCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).

- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- void SetLossyFlag (bool l)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- virtual bool GetHeaderInfo (std::istream &is_, TransferSyntax &ts)
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.251.1 Detailed Description

PVRGCodec.

Note

pvrg is a broken implementation of the JPEG standard. It is known to have a bug in the 16bits lossless implementation of the standard.

In an ideal world, you should not need this codec at all. But to support some broken file such as:

PHILIPS_Gyroscan-12-Jpeg_Extended_Process_2_4.dcm

we have to...

12.251.2 Constructor & Destructor Documentation

12.251.2.1 PVRGCodec()

```
gdcm::PVRGCodec::PVRGCodec ()
```

12.251.2.2 ~PVRGCodec()

```
gdcm::PVRGCodec::~PVRGCodec ()  [override]
```

12.251.3 Member Function Documentation

12.251.3.1 CanCode()

```
bool gdcm::PVRGCodec::CanCode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

12.251.3.2 CanDecode()

```
bool gdcm::PVRGCodec::CanDecode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.251.3.3 Clone()

```
ImageCodec * gdcm::PVRGCodec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.251.3.4 Code()

```
bool gdcm::PVRGCodec::Code (
            DataElement const & in_,
            DataElement & out_)  [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

12.251.3.5 Decode()

```
bool gdcm::PVRGCodec::Decode (
            DataElement const & ,
            DataElement & )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

12.251.3.6 SetLossyFlag()

```
void gdcm::PVRGCodec::SetLossyFlag (
            bool l)
```

The documentation for this class was generated from the following file:

- gdcmPVRGCodec.h

12.252 gdcm::PythonFilter Class Reference

PythonFilter PythonFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language.

```
#include <gdcmPythonFilter.h>
```

Public Member Functions

- PythonFilter ()
- ~PythonFilter ()
- File & GetFile ()
- const File & GetFile () const
- void SetDicts (const Dicts &dicts)
- void SetFile (const File &f)
- PyObject * ToPyObject (const Tag &t) const
- void UseDictAlways (bool)

12.252.1 Detailed Description

PythonFilter PythonFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language.

12.252.2 Constructor & Destructor Documentation

12.252.2.1 PythonFilter()

```
gdcm::PythonFilter::PythonFilter ()
```

12.252.2.2 ~PythonFilter()

```
gdcm::PythonFilter::~PythonFilter ()
```

12.252.3 Member Function Documentation

12.252.3.1 GetFile() [1/2]

```
File & gdcm::PythonFilter::GetFile ()
```

12.252.3.2 GetFile() [2/2]

```
const File & gdcm::PythonFilter::GetFile () const
```

12.252.3.3 SetDicts()

```
void gdcm::PythonFilter::SetDicts (
            const Dicts & dicts)
```

12.252.3.4 SetFile()

```
void gdcm::PythonFilter::SetFile (
            const File & f)
```

12.252.3.5 ToPyObject()

```
PyObject * gdcm::PythonFilter::ToPyObject (
            const Tag & t) const
```

12.252.3.6 UseDictAlways()

```
void gdcm::PythonFilter::UseDictAlways (
            bool )  [inline]
```

The documentation for this class was generated from the following file:

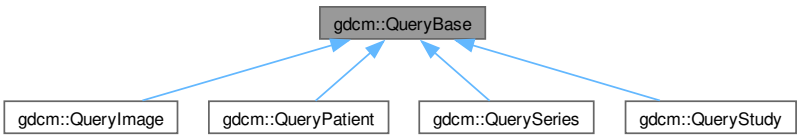
- gdcmPythonFilter.h

12.253 gdcm::QueryBase Class Reference

QueryBase.

`#include <gdcmQueryBase.h>`

Inheritance diagram for gdcm::QueryBase:



Public Member Functions

- virtual ~QueryBase ()=default
- std::vector< Tag > GetAllRequiredTags (const ERootType &inRootType) const
- std::vector< Tag > GetAllTags (const ERootType &inRootType) const
- virtual std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const =0

  Return all Unique Key for a particular Query Root type (from the same level and above).
- virtual const char * GetName () const =0
- virtual std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const =0
- virtual DataElement GetQueryLevel () const =0
- virtual std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const =0
- virtual std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const =0

12.253.1 Detailed Description

QueryBase.

contains: the base class for constructing a query dataset for a C-FIND and a C-MOVE

There are four levels of C-FIND and C-MOVE query:

- Patient
- Study
- Series
- Image

Each one has its own required and optional tags. This class provides an interface for getting those tags. This is an interface class.

See 3.4 C 6.1 and 3.4 C 6.2 for the patient and study root query types. These sections define the tags allowed by a particular query. The caller must pass in which root type they want, patient or study. A third root type, Modality Worklist Query, isn't yet supported.

This class (or rather it's derived classes) will be held in the RootQuery types. These query types actually make the dataset, and will use this dataset to list the required, unique, and optional tags for each type of query. This design is somewhat overly complicated, but is kept so that if we ever wanted to try to guess the query type from the given tags, we could do so.

12.253.2 Constructor & Destructor Documentation

12.253.2.1 ~QueryBase()

```
virtual gdcm::QueryBase::~QueryBase ()  [virtual], [default]
```

12.253.3 Member Function Documentation

12.253.3.1 GetAllRequiredTags()

```
std::vector< Tag > gdcm::QueryBase::GetAllRequiredTags (
            const ERootType & inRootType) const
```

In order to validate a query dataset we need to check that there exists at least one required (or unique) key

12.253.3.2 GetAllTags()

```
std::vector< Tag > gdcm::QueryBase::GetAllTags (
            const ERootType & inRootType) const
```

In order to validate a query dataset, just check for the presence of a tag, not it's requirement level in the spec

12.253.3.3 GetHierachicalSearchTags()

```
virtual std::vector< Tag > gdcm::QueryBase::GetHierachicalSearchTags (
            const ERootType & inRootType) const  [pure virtual]
```

Return all Unique Key for a particular Query Root type (from the same level and above).

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

12.253.3.4 GetName()

```
virtual const char * gdcm::QueryBase::GetName () const  [pure virtual]
```

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

12.253.3.5 GetOptionalTags()

```
virtual std::vector< Tag > gdcm::QueryBase::GetOptionalTags (
            const ERootType & inRootType) const  [pure virtual]
```

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

12.253.3.6 GetQueryLevel()

```
virtual DataElement gdcm::QueryBase::GetQueryLevel () const  [pure virtual]
```

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

12.253.3.7 GetRequiredTags()

```
virtual std::vector< Tag > gdcm::QueryBase::GetRequiredTags (
            const ERootType & inRootType) const  [pure virtual]
```

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

12.253.3.8 GetUniqueTags()

```
virtual std::vector< Tag > gdcm::QueryBase::GetUniqueTags (
            const ERootType & inRootType) const  [pure virtual]
```

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

The documentation for this class was generated from the following file:

- gdcmQueryBase.h

12.254 gdcm::QueryFactory Class Reference

QueryFactory.h.

```
#include <gdcmQueryFactory.h>
```

Static Public Member Functions

- static ECharSet GetCharacterFromCurrentLocale ()
- static void ListCharSets (std::ostream &os)

  List all possible CharSet.
- static DataElement ProduceCharacterSetDataElement (const std::vector< ECharSet > &inCharSetType)
- static BaseQuery * ProduceQuery (const std::string &sopInstanceUID, ENQueryType inQueryType)
- static BaseRootQuery * ProduceQuery (ERootType inRootType, EQueryType inQueryType, EQueryLevel in↩ QueryLevel)

12.254.1 Detailed Description

QueryFactory.h.

contains: a class to produce a query based off of user-entered information

Essentially, this class is used to construct a query based off of user input (typically from the command line; if in code directly, the query itself could just be instantiated)

In theory, could also be used as the interface to validate incoming datasets as belonging to a particular query style

12.254.2 Member Function Documentation

12.254.2.1 GetCharacterFromCurrentLocale()

```
ECharSet gdcm::QueryFactory::GetCharacterFromCurrentLocale ()  [static]
```

This function will return the corresponding ECharSet associated with the current locale of the running system (based on the value of locale()).

12.254.2.2 ListCharSets()

```
void gdcm::QueryFactory::ListCharSets (
            std::ostream & os)  [static]
```

List all possible CharSet.

12.254.2.3 ProduceCharacterSetDataElement()

```
DataElement gdcm::QueryFactory::ProduceCharacterSetDataElement (
            const std::vector< ECharSet > & inCharSetType)  [static]
```

This function will produce the appropriate dataelement given a list of charsets. The first charset will be used directly, while the second and subsequent will be prepended with "ISO2022 ". Redundant character sets are not permitted, so if they are encountered, they will just be skipped. if UTF8 or GB18030 is used, no subsequent character sets will be used if the vector passed in is empty, then the dataelement that's passed out will be empty and Latin1 is the presumed encoding

12.254.2.4 ProduceQuery() [1/2]

```
BaseQuery * gdcm::QueryFactory::ProduceQuery (
            const std::string & sopInstanceUID,
            ENQueryType inQueryType)  [static]
```

12.254.2.5 ProduceQuery() [2/2]

```
BaseRootQuery * gdcm::QueryFactory::ProduceQuery (
            ERootType inRootType,
            EQueryType inQueryType,
            EQueryLevel inQueryLevel)  [static]
```

this function will produce a query (basically, a wrapper to a dataset that can validate whether or not the query is a valid cfind/cmove query) and the level of the query (patient, study, series, image). If the user provides an invalid instantiation (ie, study root type, query level of patient), then the result is NULL.

The documentation for this class was generated from the following file:

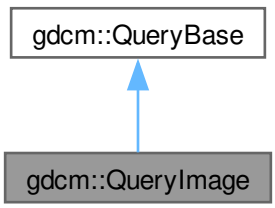
- gdcmQueryFactory.h

12.255 gdcm::QueryImage Class Reference

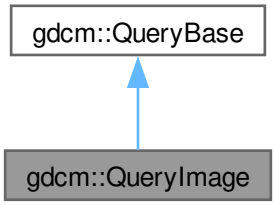
QueryImage.

`#include <gdcmQueryImage.h>`

Inheritance diagram for gdcm::QueryImage:



Collaboration diagram for gdcm::QueryImage:



Public Member Functions

- std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const override
  Return all Unique Key for a particular Query Root type (from the same level and above).
- const char * GetName () const override
- std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const override
- DataElement GetQueryLevel () const override
- std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const override
- std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const override

Public Member Functions inherited from gdcm::QueryBase

- virtual ~QueryBase ()=default
- std::vector< Tag > GetAllRequiredTags (const ERootType &inRootType) const
- std::vector< Tag > GetAllTags (const ERootType &inRootType) const

12.255.1 Detailed Description

QueryImage.

contains: class to construct an image-based query for C-FIND and C-MOVE

12.255.2 Member Function Documentation

12.255.2.1 GetHierachicalSearchTags()

```
std::vector< Tag > gdcm::QueryImage::GetHierachicalSearchTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Return all Unique Key for a particular Query Root type (from the same level and above).

Implements gdcm::QueryBase.

12.255.2.2 GetName()

```
const char * gdcm::QueryImage::GetName () const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.255.2.3 GetOptionalTags()

```
std::vector< Tag > gdcm::QueryImage::GetOptionalTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.255.2.4 GetQueryLevel()

```
DataElement gdcm::QueryImage::GetQueryLevel () const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.255.2.5 GetRequiredTags()

```
std::vector< Tag > gdcm::QueryImage::GetRequiredTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.255.2.6 GetUniqueTags()

```
std::vector< Tag > gdcm::QueryImage::GetUniqueTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

The documentation for this class was generated from the following file:

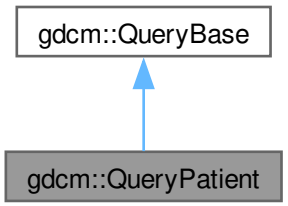
- gdcmQueryImage.h

12.256 gdcm::QueryPatient Class Reference

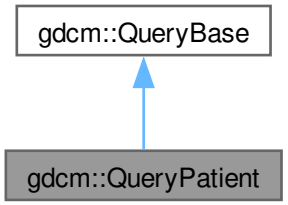
QueryPatient.

`#include <gdcmQueryPatient.h>`

Inheritance diagram for gdcm::QueryPatient:



Collaboration diagram for gdcm::QueryPatient:



Public Member Functions

- std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const override

  Return all Unique Key for a particular Query Root type (from the same level and above).
- const char * GetName () const override
- std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const override
- DataElement GetQueryLevel () const override
- std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const override
- std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const override

Public Member Functions inherited from gdcm::QueryBase

- virtual ~QueryBase ()=default
- std::vector< Tag > GetAllRequiredTags (const ERootType &inRootType) const
- std::vector< Tag > GetAllTags (const ERootType &inRootType) const

12.256.1 Detailed Description

QueryPatient.

contains: class to construct a patient-based query for c-find and c-move

12.256.2 Member Function Documentation

12.256.2.1 GetHierachicalSearchTags()

```
std::vector< Tag > gdcm::QueryPatient::GetHierachicalSearchTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Return all Unique Key for a particular Query Root type (from the same level and above).

Implements gdcm::QueryBase.

12.256.2.2 GetName()

```
const char * gdcm::QueryPatient::GetName () const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.256.2.3 GetOptionalTags()

```
std::vector< Tag > gdcm::QueryPatient::GetOptionalTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.256.2.4 GetQueryLevel()

```
DataElement gdcm::QueryPatient::GetQueryLevel () const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.256.2.5 GetRequiredTags()

```
std::vector< Tag > gdcm::QueryPatient::GetRequiredTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.256.2.6 GetUniqueTags()

```
std::vector< Tag > gdcm::QueryPatient::GetUniqueTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

The documentation for this class was generated from the following file:

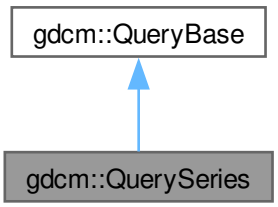
- gdcmQueryPatient.h

12.257 gdcm::QuerySeries Class Reference

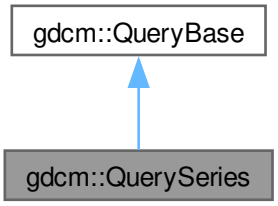
QuerySeries.

```
#include <gdcmQuerySeries.h>
```

Inheritance diagram for gdcm::QuerySeries:



Collaboration diagram for gdcm::QuerySeries:



Public Member Functions

- std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const override
  Return all Unique Key for a particular Query Root type (from the same level and above).
- const char * GetName () const override
- std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const override
- DataElement GetQueryLevel () const override
- std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const override
- std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const override

Public Member Functions inherited from gdcm::QueryBase

- virtual ~QueryBase ()=default
- std::vector< Tag > GetAllRequiredTags (const ERootType &inRootType) const
- std::vector< Tag > GetAllTags (const ERootType &inRootType) const

12.257.1 Detailed Description

QuerySeries.

contains: class to construct a series-based query for c-find and c-move

12.257.2 Member Function Documentation

12.257.2.1 GetHierachicalSearchTags()

```
std::vector< Tag > gdcm::QuerySeries::GetHierachicalSearchTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Return all Unique Key for a particular Query Root type (from the same level and above).

Implements gdcm::QueryBase.

12.257.2.2 GetName()

```
const char * gdcm::QuerySeries::GetName () const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.257.2.3 GetOptionalTags()

```
std::vector< Tag > gdcm::QuerySeries::GetOptionalTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.257.2.4 GetQueryLevel()

```
DataElement gdcm::QuerySeries::GetQueryLevel () const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.257.2.5 GetRequiredTags()

```
std::vector< Tag > gdcm::QuerySeries::GetRequiredTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.257.2.6 GetUniqueTags()

```
std::vector< Tag > gdcm::QuerySeries::GetUniqueTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

The documentation for this class was generated from the following file:

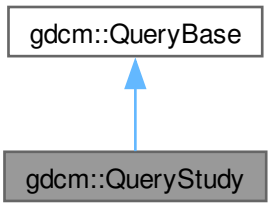
- gdcmQuerySeries.h

12.258 gdcm::QueryStudy Class Reference

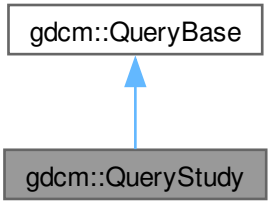
QueryStudy.h.

```
#include <gdcmQueryStudy.h>
```

Inheritance diagram for gdcm::QueryStudy:



Collaboration diagram for gdcm::QueryStudy:



Public Member Functions

- std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const override

  Return all Unique Key for a particular Query Root type (from the same level and above).
- const char * GetName () const override
- std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const override
- DataElement GetQueryLevel () const override
- std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const override
- std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const override

Public Member Functions inherited from gdcm::QueryBase

- virtual ~QueryBase ()=default
- std::vector< Tag > GetAllRequiredTags (const ERootType &inRootType) const
- std::vector< Tag > GetAllTags (const ERootType &inRootType) const

12.258.1 Detailed Description

QueryStudy.h.

contains: class to construct a study-based query for C-FIND and C-MOVE

12.258.2 Member Function Documentation

12.258.2.1 GetHierachicalSearchTags()

```
std::vector< Tag > gdcm::QueryStudy::GetHierachicalSearchTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Return all Unique Key for a particular Query Root type (from the same level and above).

Implements gdcm::QueryBase.

12.258.2.2 GetName()

```
const char * gdcm::QueryStudy::GetName () const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.258.2.3 GetOptionalTags()

```
std::vector< Tag > gdcm::QueryStudy::GetOptionalTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.258.2.4 GetQueryLevel()

```
DataElement gdcm::QueryStudy::GetQueryLevel () const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.258.2.5 GetRequiredTags()

```
std::vector< Tag > gdcm::QueryStudy::GetRequiredTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.258.2.6 GetUniqueTags()

```
std::vector< Tag > gdcm::QueryStudy::GetUniqueTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

The documentation for this class was generated from the following file:

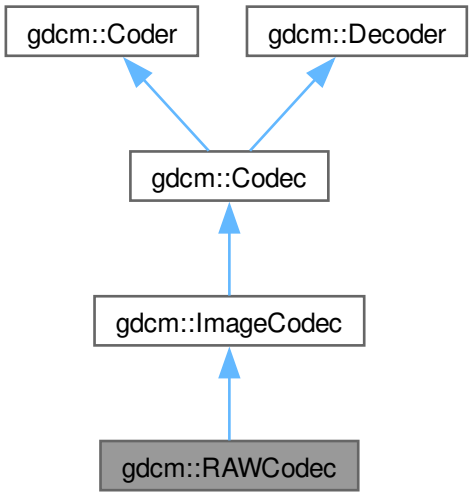
- gdcmQueryStudy.h

12.259 gdcm::RAWCodec Class Reference

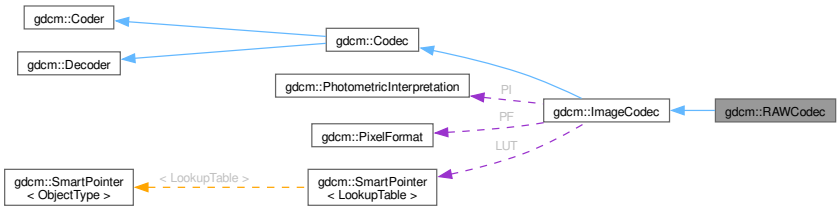
RAWCodec class.

```
#include <gdcmRAWCodec.h>
```

Inheritance diagram for gdcm::RAWCodec:



Collaboration diagram for gdcm::RAWCodec:



Public Member Functions

- RAWCodec ()
- ~RAWCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- bool DecodeBytes (const char *inBytes, size_t inBufferLength, char *outBytes, size_t inOutBufferLength)
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)

- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool DecodeByStreams (std::istream &is, std::ostream &os) override

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.259.1 Detailed Description

RAWCodec class.

12.259.2 Constructor & Destructor Documentation

12.259.2.1 RAWCodec()

```
gdcm::RAWCodec::RAWCodec ()
```

12.259.2.2 ~RAWCodec()

```
gdcm::RAWCodec::~RAWCodec ()  [override]
```

12.259.3 Member Function Documentation

12.259.3.1 CanCode()

```
bool gdcm::RAWCodec::CanCode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

12.259.3.2 CanDecode()

```
bool gdcm::RAWCodec::CanDecode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.259.3.3 Clone()

```
ImageCodec * gdcm::RAWCodec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.259.3.4 Code()

```
bool gdcm::RAWCodec::Code (
            DataElement const & in_,
            DataElement & out_)  [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

12.259.3.5 Decode()

```
bool gdcm::RAWCodec::Decode (
            DataElement const & ,
            DataElement & )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

12.259.3.6 DecodeByStreams()

```
bool gdcm::RAWCodec::DecodeByStreams (
            std::istream & is,
            std::ostream & os)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.259.3.7 DecodeBytes()

```
bool gdcm::RAWCodec::DecodeBytes (
            const char * inBytes,
            size_t inBufferLength,
            char * outBytes,
            size_t inOutBufferLength)
```

Used by the ImageStreamReader– converts a read in buffer into one with the proper encodings.

12.259.3.8 GetHeaderInfo()

```
bool gdcm::RAWCodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

The documentation for this class was generated from the following file:

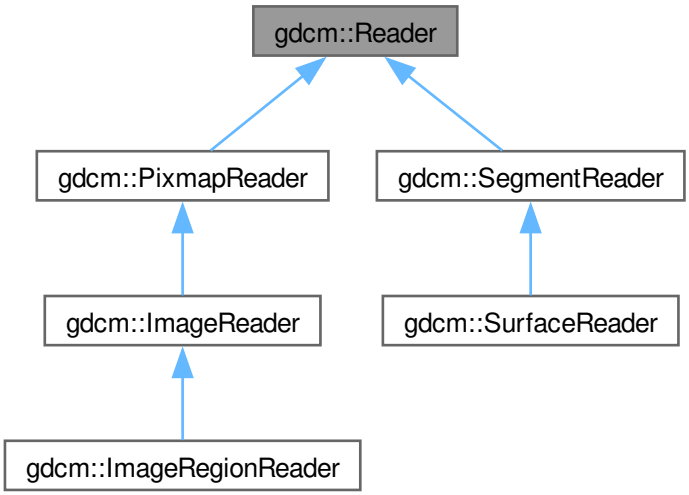
- gdcmRAWCodec.h

12.260 gdcm::Reader Class Reference

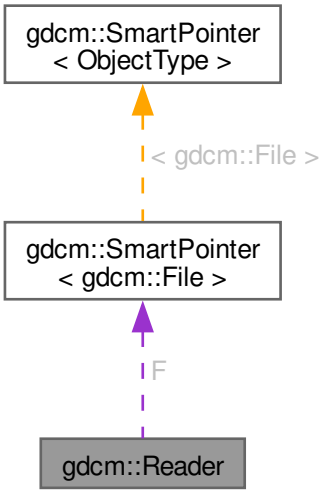
Reader ala DOM (Document Object Model).

```
#include <gdcmReader.h>
```

Inheritance diagram for gdcm::Reader:



Collaboration diagram for gdcm::Reader:



Public Member Functions

- Reader ()
- virtual ~Reader ()
- bool CanRead () const
- File & GetFile ()

  Set/Get File.
- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const
- virtual bool Read ()

  Main function to read a file.
- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

  Will only read the specified selected private tags.
- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Member Functions

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Protected Attributes

- SmartPointer< File > F

Friends

- class StreamImageReader

12.260.1 Detailed Description

Reader ala DOM (Document Object Model).

This class is a non-validating reader, it will only performs well- formedness check only, and to some extent catch known error (non well-formed document).

Detailed description here

A DataSet DOES NOT contains group 0x0002 (see FileMetaInformation)

This is really a DataSet reader. This will not make sure the dataset conform to any IOD at all. This is a completely different step. The reasoning was that user could control the IOD there lib would handle and thus we would not be able to read a DataSet if the IOD was not found Instead we separate the reading from the validation.

Note

From GDCM1.x. Users will realize that one feature is missing from this DOM implementation. In GDCM 1.x user used to be able to control the size of the Value to be read. By default it was 0xfff. The main author of GDCM2 thought this was too dangerous and harmful and therefore this feature did not make it into GDCM2

Warning

GDCM will not produce warning for unorder (non-alphabetical order).

See also

Writer FileMetaInformation DataSet File

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CreateFakeRTDOSE.cxx, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, FixBrokenJ2K.cxx, FixOrientation.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, ReadUTF8QtDir.cxx, ReformatFile.cs, SimplePrint.cs, SimplePrintPatientName.cs, TestReader.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.260.2 Constructor & Destructor Documentation

12.260.2.1 Reader()

```
gdcm::Reader::Reader ()
```

12.260.2.2 ~Reader()

```
virtual gdcm::Reader::~Reader ()  [virtual]
```

12.260.3 Member Function Documentation

12.260.3.1 CanRead()

```
bool gdcm::Reader::CanRead () const
```

Test whether this is a DICOM file

Warning

need to call either SetFileName or SetStream first

Examples

ReadUTF8QtDir.cxx.

12.260.3.2 GetFile() [1/2]

```
File & gdcm::Reader::GetFile ()  [inline]
```

Set/Get File.

References F.

12.260.3.3 GetFile() [2/2]

```
const File & gdcm::Reader::GetFile () const  [inline]
```

Set/Get File.

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CompressImage.cxx, CompressLossyJPEG.cs, CreateFakeRTDOSE.cxx, DecompressImage.cs, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, MergeTwoFiles.cxx, MrProtocol.cxx, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, ReformatFile.cs, SimplePrint.cs, SimplePrintPatientName.cs, StandardizeFiles.cs, TestReader.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

References F.

12.260.3.4 GetStreamCurrentPosition()

```
size_t gdcm::Reader::GetStreamCurrentPosition () const
```

For wrapped language. return type is compatible with System::FileSize return type Use native std::streampos / std::streamoff directly from the stream from C++

Examples

ExtractImageRegion.cs.

12.260.3.5 GetStreamPtr()

```
std::istream * gdcm::Reader::GetStreamPtr () const  [inline], [protected]
```

12.260.3.6 Read()

```
virtual bool gdcm::Reader::Read ()  [virtual]
```

Main function to read a file.

Reimplemented in gdcm::ImageReader, gdcm::ImageRegionReader, gdcm::PixmapReader, gdcm::SegmentReader, and gdcm::SurfaceReader.

Examples

BasicAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CreateFakeRTDOSE.cxx, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, FixBrokenJ2K.cxx, FixOrientation.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, ReformatFile.cs, SimplePrint.cs, SimplePrintPatientName.cs, TestReader.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.260.3.7 ReadDataSet()

```
bool gdcm::Reader::ReadDataSet ()  [protected]
```

12.260.3.8 ReadMetaInformation()

```
bool gdcm::Reader::ReadMetaInformation ()  [protected]
```

12.260.3.9 ReadPreamble()

```
bool gdcm::Reader::ReadPreamble ()  [protected]
```

12.260.3.10 ReadSelectedPrivateTags()

```
bool gdcm::Reader::ReadSelectedPrivateTags (
            std::set< PrivateTag > const & ptags,
            bool readvalues = true)
```

Will only read the specified selected private tags.

12.260.3.11 ReadSelectedTags()

```
bool gdcm::Reader::ReadSelectedTags (
            std::set< Tag > const & tags,
            bool readvalues = true)
```

Will only read the specified selected tags.

12.260.3.12 ReadUpToTag()

```
bool gdcm::Reader::ReadUpToTag (
            const Tag & tag,
            std::set< Tag > const & skiptags = std::set< Tag >())
```

Will read only up to Tag

Parameters

tag	and skipping any tag specified in
skiptags	

Examples

DumpVisusChange.cxx.

12.260.3.13 SetFile()

```
void gdcm::Reader::SetFile (
            File & file)  [inline]
```

Set/Get File.

References F.

12.260.3.14 SetFileName()

```
void gdcm::Reader::SetFileName (
            const char * filename_native)
```

Set the filename to open. This will create a std::ifstream internally See SetStream if you are dealing with different std::istream object

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CheckBigEndianBug.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CompressImage.cxx, CompressLossyJPEG.cs, ConvertToQImage.cxx, CreateFakeRTDOSE.cxx, DecompressImage.cs, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloVizWorld.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, MergeTwoFiles.cxx, MrProtocol.cxx, NewSequence.cs, PatchFile.cxx, PrintLUT.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, ReadMultiTimesException.cxx, ReadUTF8QtDir.cxx, ReformatFile.cs, RescaleImage.cs, SimplePrint.cs, SimplePrintPatientName.cs, StandardizeFiles.cs, TemplateEmptyImage.cxx, TestReader.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, rle2img.cxx, and threadgdcm.cxx.

12.260.3.15 SetStream()

```
void gdcm::Reader::SetStream (
            std::istream & input_stream)  [inline]
```

Set the open-ed stream directly.

Examples

ReadUTF8QtDir.cxx.

12.260.4 Friends And Related Symbol Documentation

12.260.4.1 StreamImageReader

```
friend class StreamImageReader  [friend]
```

References StreamImageReader.

Referenced by StreamImageReader.

12.260.5 Member Data Documentation

12.260.5.1 F

```
SmartPointer<File> gdcm::Reader::F  [protected]
```

Referenced by GetFile(), GetFile(), and SetFile().

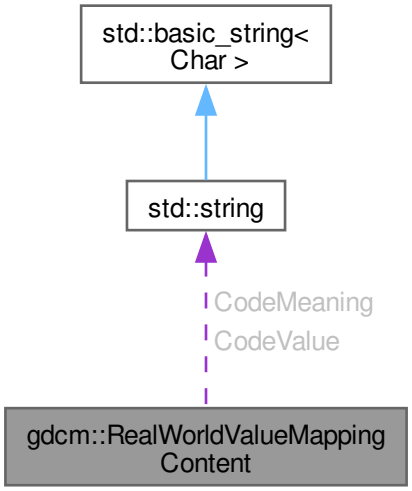
The documentation for this class was generated from the following file:

- gdcmReader.h

12.261 gdcm::RealWorldValueMappingContent Struct Reference

```
#include <gdcmImageHelper.h>
```

Collaboration diagram for gdcm::RealWorldValueMappingContent:



Public Attributes

- std::string CodeMeaning
- std::string CodeValue
- double RealWorldValueIntercept
- double RealWorldValueSlope

12.261.1 Member Data Documentation

12.261.1.1 CodeMeaning

```
std::string gdcm::RealWorldValueMappingContent::CodeMeaning
```

12.261.1.2 CodeValue

```
std::string gdcm::RealWorldValueMappingContent::CodeValue
```

12.261.1.3 RealWorldValueIntercept

```
double gdcm::RealWorldValueMappingContent::RealWorldValueIntercept
```

12.261.1.4 RealWorldValueSlope

```
double gdcm::RealWorldValueMappingContent::RealWorldValueSlope
```

The documentation for this struct was generated from the following file:

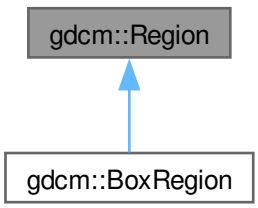
- gdcmImageHelper.h

12.262 gdcm::Region Class Reference

Class for manipulation region.

```
#include <gdcmRegion.h>
```

Inheritance diagram for gdcm::Region:



Public Member Functions

- Region ()
- virtual ∼Region ()
- virtual size_t Area () const =0

  compute the area
- virtual Region ∗ Clone () const =0
- virtual BoxRegion ComputeBoundingBox ()=0

  Return the Axis-Aligned minimum bounding box for all regions.
- virtual bool Empty () const =0

  return whether this domain is empty:
- virtual bool IsValid () const =0

  return whether this is valid domain
- virtual void Print (std::ostream &os=std::cout) const

  Print.

12.262.1 Detailed Description

Class for manipulation region.

12.262.2 Constructor & Destructor Documentation

12.262.2.1 Region()

```
gdcm::Region::Region ()
```

Referenced by gdcm::BoxRegion::Clone(), and Clone().

12.262.2.2 ∼Region()

```
virtual gdcm::Region::~Region ()  [virtual]
```

12.262.3 Member Function Documentation

12.262.3.1 Area()

```
virtual size_t gdcm::Region::Area () const  [pure virtual]
```

compute the area

Implemented in gdcm::BoxRegion.

12.262.3.2 Clone()

```
virtual Region * gdcm::Region::Clone () const  [pure virtual]
```

Implemented in gdcm::BoxRegion.

References Region().

12.262.3.3 ComputeBoundingBox()

```
virtual BoxRegion gdcm::Region::ComputeBoundingBox ()  [pure virtual]
```

Return the Axis-Aligned minimum bounding box for all regions.

Implemented in gdcm::BoxRegion.

12.262.3.4 Empty()

```
virtual bool gdcm::Region::Empty () const  [pure virtual]
```

return whether this domain is empty:

Implemented in gdcm::BoxRegion.

12.262.3.5 IsValid()

```
virtual bool gdcm::Region::IsValid () const  [pure virtual]
```

return whether this is valid domain

Implemented in gdcm::BoxRegion.

12.262.3.6 Print()

```
virtual void gdcm::Region::Print (
            std::ostream & os = std::cout) const  [virtual]
```

Print.

Reimplemented in gdcm::BoxRegion.

Referenced by gdcm::operator<<().

The documentation for this class was generated from the following file:

- gdcmRegion.h

12.263 gdcm::Rescaler Class Reference

Rescale class.

`#include <gdcmRescaler.h>`

Public Member Functions

- Rescaler ()
- ~Rescaler ()=default
- PixelFormat::ScalarType ComputeInterceptSlopePixelType ()
- PixelFormat ComputePixelTypeFromMinMax ()
- double GetIntercept () const
- double GetSlope () const
- bool InverseRescale (char *out, const char *in, size_t n)

  Inverse transform.
- bool Rescale (char *out, const char *in, size_t n)

  Direct transform.
- void SetIntercept (double i)

  Set Intercept: used for both direct&inverse transformation.
- void SetMinMaxForPixelType (double min, double max)
- void SetPixelFormat (PixelFormat const &pf)

  Set Pixel Format of input data.
- void SetSlope (double s)

  Set Slope: user for both direct&inverse transformation.
- void SetTargetPixelType (PixelFormat const &targetst)
- void SetUseTargetPixelType (bool b)

  Override default behavior of Rescale.

Protected Member Functions

- template<typename TIn>
  void InverseRescaleFunctionIntoBestFit (char *out, const TIn *in, size_t n)
- template<typename TIn>
  void RescaleFunctionIntoBestFit (char *out, const TIn *in, size_t n)

12.263.1 Detailed Description

Rescale class.

This class is meant to apply the linear transform of Stored Pixel Value to Real World Value. This is mostly found in CT or PET dataset, where the value are stored using one type, but need to be converted to another scale using a linear transform. There are basically two cases: In CT: the linear transform is generally integer based. E.g. the Stored Pixel Type is unsigned short 12bits, but to get Hounsfield unit, one need to apply the linear transform:

$$RWV = 1. * SV - 1024$$

So the best scalar to store the Real World Value will be 16 bits signed type.

In PET: the linear transform is generally floating point based. Since the dynamic range can be quite high, the Rescale Slope / Rescale Intercept can be changing throughout the Series. So it is important to read all linear transform and deduce the best Pixel Type only at the end (when all the images to be read have been parsed).

Warning

Internally any time a floating point value is found either in the Rescale Slope or the Rescale Intercept it is assumed that the best matching output pixel type is FLOAT64 (in previous implementation it was FLOAT32). Because VR:DS is closer to a 64bits floating point type FLOAT64 is thus a best matching pixel type for the floating point transformation.

Example: Let say input is FLOAT64, and we want UINT16 as output, we would do:

```
Rescaler ir;
ir.SetIntercept( 0 );
ir.SetSlope( 5.6789 );
ir.SetPixelFormat( FLOAT64 );
ir.SetMinMaxForPixelType( ((PixelFormat)UINT16).GetMin(), ((PixelFormat)UINT16).GetMax() );
ir.InverseRescale(output,input,numberofbytes );
```

Note

handle floating point transformation back and forth to integer properly (no loss)

See also

Unpacker12Bits

Examples

RescaleImage.cs.

12.263.2 Constructor & Destructor Documentation

12.263.2.1 Rescaler()

```
gdcm::Rescaler::Rescaler ()  [inline]
```

12.263.2.2 ~Rescaler()

```
gdcm::Rescaler::~Rescaler ()  [default]
```

12.263.3 Member Function Documentation

12.263.3.1 ComputeInterceptSlopePixelType()

```
PixelFormat::ScalarType gdcm::Rescaler::ComputeInterceptSlopePixelType ()
```

Compute the Pixel Format of the output data Used for direct transformation

Examples

RescaleImage.cs.

12.263.3.2 ComputePixelTypeFromMinMax()

```
PixelFormat gdcm::Rescaler::ComputePixelTypeFromMinMax ()
```

Compute the Pixel Format of the output data Used for inverse transformation

12.263.3.3 GetIntercept()

```
double gdcm::Rescaler::GetIntercept () const  [inline]
```

12.263.3.4 GetSlope()

```
double gdcm::Rescaler::GetSlope () const  [inline]
```

12.263.3.5 InverseRescale()

```
bool gdcm::Rescaler::InverseRescale (
            char * out,
            const char * in,
            size_t n)
```

Inverse transform.

12.263.3.6 InverseRescaleFunctionIntoBestFit()

```
template<typename TIn>
void gdcm::Rescaler::InverseRescaleFunctionIntoBestFit (
            char * out,
            const TIn * in,
            size_t n)  [protected]
```

12.263.3.7 Rescale()

```
bool gdcm::Rescaler::Rescale (
            char * out,
            const char * in,
            size_t n)
```

Direct transform.

Examples

RescaleImage.cs.

12.263.3.8 RescaleFunctionIntoBestFit()

```
template<typename TIn>
void gdcm::Rescaler::RescaleFunctionIntoBestFit (
            char * out,
            const TIn * in,
            size_t n)  [protected]
```

12.263.3.9 SetIntercept()

```
void gdcm::Rescaler::SetIntercept (
            double i)  [inline]
```

Set Intercept: used for both direct&inverse transformation.

Examples

RescaleImage.cs.

12.263.3.10 SetMinMaxForPixelType()

```
void gdcm::Rescaler::SetMinMaxForPixelType (
            double min,
            double max)
```

Set target interval for output data. A best match will be computed (if possible) Used for inverse transformation

12.263.3.11 SetPixelFormat()

```
void gdcm::Rescaler::SetPixelFormat (
            PixelFormat const & pf)  [inline]
```

Set Pixel Format of input data.

Examples

RescaleImage.cs.

12.263.3.12 SetSlope()

```
void gdcm::Rescaler::SetSlope (
            double s)  [inline]
```

Set Slope: user for both direct&inverse transformation.

Examples

RescaleImage.cs.

12.263.3.13 SetTargetPixelType()

```
void gdcm::Rescaler::SetTargetPixelType (
            PixelFormat const & targetst)
```

By default (when UseTargetPixelType is false), a best matching Target Pixel Type is computed. However user can override this auto selection by switching UseTargetPixelType:true and also specifying the specific Target Pixel Type

12.263.3.14 SetUseTargetPixelType()

```
void gdcm::Rescaler::SetUseTargetPixelType (
            bool b)
```

Override default behavior of Rescale.

The documentation for this class was generated from the following file:

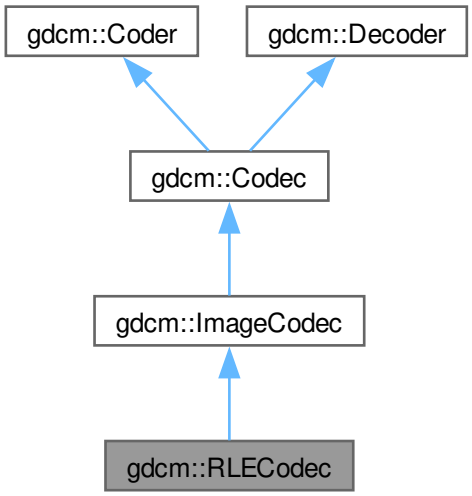
- gdcmRescaler.h

12.264 gdcm::RLECodec Class Reference

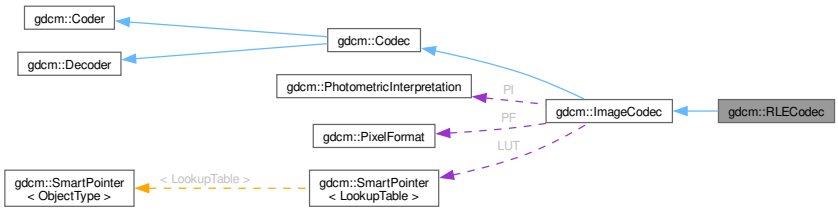
Class to do RLE.

`#include <gdcmRLECodec.h>`

Inheritance diagram for gdcm::RLECodec:



Collaboration diagram for gdcm::RLECodec:



Public Member Functions

- RLECodec ()
- ~RLECodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- unsigned long GetBufferLength () const
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- void SetBufferLength (unsigned long l)
- void SetLength (unsigned long l)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])

- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char *buffer, unsigned int XMin, unsigned int XMax, unsigned int YMin, unsigned int YMax, unsigned int ZMin, unsigned int ZMax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsValid (PhotometricInterpretation const &pi)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Friends

- class ImageRegionReader

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.264.1 Detailed Description

Class to do RLE.

Note

ANSI X3.9 A.4.2 RLE Compression Annex G defines a RLE Compression Transfer Syntax. This transfer Syntax is identified by the UID value "1.2.840.10008.1.2.5". If the object allows multi-frame images in the pixel data field, then each frame shall be encoded separately. Each frame shall be encoded in one and only one Fragment (see PS 3.5.8.2).

12.264.2 Constructor & Destructor Documentation

12.264.2.1 RLECodec()

```
gdcm::RLECodec::RLECodec ()
```

12.264.2.2 ~RLECodec()

```
gdcm::RLECodec::~RLECodec ()  [override]
```

12.264.3 Member Function Documentation

12.264.3.1 AppendFrameEncode()

```
bool gdcm::RLECodec::AppendFrameEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.264.3.2 AppendRowEncode()

```
bool gdcm::RLECodec::AppendRowEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.264.3.3 CanCode()

```
bool gdcm::RLECodec::CanCode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

12.264.3.4 CanDecode()

```
bool gdcm::RLECodec::CanDecode (
            TransferSyntax const & ) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.264.3.5 Clone()

```
ImageCodec * gdcm::RLECodec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.264.3.6 Code()

```
bool gdcm::RLECodec::Code (
            DataElement const & in_,
            DataElement & out_)  [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

12.264.3.7 Decode()

```
bool gdcm::RLECodec::Decode (
            DataElement const & ,
            DataElement & )  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

12.264.3.8 DecodeByStreams()

```
bool gdcm::RLECodec::DecodeByStreams (
            std::istream & is,
            std::ostream & os)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.264.3.9 DecodeExtent()

```
bool gdcm::RLECodec::DecodeExtent (
            char * buffer,
            unsigned int XMin,
            unsigned int XMax,
            unsigned int YMin,
            unsigned int YMax,
            unsigned int ZMin,
            unsigned int ZMax,
            std::istream & is)  [protected]
```

12.264.3.10 GetBufferLength()

```
unsigned long gdcm::RLECodec::GetBufferLength () const  [inline]
```

12.264.3.11 GetHeaderInfo()

```
bool gdcm::RLECodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.264.3.12 IsFrameEncoder()

```
bool gdcm::RLECodec::IsFrameEncoder ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.264.3.13 IsRowEncoder()

```
bool gdcm::RLECodec::IsRowEncoder ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.264.3.14 SetBufferLength()

```
void gdcm::RLECodec::SetBufferLength (
            unsigned long l)  [inline]
```

12.264.3.15 SetLength()

```
void gdcm::RLECodec::SetLength (
            unsigned long l)  [inline]
```

12.264.3.16 StartEncode()

```
bool gdcm::RLECodec::StartEncode (
            std::ostream & )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.264.3.17 StopEncode()

```
bool gdcm::RLECodec::StopEncode (
            std::ostream & )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.264.4 Friends And Related Symbol Documentation

12.264.4.1 ImageRegionReader

```
friend class ImageRegionReader  [friend]
```

References ImageRegionReader.

Referenced by ImageRegionReader.

The documentation for this class was generated from the following file:

- gdcmRLECodec.h

12.265 gdcm::network::RoleSelectionSub Class Reference

RoleSelectionSub.

```
#include <gdcmRoleSelectionSub.h>
```

Public Member Functions

- RoleSelectionSub ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetTuple (const char *uid, uint8_t scurole, uint8_t scprole)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.265.1 Detailed Description

RoleSelectionSub.

PS 3.7 Table D.3-9 SCP/SCU ROLE SELECTION SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

12.265.2 Constructor & Destructor Documentation

12.265.2.1 RoleSelectionSub()

```
gdcm::network::RoleSelectionSub::RoleSelectionSub ()
```

12.265.3 Member Function Documentation

12.265.3.1 Print()

```
void gdcm::network::RoleSelectionSub::Print (
             std::ostream & os) const
```

12.265.3.2 Read()

```
std::istream & gdcm::network::RoleSelectionSub::Read (
             std::istream & is)
```

12.265.3.3 SetTuple()

```
void gdcm::network::RoleSelectionSub::SetTuple (
             const char * uid,
             uint8_t scurole,
             uint8_t scprole)
```

12.265.3.4 Size()

```
size_t gdcm::network::RoleSelectionSub::Size () const
```

12.265.3.5 Write()

```
const std::ostream & gdcm::network::RoleSelectionSub::Write (
             std::ostream & os) const
```

The documentation for this class was generated from the following file:

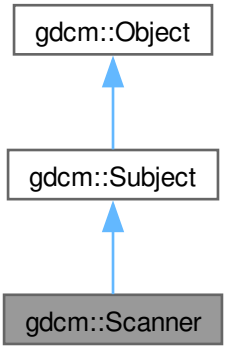
- gdcmRoleSelectionSub.h

12.266 gdcm::Scanner Class Reference

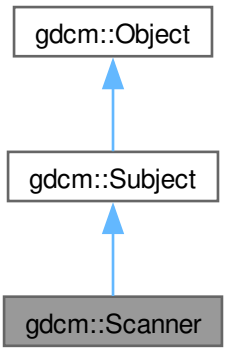
Scanner.

`#include <gdcmScanner.h>`

Inheritance diagram for gdcm::Scanner:



Collaboration diagram for gdcm::Scanner:



Classes

- struct ltstr

Public Types

- typedef MappingType::const_iterator ConstIterator
- typedef std::map< const char *, TagToValue, ltstr > MappingType
- typedef std::map< Tag, const char * > TagToValue
- typedef TagToValue::value_type TagToValueValueType
- typedef std::set< std::string > ValuesType

Public Member Functions

- Scanner ()
- ~Scanner () override
- void AddPrivateTag (PrivateTag const &t)
- void AddSkipTag (Tag const &t)

  Add a tag that will need to be skipped. Those are root level skip tags.
- void AddTag (Tag const &t)

  Add a tag that will need to be read. Those are root level tags.
- ConstIterator Begin () const
- void ClearSkipTags ()
- void ClearTags ()
- ConstIterator End () const
- Directory::FilenamesType GetAllFilenamesFromTagToValue (Tag const &t, const char *valueref) const
- const char * GetFilenameFromTagToValue (Tag const &t, const char *valueref) const
- Directory::FilenamesType const & GetFilenames () const
- Directory::FilenamesType GetKeys () const
- TagToValue const & GetMapping (const char *filename) const

  Get the std::map mapping filenames to value for file 'filename'.
- TagToValue const & GetMappingFromTagToValue (Tag const &t, const char *value) const

  See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.
- MappingType const & GetMappings () const

  Mappings are the mapping from a particular tag to the map, mapping filename to value:
- Directory::FilenamesType GetOrderedValues (Tag const &t) const
- const char * GetValue (const char *filename, Tag const &t) const
- ValuesType const & GetValues () const

  Get all the values found (in lexicographic order).
- ValuesType GetValues (Tag const &t) const

  Get all the values found (in lexicographic order) associated with Tag 't'.
- bool IsKey (const char *filename) const
- void Print (std::ostream &os) const override

  Print result.
- void PrintTable (std::ostream &os) const
- bool Scan (Directory::FilenamesType const &filenames)

  Start the scan !

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< Scanner > New ()

  for wrapped language: instantiate a reference counted object

Protected Member Functions

- void ProcessPublicTag (StringFilter &sf, const char *filename)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- std::ostream & operator<< (std::ostream &_os, const Scanner &s)

12.266.1 Detailed Description

Scanner.

This filter is meant for quickly browsing a FileSet (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM Attribute.

This filter is dealing with both VRASCII and VRBINARY element, thanks to the help of StringFilter

Warning

IMPORTANT In case of file where tags are not ordered (illegal as per DICOM specification), the output will be missing information

Note

implementation details. All values are stored in a std::set of std::string. Then the address of the cstring underlying the std::string is used in the std::map.

This class implement the Subject/Observer pattern trigger the following events:

- ProgressEvent
- StartEvent
- EndEvent

Examples

DiscriminateVolume.cxx, DumpToSQLITE3.cxx, SortImage.cxx, and VolumeSorter.cxx.

12.266.2 Member Typedef Documentation

12.266.2.1 ConstIterator

```
typedef MappingType::const_iterator gdcm::Scanner::ConstIterator
```

12.266.2.2 MappingType

```
typedef std::map<const char *,TagToValue, ltstr> gdcm::Scanner::MappingType
```

12.266.2.3 TagToValue

```
typedef std::map<Tag, const char*> gdcm::Scanner::TagToValue
```

struct to map a filename to a value Implementation note: all std::map in this class will be using const char * and not std::string since we are pointing to existing std::string (hold in a std::vector) this avoid an extra copy of the byte array. Tag are used as Tag class since sizeof(tag) <= sizeof(pointer)

12.266.2.4 TagToValueValueType

```
typedef TagToValue::value_type gdcm::Scanner::TagToValueValueType
```

12.266.2.5 ValuesType

```
typedef std::set< std::string > gdcm::Scanner::ValuesType
```

Examples

DiscriminateVolume.cxx, SortImage.cxx, and VolumeSorter.cxx.

12.266.3 Constructor & Destructor Documentation

12.266.3.1 Scanner()

```
gdcm::Scanner::Scanner ()  [inline]
```

Referenced by New(), and operator<<.

12.266.3.2 ~Scanner()

```
gdcm::Scanner::~Scanner ()  [override]
```

12.266.4 Member Function Documentation

12.266.4.1 AddPrivateTag()

```
void gdcm::Scanner::AddPrivateTag (
            PrivateTag const & t)
```

12.266.4.2 AddSkipTag()

```
void gdcm::Scanner::AddSkipTag (
            Tag const & t)
```

Add a tag that will need to be skipped. Those are root level skip tags.

12.266.4.3 AddTag()

```
void gdcm::Scanner::AddTag (
            Tag const & t)
```

Add a tag that will need to be read. Those are root level tags.

Examples

DiscriminateVolume.cxx, DumpToSQLITE3.cxx, SortImage.cxx, and VolumeSorter.cxx.

12.266.4.4 Begin()

```
ConstIterator gdcm::Scanner::Begin () const  [inline]
```

12.266.4.5 ClearSkipTags()

```
void gdcm::Scanner::ClearSkipTags ()
```

12.266.4.6 ClearTags()

```
void gdcm::Scanner::ClearTags ()
```

12.266.4.7 End()

```
ConstIterator gdcm::Scanner::End () const  [inline]
```

12.266.4.8 GetAllFilenamesFromTagToValue()

```
Directory::FilenamesType gdcm::Scanner::GetAllFilenamesFromTagToValue (
            Tag const & t,
            const char * valueref) const
```

Will loop over all files and return a vector of std::strings of filenames where value match the reference value 'valueref'

12.266.4.9 GetFilenameFromTagToValue()

```
const char * gdcm::Scanner::GetFilenameFromTagToValue (
            Tag const & t,
            const char * valueref) const
```

Will loop over all files and return the first file where value match the reference value 'valueref'

12.266.4.10 GetFilenames()

```
Directory::FilenamesType const & gdcm::Scanner::GetFilenames () const  [inline]
```

12.266.4.11 GetKeys()

```
Directory::FilenamesType gdcm::Scanner::GetKeys () const
```

Return the list of filename that are key in the internal map, which means those filename were properly parsed

Examples

VolumeSorter.cxx.

12.266.4.12 GetMapping()

```
TagToValue const & gdcm::Scanner::GetMapping (
            const char * filename) const
```

Get the std::map mapping filenames to value for file 'filename'.

Examples

DumpToSQLITE3.cxx.

12.266.4.13 GetMappingFromTagToValue()

```
TagToValue const & gdcm::Scanner::GetMappingFromTagToValue (
            Tag const & t,
            const char * value) const
```

See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.

12.266.4.14 GetMappings()

```
MappingType const & gdcm::Scanner::GetMappings () const  [inline]
```

Mappings are the mapping from a particular tag to the map, mapping filename to value:

12.266.4.15 GetOrderedValues()

```
Directory::FilenamesType gdcm::Scanner::GetOrderedValues (
            Tag const & t) const
```

Get all the values found (in a vector) associated with Tag 't' This function is identical to GetValues, but is accessible from the wrapped layer (python, C#, java)

12.266.4.16 GetValue()

```
const char * gdcm::Scanner::GetValue (
            const char * filename,
            Tag const & t) const
```

Retrieve the value found for tag: t associated with file: filename This is meant for a single short call. If multiple calls (multiple tags) should be done, prefer the GetMapping function, and then reuse the TagToValue hash table.

Warning

Tag 't' should have been added via AddTag() prior to the Scan() call !

12.266.4.17 GetValues() [1/2]

```
ValuesType const & gdcm::Scanner::GetValues () const  [inline]
```

Get all the values found (in lexicographic order).

Examples

SortImage.cxx, and VolumeSorter.cxx.

12.266.4.18 GetValues() [2/2]

```
ValuesType gdcm::Scanner::GetValues (
            Tag const & t) const
```

Get all the values found (in lexicographic order) associated with Tag 't'.

12.266.4.19 IsKey()

```
bool gdcm::Scanner::IsKey (
            const char * filename) const
```

Check if filename is a key in the Mapping table. returns true only of file can be found, which means the file was indeed a DICOM file that could be processed

Examples

DumpToSQLITE3.cxx.

12.266.4.20 New()

```
SmartPointer< Scanner > gdcm::Scanner::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

References Scanner().

12.266.4.21 Print()

```
void gdcm::Scanner::Print (
            std::ostream & os) const  [override], [virtual]
```

Print result.

Reimplemented from gdcm::Object.

Referenced by operator<<.

12.266.4.22 PrintTable()

```
void gdcm::Scanner::PrintTable (
            std::ostream & os) const
```

12.266.4.23 ProcessPublicTag()

```
void gdcm::Scanner::ProcessPublicTag (
            StringFilter & sf,
            const char * filename)  [protected]
```

12.266.4.24 Scan()

```
bool gdcm::Scanner::Scan (
            Directory::FilenamesType const & filenames)
```

Start the scan !

Examples

DiscriminateVolume.cxx, DumpToSQLITE3.cxx, SortImage.cxx, and VolumeSorter.cxx.

12.266.5 Friends And Related Symbol Documentation

12.266.5.1 operator<<

```
std::ostream & operator<< (
             std::ostream & _os,
             const Scanner & s)  [friend]
```

References Scanner(), and Print().

The documentation for this class was generated from the following file:

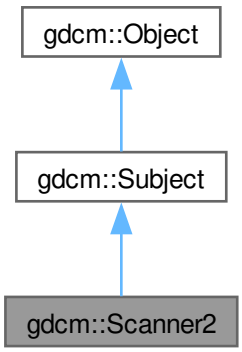
- gdcmScanner.h

12.267 gdcm::Scanner2 Class Reference

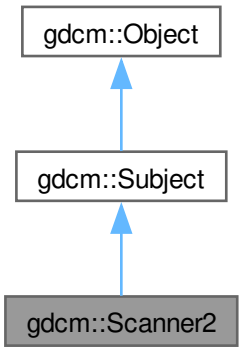
Scanner2.

```
#include <gdcmScanner2.h>
```

Inheritance diagram for gdcm::Scanner2:



Collaboration diagram for gdcm::Scanner2:



Classes

- struct ltstr

Public Types

- typedef PrivateMappingType::const_iterator PrivateConstIterator
- typedef std::map< const char *, PrivateTagToValue, ltstr > PrivateMappingType
- typedef std::map< PrivateTag, const char * > PrivateTagToValue
- typedef PrivateTagToValue::value_type PrivateTagToValueValueType
- typedef PublicMappingType::const_iterator PublicConstIterator
- typedef std::map< const char *, PublicTagToValue, ltstr > PublicMappingType
- typedef std::map< Tag, const char * > PublicTagToValue
- typedef PublicTagToValue::value_type PublicTagToValueValueType
- typedef std::set< std::string > ValuesType

Public Member Functions

- Scanner2 ()
- ~Scanner2 () override
- bool AddPrivateTag (PrivateTag const &pt)
- bool AddPublicTag (Tag const &t)

  Add a tag that will need to be read. Those are root level tags.
- bool AddSkipTag (Tag const &t)

  Add a tag that will need to be skipped. Those are root level skip tags.
- PublicConstIterator Begin () const
- void ClearPrivateTags ()
- void ClearPublicTags ()

- void ClearSkipTags ()
- PublicConstIterator End () const
- Directory::FilenamesType GetAllFilenamesFromPrivateTagToValue (PrivateTag const &pt, const char *valueref) const
- Directory::FilenamesType GetAllFilenamesFromPublicTagToValue (Tag const &t, const char *valueref) const
- const char * GetFilenameFromPrivateTagToValue (PrivateTag const &pt, const char *valueref) const
- const char * GetFilenameFromPublicTagToValue (Tag const &t, const char *valueref) const
- Directory::FilenamesType const & GetFilenames () const

  Return the list of filenames.
- Directory::FilenamesType GetKeys () const
- PrivateTagToValue const & GetMappingFromPrivateTagToValue (PrivateTag const &pt, const char *value) const
- PublicTagToValue const & GetMappingFromPublicTagToValue (Tag const &t, const char *value) const

  See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.
- PrivateTagToValue const & GetPrivateMapping (const char *filename) const
- PrivateMappingType const & GetPrivateMappings () const
- Directory::FilenamesType GetPrivateOrderedValues (PrivateTag const &pt) const
- const char * GetPrivateValue (const char *filename, PrivateTag const &t) const
- ValuesType GetPrivateValues (PrivateTag const &pt) const

  Get all the values found (in lexicographic order) associated with PrivateTag 'pt'.
- PublicTagToValue const & GetPublicMapping (const char *filename) const

  Get the std::map mapping filenames to value for file 'filename'.
- PublicMappingType const & GetPublicMappings () const

  Mappings are the mapping from a particular tag to the map, mapping filename to value:
- Directory::FilenamesType GetPublicOrderedValues (Tag const &t) const
- const char * GetPublicValue (const char *filename, Tag const &t) const
- ValuesType GetPublicValues (Tag const &t) const

  Get all the values found (in lexicographic order) associated with Tag 't'.
- ValuesType const & GetValues () const

  Get all the values found (in lexicographic order).
- bool IsKey (const char *filename) const
- void Print (std::ostream &os) const override

  Print result.
- void PrintTable (std::ostream &os, bool header=false) const

  Print result as CSV table.
- PrivateConstIterator PrivateBegin () const
- PrivateConstIterator PrivateEnd () const
- bool Scan (Directory::FilenamesType const &filenames)

  Start the scan !

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< Scanner2 > New ()

  for wrapped language: instantiate a reference counted object

Protected Member Functions

- void ProcessPrivateTag (StringFilter &sf, const char *filename)
- void ProcessPublicTag (StringFilter &sf, const char *filename)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- std::ostream & operator<< (std::ostream &_os, const Scanner2 &s)

12.267.1 Detailed Description

Scanner2.

This filter is meant for quickly browsing a FileSet (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM Attribute.

This filter is dealing with both VRASCII and VRBINARY element, thanks to the help of StringFilter

Warning

IMPORTANT In case of file where tags are not ordered (illegal as per DICOM specification), the output will be missing information

Note

implementation details. All values are stored in a std::set of std::string. Then the address of the cstring underlying the std::string is used in the std::map.

This class implement the Subject/Observer pattern trigger the following events:

- ProgressEvent
- StartEvent
- EndEvent

12.267.2 Member Typedef Documentation

12.267.2.1 PrivateConstIterator

```
typedef PrivateMappingType::const_iterator gdcm::Scanner2::PrivateConstIterator
```

12.267.2.2 PrivateMappingType

```
typedef std::map<const char *,PrivateTagToValue, ltstr> gdcm::Scanner2::PrivateMappingType
```

12.267.2.3 PrivateTagToValue

```
typedef std::map<PrivateTag, const char*> gdcm::Scanner2::PrivateTagToValue
```

12.267.2.4 PrivateTagToValueValueType

```
typedef PrivateTagToValue::value_type gdcm::Scanner2::PrivateTagToValueValueType
```

12.267.2.5 PublicConstIterator

```
typedef PublicMappingType::const_iterator gdcm::Scanner2::PublicConstIterator
```

12.267.2.6 PublicMappingType

```
typedef std::map<const char *,PublicTagToValue, ltstr> gdcm::Scanner2::PublicMappingType
```

12.267.2.7 PublicTagToValue

```
typedef std::map<Tag, const char*> gdcm::Scanner2::PublicTagToValue
```

struct to map a filename to a value Implementation note: all std::map in this class will be using const char * and not std::string since we are pointing to existing std::string (held in a std::vector) this avoid an extra copy of the byte array. Tag are used as Tag class since sizeof(tag) <= sizeof(pointer)

12.267.2.8 PublicTagToValueValueType

```
typedef PublicTagToValue::value_type gdcm::Scanner2::PublicTagToValueValueType
```

12.267.2.9 ValuesType

```
typedef std::set< std::string > gdcm::Scanner2::ValuesType
```

12.267.3 Constructor & Destructor Documentation

12.267.3.1 Scanner2()

```
gdcm::Scanner2::Scanner2 ()  [inline]
```

Referenced by New(), and operator<<.

12.267.3.2 ~Scanner2()

```
gdcm::Scanner2::~Scanner2 ()  [override]
```

12.267.4 Member Function Documentation

12.267.4.1 AddPrivateTag()

```
bool gdcm::Scanner2::AddPrivateTag (
            PrivateTag const & pt)
```

12.267.4.2 AddPublicTag()

```
bool gdcm::Scanner2::AddPublicTag (
            Tag const & t)
```

Add a tag that will need to be read. Those are root level tags.

12.267.4.3 AddSkipTag()

```
bool gdcm::Scanner2::AddSkipTag (
            Tag const & t)
```

Add a tag that will need to be skipped. Those are root level skip tags.

12.267.4.4 Begin()

```
PublicConstIterator gdcm::Scanner2::Begin () const  [inline]
```

12.267.4.5 ClearPrivateTags()

```
void gdcm::Scanner2::ClearPrivateTags ()
```

12.267.4.6 ClearPublicTags()

```
void gdcm::Scanner2::ClearPublicTags ()
```

12.267.4.7 ClearSkipTags()

```
void gdcm::Scanner2::ClearSkipTags ()
```

12.267.4.8 End()

```
PublicConstIterator gdcm::Scanner2::End () const  [inline]
```

12.267.4.9 GetAllFilenamesFromPrivateTagToValue()

```
Directory::FilenamesType gdcm::Scanner2::GetAllFilenamesFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * valueref) const
```

12.267.4.10 GetAllFilenamesFromPublicTagToValue()

```
Directory::FilenamesType gdcm::Scanner2::GetAllFilenamesFromPublicTagToValue (
            Tag const & t,
            const char * valueref) const
```

Will loop over all files and return a vector of std::strings of filenames where value match the reference value 'valueref'

12.267.4.11 GetFilenameFromPrivateTagToValue()

```
const char * gdcm::Scanner2::GetFilenameFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * valueref) const
```

12.267.4.12 GetFilenameFromPublicTagToValue()

```
const char * gdcm::Scanner2::GetFilenameFromPublicTagToValue (
            Tag const & t,
            const char * valueref) const
```

Will loop over all files and return the first file where value match the reference value 'valueref'

12.267.4.13 GetFilenames()

```
Directory::FilenamesType const & gdcm::Scanner2::GetFilenames () const  [inline]
```

Return the list of filenames.

12.267.4.14 GetKeys()

```
Directory::FilenamesType gdcm::Scanner2::GetKeys () const
```

Return the list of filename that are key in the internal map, which means those filename were properly parsed

12.267.4.15 GetMappingFromPrivateTagToValue()

```
PrivateTagToValue const & gdcm::Scanner2::GetMappingFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * value) const
```

12.267.4.16 GetMappingFromPublicTagToValue()

```
PublicTagToValue const & gdcm::Scanner2::GetMappingFromPublicTagToValue (
            Tag const & t,
            const char * value) const
```

See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.

12.267.4.17 GetPrivateMapping()

```
PrivateTagToValue const & gdcm::Scanner2::GetPrivateMapping (
            const char * filename) const
```

12.267.4.18 GetPrivateMappings()

```
PrivateMappingType const & gdcm::Scanner2::GetPrivateMappings () const  [inline]
```

12.267.4.19 GetPrivateOrderedValues()

```
Directory::FilenamesType gdcm::Scanner2::GetPrivateOrderedValues (
            PrivateTag const & pt) const
```

12.267.4.20 GetPrivateValue()

```
const char * gdcm::Scanner2::GetPrivateValue (
            const char * filename,
            PrivateTag const & t) const
```

12.267.4.21 GetPrivateValues()

```
ValuesType gdcm::Scanner2::GetPrivateValues (
            PrivateTag const & pt) const
```

Get all the values found (in lexicographic order) associated with PrivateTag 'pt'.

12.267.4.22 GetPublicMapping()

```
PublicTagToValue const & gdcm::Scanner2::GetPublicMapping (
            const char * filename) const
```

Get the std::map mapping filenames to value for file 'filename'.

12.267.4.23 GetPublicMappings()

```
PublicMappingType const & gdcm::Scanner2::GetPublicMappings () const  [inline]
```

Mappings are the mapping from a particular tag to the map, mapping filename to value:

12.267.4.24 GetPublicOrderedValues()

```
Directory::FilenamesType gdcm::Scanner2::GetPublicOrderedValues (
            Tag const & t) const
```

Get all the values found (in a vector) associated with Tag 't' This function is identical to GetValues, but is accessible from the wrapped layer (python, C#, java)

12.267.4.25 GetPublicValue()

```
const char * gdcm::Scanner2::GetPublicValue (
            const char * filename,
            Tag const & t) const
```

Retrieve the value found for tag: t associated with file: filename This is meant for a single short call. If multiple calls (multiple tags) should be done, prefer the GetMapping function, and then reuse the TagToValue hash table.

Warning

Tag 't' should have been added via AddTag() prior to the Scan() call !

12.267.4.26 GetPublicValues()

```
ValuesType gdcm::Scanner2::GetPublicValues (
            Tag const & t) const
```

Get all the values found (in lexicographic order) associated with Tag 't'.

12.267.4.27 GetValues()

```
ValuesType const & gdcm::Scanner2::GetValues () const  [inline]
```

Get all the values found (in lexicographic order).

12.267.4.28 IsKey()

```
bool gdcm::Scanner2::IsKey (
            const char * filename) const
```

Check if filename is a key in the Mapping table. returns true only of file can be found, which means the file was indeed a DICOM file that could be processed

12.267.4.29 New()

```
SmartPointer< Scanner2 > gdcm::Scanner2::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

References Scanner2().

12.267.4.30 Print()

```
void gdcm::Scanner2::Print (
            std::ostream & os) const  [override], [virtual]
```

Print result.

Reimplemented from gdcm::Object.

Referenced by operator<<.

12.267.4.31 PrintTable()

```
void gdcm::Scanner2::PrintTable (
            std::ostream & os,
            bool header = false) const
```

Print result as CSV table.

12.267.4.32 PrivateBegin()

```
PrivateConstIterator gdcm::Scanner2::PrivateBegin () const  [inline]
```

12.267.4.33 PrivateEnd()

```
PrivateConstIterator gdcm::Scanner2::PrivateEnd () const  [inline]
```

12.267.4.34 ProcessPrivateTag()

```
void gdcm::Scanner2::ProcessPrivateTag (
            StringFilter & sf,
            const char * filename)  [protected]
```

12.267.4.35 ProcessPublicTag()

```
void gdcm::Scanner2::ProcessPublicTag (
            StringFilter & sf,
            const char * filename)  [protected]
```

12.267.4.36 Scan()

```
bool gdcm::Scanner2::Scan (
            Directory::FilenamesType const & filenames)
```

Start the scan !

12.267.5 Friends And Related Symbol Documentation

12.267.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Scanner2 & s)  [friend]
```

References Scanner2(), and Print().

The documentation for this class was generated from the following file:

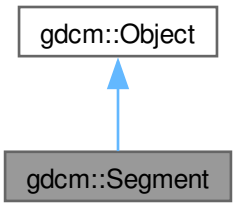
- gdcmScanner2.h

12.268 gdcm::Segment Class Reference

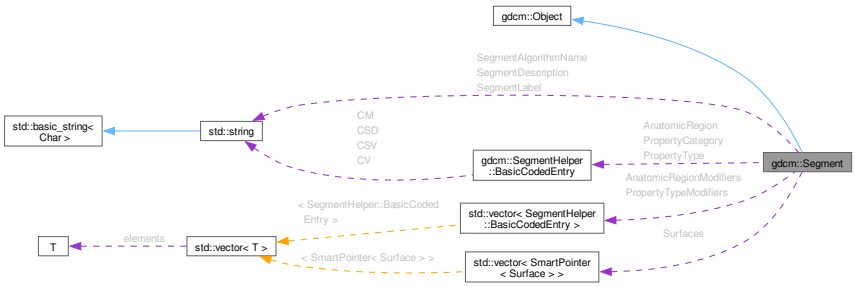
This class defines a segment.

`#include <gdcmSegment.h>`

Inheritance diagram for gdcm::Segment:



Collaboration diagram for gdcm::Segment:



Public Types

- enum ALGOType {
  AUTOMATIC = 0 ,
  SEMIAUTOMATIC ,
  MANUAL ,
  ALGOType_END }
- typedef std::vector< SegmentHelper::BasicCodedEntry > BasicCodedEntryVector
- typedef std::vector< SmartPointer< Surface > > SurfaceVector

Public Member Functions

- Segment ()
- ~Segment () override
- void AddSurface (SmartPointer< Surface > surface)
- SegmentHelper::BasicCodedEntry & GetAnatomicRegion ()
- SegmentHelper::BasicCodedEntry const & GetAnatomicRegion () const
- BasicCodedEntryVector & GetAnatomicRegionModifiers ()
- BasicCodedEntryVector const & GetAnatomicRegionModifiers () const
- SegmentHelper::BasicCodedEntry & GetPropertyCategory ()
- SegmentHelper::BasicCodedEntry const & GetPropertyCategory () const
- SegmentHelper::BasicCodedEntry & GetPropertyType ()
- SegmentHelper::BasicCodedEntry const & GetPropertyType () const
- BasicCodedEntryVector & GetPropertyTypeModifiers ()
- BasicCodedEntryVector const & GetPropertyTypeModifiers () const
- const char * GetSegmentAlgorithmName () const
- ALGOType GetSegmentAlgorithmType () const
- const char * GetSegmentDescription () const
- const char * GetSegmentLabel () const
- unsigned short GetSegmentNumber () const
- SmartPointer< Surface > GetSurface (const unsigned int idx=0) const
- unsigned long GetSurfaceCount ()
- SurfaceVector & GetSurfaces ()
- SurfaceVector const & GetSurfaces () const
- void SetAnatomicRegion (SegmentHelper::BasicCodedEntry const &BSE)
- void SetAnatomicRegionModifiers (BasicCodedEntryVector const &BSEV)
- void SetPropertyCategory (SegmentHelper::BasicCodedEntry const &BSE)
- void SetPropertyType (SegmentHelper::BasicCodedEntry const &BSE)
- void SetPropertyTypeModifiers (BasicCodedEntryVector const &BSEV)
- void SetSegmentAlgorithmName (const char *name)
- void SetSegmentAlgorithmType (ALGOType type)
- void SetSegmentAlgorithmType (const char *typeStr)
- void SetSegmentDescription (const char *description)
- void SetSegmentLabel (const char *label)
- void SetSegmentNumber (const unsigned short num)
- void SetSurfaceCount (const unsigned long nb)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static ALGOType GetALGOType (const char *type)
- static const char * GetALGOTypeString (ALGOType type)

Protected Attributes

- SegmentHelper::BasicCodedEntry AnatomicRegion
- BasicCodedEntryVector AnatomicRegionModifiers
- SegmentHelper::BasicCodedEntry PropertyCategory
- SegmentHelper::BasicCodedEntry PropertyType
- BasicCodedEntryVector PropertyTypeModifiers
- std::string SegmentAlgorithmName
- ALGOType SegmentAlgorithmType
- std::string SegmentDescription
- std::string SegmentLabel
- unsigned short SegmentNumber
- unsigned long SurfaceCount
- SurfaceVector Surfaces

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.268.1 Detailed Description

This class defines a segment.

It mainly contains attributes of group 0x0062. In addition, it can be associated with surface.

See also

PS 3.3 C.8.20.2 and C.8.23

12.268.2 Member Typedef Documentation

12.268.2.1 BasicCodedEntryVector

```
typedef std::vector< SegmentHelper::BasicCodedEntry > gdcm::Segment::BasicCodedEntryVector
```

12.268.2.2 SurfaceVector

```
typedef std::vector< SmartPointer< Surface > > gdcm::Segment::SurfaceVector
```

12.268.3 Member Enumeration Documentation

12.268.3.1 ALGOType

```
enum gdcm::Segment::ALGOType
```

Enumerator

AUTOMATIC	
SEMIAUTOMATIC	
MANUAL	
ALGOType_END	

12.268.4 Constructor & Destructor Documentation

12.268.4.1 Segment()

```
gdcm::Segment::Segment ()
```

12.268.4.2 ~Segment()

```
gdcm::Segment::~Segment ()  [override]
```

12.268.5 Member Function Documentation

12.268.5.1 AddSurface()

```
void gdcm::Segment::AddSurface (
            SmartPointer< Surface > surface)
```

References gdcm::Object::SmartPointer.

12.268.5.2 GetALGOType()

```
ALGOType gdcm::Segment::GetALGOType (
            const char * type)  [static]
```

12.268.5.3 GetALGOTypeString()

```
const char * gdcm::Segment::GetALGOTypeString (
            ALGOType type)  [static]
```

12.268.5.4 GetAnatomicRegion() [1/2]

```
SegmentHelper::BasicCodedEntry & gdcm::Segment::GetAnatomicRegion ()
```

12.268.5.5 GetAnatomicRegion() [2/2]

```
SegmentHelper::BasicCodedEntry const & gdcm::Segment::GetAnatomicRegion () const
```

12.268.5.6 GetAnatomicRegionModifiers() [1/2]

```
BasicCodedEntryVector & gdcm::Segment::GetAnatomicRegionModifiers ()
```

12.268.5.7 GetAnatomicRegionModifiers() [2/2]

```
BasicCodedEntryVector const & gdcm::Segment::GetAnatomicRegionModifiers () const
```

12.268.5.8 GetPropertyCategory() [1/2]

```
SegmentHelper::BasicCodedEntry & gdcm::Segment::GetPropertyCategory ()
```

12.268.5.9 GetPropertyCategory() [2/2]

```
SegmentHelper::BasicCodedEntry const & gdcm::Segment::GetPropertyCategory () const
```

12.268.5.10 GetPropertyType() [1/2]

```
SegmentHelper::BasicCodedEntry & gdcm::Segment::GetPropertyType ()
```

12.268.5.11 GetPropertyType() [2/2]

```
SegmentHelper::BasicCodedEntry const & gdcm::Segment::GetPropertyType () const
```

12.268.5.12 GetPropertyTypeModifiers() [1/2]

```
BasicCodedEntryVector & gdcm::Segment::GetPropertyTypeModifiers ()
```

12.268.5.13 GetPropertyTypeModifiers() [2/2]

```
BasicCodedEntryVector const & gdcm::Segment::GetPropertyTypeModifiers () const
```

12.268.5.14 GetSegmentAlgorithmName()

```
const char * gdcm::Segment::GetSegmentAlgorithmName () const
```

12.268.5.15 GetSegmentAlgorithmType()

```
ALGOType gdcm::Segment::GetSegmentAlgorithmType () const
```

12.268.5.16 GetSegmentDescription()

```
const char * gdcm::Segment::GetSegmentDescription () const
```

12.268.5.17 GetSegmentLabel()

```
const char * gdcm::Segment::GetSegmentLabel () const
```

12.268.5.18 GetSegmentNumber()

```
unsigned short gdcm::Segment::GetSegmentNumber () const
```

12.268.5.19 GetSurface()

```
SmartPointer< Surface > gdcm::Segment::GetSurface (
            const unsigned int idx = 0) const
```

References gdcm::Object::SmartPointer.

12.268.5.20 GetSurfaceCount()

```
unsigned long gdcm::Segment::GetSurfaceCount ()
```

12.268.5.21 GetSurfaces() [1/2]

```
SurfaceVector & gdcm::Segment::GetSurfaces ()
```

12.268.5.22 GetSurfaces() [2/2]

```
SurfaceVector const & gdcm::Segment::GetSurfaces () const
```

12.268.5.23 SetAnatomicRegion()

```
void gdcm::Segment::SetAnatomicRegion (
            SegmentHelper::BasicCodedEntry const & BSE)
```

12.268.5.24 SetAnatomicRegionModifiers()

```
void gdcm::Segment::SetAnatomicRegionModifiers (
            BasicCodedEntryVector const & BSEV)
```

12.268.5.25 SetPropertyCategory()

```
void gdcm::Segment::SetPropertyCategory (
            SegmentHelper::BasicCodedEntry const & BSE)
```

12.268.5.26 SetPropertyType()

```
void gdcm::Segment::SetPropertyType (
            SegmentHelper::BasicCodedEntry const & BSE)
```

12.268.5.27 SetPropertyTypeModifiers()

```
void gdcm::Segment::SetPropertyTypeModifiers (
            BasicCodedEntryVector const & BSEV)
```

12.268.5.28 SetSegmentAlgorithmName()

```
void gdcm::Segment::SetSegmentAlgorithmName (
            const char * name)
```

12.268.5.29 SetSegmentAlgorithmType() [1/2]

```
void gdcm::Segment::SetSegmentAlgorithmType (
            ALGOType type)
```

12.268.5.30 SetSegmentAlgorithmType() [2/2]

```
void gdcm::Segment::SetSegmentAlgorithmType (
            const char * typeStr)
```

12.268.5.31 SetSegmentDescription()

```
void gdcm::Segment::SetSegmentDescription (
            const char * description)
```

12.268.5.32 SetSegmentLabel()

```
void gdcm::Segment::SetSegmentLabel (
            const char * label)
```

12.268.5.33 SetSegmentNumber()

```
void gdcm::Segment::SetSegmentNumber (
            const unsigned short num)
```

12.268.5.34 SetSurfaceCount()

```
void gdcm::Segment::SetSurfaceCount (
            const unsigned long nb)
```

12.268.6 Member Data Documentation

12.268.6.1 AnatomicRegion

```
SegmentHelper::BasicCodedEntry gdcm::Segment::AnatomicRegion  [protected]
```

12.268.6.2 AnatomicRegionModifiers

```
BasicCodedEntryVector gdcm::Segment::AnatomicRegionModifiers  [protected]
```

12.268.6.3 PropertyCategory

```
SegmentHelper::BasicCodedEntry gdcm::Segment::PropertyCategory  [protected]
```

12.268.6.4 PropertyType

```
SegmentHelper::BasicCodedEntry gdcm::Segment::PropertyType  [protected]
```

12.268.6.5 PropertyTypeModifiers

```
BasicCodedEntryVector gdcm::Segment::PropertyTypeModifiers  [protected]
```

12.268.6.6 SegmentAlgorithmName

```
std::string gdcm::Segment::SegmentAlgorithmName  [protected]
```

12.268.6.7 SegmentAlgorithmType

```
ALGOType gdcm::Segment::SegmentAlgorithmType  [protected]
```

12.268.6.8 SegmentDescription

```
std::string gdcm::Segment::SegmentDescription  [protected]
```

12.268.6.9 SegmentLabel

```
std::string gdcm::Segment::SegmentLabel  [protected]
```

12.268.6.10 SegmentNumber

```
unsigned short gdcm::Segment::SegmentNumber  [protected]
```

12.268.6.11 SurfaceCount

```
unsigned long gdcm::Segment::SurfaceCount  [protected]
```

12.268.6.12 Surfaces

```
SurfaceVector gdcm::Segment::Surfaces  [protected]
```

The documentation for this class was generated from the following file:

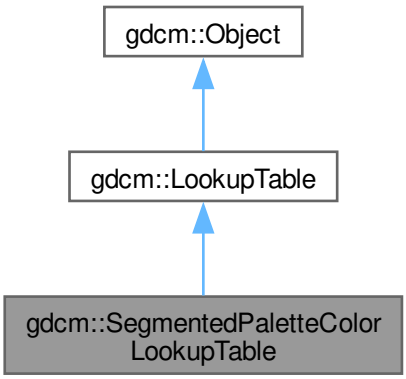
- gdcmSegment.h

12.269 gdcm::SegmentedPaletteColorLookupTable Class Reference

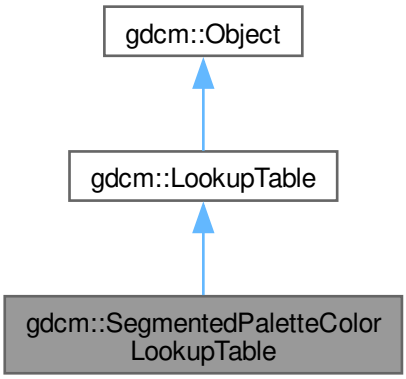
SegmentedPaletteColorLookupTable class.

`#include <gdcmSegmentedPaletteColorLookupTable.h>`

Inheritance diagram for gdcm::SegmentedPaletteColorLookupTable:



Collaboration diagram for gdcm::SegmentedPaletteColorLookupTable:



Public Member Functions

- SegmentedPaletteColorLookupTable ()
- ~SegmentedPaletteColorLookupTable () override
- void Print (std::ostream &) const override
- void SetLUT (LookupTableType type, const unsigned char *array, unsigned int length) override

  Initialize a SegmentedPaletteColorLookupTable.

Public Member Functions inherited from gdcm::LookupTable

- LookupTable ()
- LookupTable (LookupTable const &lut)
- ~LookupTable () override
- void Allocate (unsigned short bitsample=8)

  Allocate the LUT.
- void Clear ()

  Clear the LUT.
- bool Decode (char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const
- void Decode (std::istream &is, std::ostream &os) const

  Decode the LUT.
- bool Decode8 (char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const

  Decode into RGB 8 bits space.
- unsigned short GetBitSample () const

  return the bit sample
- bool GetBufferAsRGBA (unsigned char *rgba) const

  return the LUT as RGBA buffer
- void GetLUT (LookupTableType type, unsigned char *array, unsigned int &length) const
- void GetLUTDescriptor (LookupTableType type, unsigned short &length, unsigned short &subscript, unsigned short &bitsize) const
- unsigned int GetLUTLength (LookupTableType type) const
- const unsigned char * GetPointer () const

  return a raw pointer to the LUT
- void InitializeBlueLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)
- bool Initialized () const

  return whether the LUT has been initialized
- void InitializeGreenLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)
- void InitializeLUT (LookupTableType type, unsigned short length, unsigned short subscript, unsigned short bitsize)

  Generic interface:
- void InitializeRedLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)

  RED / GREEN / BLUE specific:
- bool IsRGB8 () const

  Return whether 16 bits LUT is in RGB 8 bits space.
- void SetBlueLUT (const unsigned char *blue, unsigned int length)
- void SetGreenLUT (const unsigned char *green, unsigned int length)
- void SetRedLUT (const unsigned char *red, unsigned int length)
- bool WriteBufferAsRGBA (const unsigned char *rgba)

  Write the LUT as RGBA.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Additional Inherited Members

Public Types inherited from gdcm::LookupTable

- enum LookupTableType {
  RED = 0 ,
  GREEN ,
  BLUE ,
  GRAY ,
  UNKNOWN }

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::LookupTable

- unsigned short BitSample
- bool IncompleteLUT:1
- LookupTableInternal * Internal

12.269.1 Detailed Description

SegmentedPaletteColorLookupTable class.

12.269.2 Constructor & Destructor Documentation

12.269.2.1 SegmentedPaletteColorLookupTable()

```
gdcm::SegmentedPaletteColorLookupTable::SegmentedPaletteColorLookupTable ()
```

12.269.2.2 ~SegmentedPaletteColorLookupTable()

```
gdcm::SegmentedPaletteColorLookupTable::~SegmentedPaletteColorLookupTable ()  [override]
```

12.269.3 Member Function Documentation

12.269.3.1 Print()

```
void gdcm::SegmentedPaletteColorLookupTable::Print (
            std::ostream & ) const  [inline], [override], [virtual]
```

Reimplemented from gdcm::LookupTable.

12.269.3.2 SetLUT()

```
void gdcm::SegmentedPaletteColorLookupTable::SetLUT (
            LookupTableType type,
            const unsigned char * array,
            unsigned int length)  [override], [virtual]
```

Initialize a SegmentedPaletteColorLookupTable.

Reimplemented from gdcm::LookupTable.

The documentation for this class was generated from the following file:

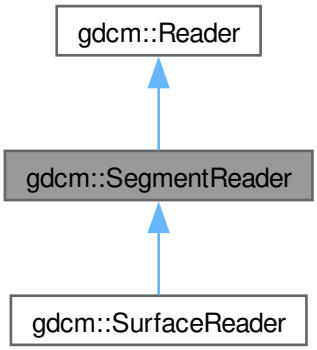
- gdcmSegmentedPaletteColorLookupTable.h

12.270 gdcm::SegmentReader Class Reference

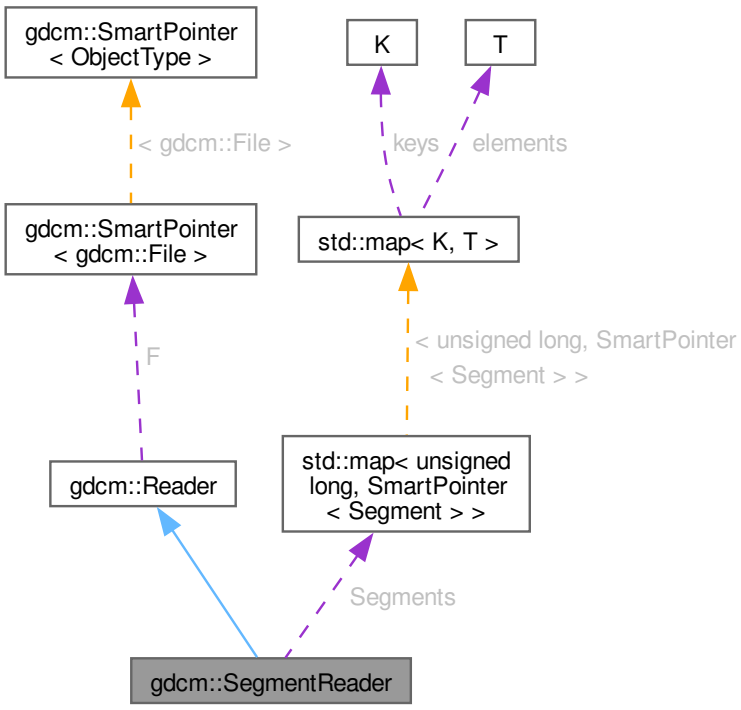
This class defines a segment reader.

```
#include <gdcmSegmentReader.h>
```

Inheritance diagram for gdcm::SegmentReader:



Collaboration diagram for gdcm::SegmentReader:



Public Types

- typedef std::vector< SmartPointer< Segment > > SegmentVector

Public Member Functions

- SegmentReader ()
- ~SegmentReader () override
- SegmentVector GetSegments ()
- SegmentVector GetSegments () const
- bool Read () override

  Read.

Public Member Functions inherited from gdcm::Reader

- Reader ()
- virtual ~Reader ()
- bool CanRead () const

- File & GetFile ()

  Set/Get File.
- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const
- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

  Will only read the specified selected private tags.
- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Types

- typedef std::map< unsigned long, SmartPointer< Segment > > SegmentMap

Protected Member Functions

- bool ReadSegment (const Item &segmentItem, const unsigned int idx)
- bool ReadSegments ()

Protected Member Functions inherited from gdcm::Reader

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Protected Attributes

- SegmentMap Segments

Protected Attributes inherited from gdcm::Reader

- SmartPointer< File > F

12.270.1 Detailed Description

This class defines a segment reader.

It reads attributes of group 0x0062.

See also

PS 3.3 C.8.20.2 and C.8.23

12.270.2 Member Typedef Documentation

12.270.2.1 SegmentMap

```
typedef std::map< unsigned long, SmartPointer< Segment > > gdcm::SegmentReader::SegmentMap  [protected]
```

12.270.2.2 SegmentVector

```
typedef std::vector< SmartPointer< Segment > > gdcm::SegmentReader::SegmentVector
```

12.270.3 Constructor & Destructor Documentation

12.270.3.1 SegmentReader()

```
gdcm::SegmentReader::SegmentReader ()
```

12.270.3.2 ~SegmentReader()

```
gdcm::SegmentReader::~SegmentReader ()  [override]
```

12.270.4 Member Function Documentation

12.270.4.1 GetSegments() [1/2]

```
SegmentVector gdcm::SegmentReader::GetSegments ()
```

12.270.4.2 GetSegments() [2/2]

```
SegmentVector gdcm::SegmentReader::GetSegments () const
```

12.270.4.3 Read()

```
bool gdcm::SegmentReader::Read ()  [override], [virtual]
```

Read.

Reimplemented from gdcm::Reader.

Reimplemented in gdcm::SurfaceReader.

12.270.4.4 ReadSegment()

```
bool gdcm::SegmentReader::ReadSegment (
            const Item & segmentItem,
            const unsigned int idx)  [protected]
```

12.270.4.5 ReadSegments()

```
bool gdcm::SegmentReader::ReadSegments ()  [protected]
```

12.270.5 Member Data Documentation

12.270.5.1 Segments

```
SegmentMap gdcm::SegmentReader::Segments  [protected]
```

The documentation for this class was generated from the following file:

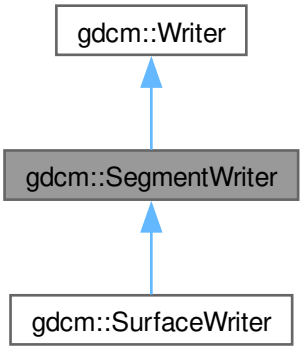
- gdcmSegmentReader.h

12.271 gdcm::SegmentWriter Class Reference

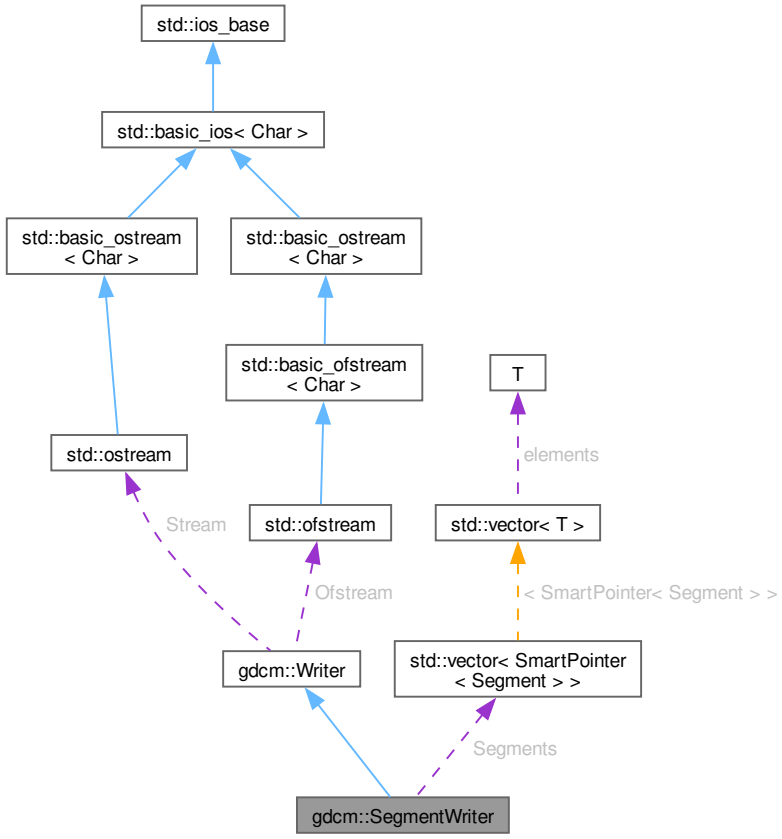
This class defines a segment writer.

```
#include <gdcmSegmentWriter.h>
```

Inheritance diagram for gdcm::SegmentWriter:



Collaboration diagram for gdcm::SegmentWriter:



Public Types

- typedef std::vector< SmartPointer< Segment > > SegmentVector

Public Member Functions

- SegmentWriter ()
- ~SegmentWriter () override
- void AddSegment (SmartPointer< Segment > segment)
- unsigned int GetNumberOfSegments () const
- SmartPointer< Segment > GetSegment (const unsigned int idx=0) const
- SegmentVector & GetSegments ()
- const SegmentVector & GetSegments () const
- void SetNumberOfSegments (const unsigned int size)
- void SetSegments (SegmentVector &segments)
- bool Write () override

  Write.

Public Member Functions inherited from gdcm::Writer

- Writer ()
- virtual ~Writer ()
- void CheckFileMetaInformationOff ()
- void CheckFileMetaInformationOn ()
- File & GetFile ()
- void SetCheckFileMetaInformation (bool b)

  Undocumented function, do not use (= leave default).
- void SetFile (const File &f)

  Set/Get the DICOM file (DataSet + Header).
- void SetFileName (const char *filename_native)

  Set the filename of DICOM file to write:
- void SetStream (std::ostream &output_stream)

  Set user ostream buffer.

Protected Member Functions

- bool PrepareWrite ()

Protected Member Functions inherited from gdcm::Writer

- bool GetCheckFileMetaInformation () const
- std::ostream * GetStreamPtr () const
- void SetWriteDataSetOnly (bool b)

Protected Attributes

- SegmentVector Segments

Protected Attributes inherited from gdcm::Writer

- std::ofstream * Ofstream
- std::ostream * Stream

12.271.1 Detailed Description

This class defines a segment writer.

It writes attributes of group 0x0062.

See also

PS 3.3 C.8.20.2 and C.8.23

12.271.2 Member Typedef Documentation

12.271.2.1 SegmentVector

```
typedef std::vector< SmartPointer< Segment > > gdcm::SegmentWriter::SegmentVector
```

12.271.3 Constructor & Destructor Documentation

12.271.3.1 SegmentWriter()

```
gdcm::SegmentWriter::SegmentWriter ()
```

12.271.3.2 ~SegmentWriter()

```
gdcm::SegmentWriter::~SegmentWriter ()  [override]
```

12.271.4 Member Function Documentation

12.271.4.1 AddSegment()

```
void gdcm::SegmentWriter::AddSegment (
            SmartPointer< Segment > segment)
```

12.271.4.2 GetNumberOfSegments()

```
unsigned int gdcm::SegmentWriter::GetNumberOfSegments () const
```

12.271.4.3 GetSegment()

```
SmartPointer< Segment > gdcm::SegmentWriter::GetSegment (
            const unsigned int idx = 0) const
```

12.271.4.4 GetSegments() [1/2]

```
SegmentVector & gdcm::SegmentWriter::GetSegments ()
```

12.271.4.5 GetSegments() [2/2]

```
const SegmentVector & gdcm::SegmentWriter::GetSegments () const
```

12.271.4.6 PrepareWrite()

```
bool gdcm::SegmentWriter::PrepareWrite ()  [protected]
```

12.271.4.7 SetNumberOfSegments()

```
void gdcm::SegmentWriter::SetNumberOfSegments (
            const unsigned int size)
```

12.271.4.8 SetSegments()

```
void gdcm::SegmentWriter::SetSegments (
            SegmentVector & segments)
```

12.271.4.9 Write()

```
bool gdcm::SegmentWriter::Write ()  [override], [virtual]
```

Write.

Reimplemented from gdcm::Writer.

Reimplemented in gdcm::SurfaceWriter.

12.271.5 Member Data Documentation

12.271.5.1 Segments

```
SegmentVector gdcm::SegmentWriter::Segments  [protected]
```

The documentation for this class was generated from the following file:

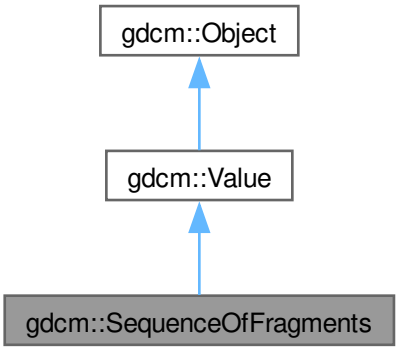
- gdcmSegmentWriter.h

12.272 gdcm::SequenceOfFragments Class Reference

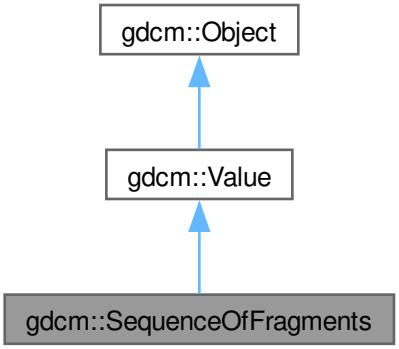
Class to represent a Sequence Of Fragments.

`#include <gdcmSequenceOfFragments.h>`

Inheritance diagram for gdcm::SequenceOfFragments:



Collaboration diagram for gdcm::SequenceOfFragments:



Public Types

- typedef FragmentVector::const_iterator ConstIterator
- typedef std::vector< Fragment > FragmentVector
- typedef FragmentVector::iterator Iterator
- typedef FragmentVector::size_type SizeType

Public Member Functions

- SequenceOfFragments ()

  constructor (UndefinedLength by default)
- void AddFragment (Fragment const &item)

  Appends a Fragment to the already added ones.
- Iterator Begin ()
- ConstIterator Begin () const
- void Clear () override

  Clear.
- unsigned long ComputeByteLength () const
- VL ComputeLength () const
- Iterator End ()
- ConstIterator End () const
- bool GetBuffer (char *buffer, unsigned long length) const
- bool GetFragBuffer (unsigned int fragNb, char *buffer, unsigned long &length) const
- const Fragment & GetFragment (SizeType num) const
- VL GetLength () const override

  Returns the SQ length, as read from disk.
- SizeType GetNumberOfFragments () const
- BasicOffsetTable & GetTable ()
- const BasicOffsetTable & GetTable () const
- bool operator== (const Value &val) const override
- void Print (std::ostream &os) const override
- template<typename TSwap>
  std::istream & Read (std::istream &is, bool readvalues=true)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is, bool)
- void SetLength (VL length) override

  Sets the actual SQ length.
- template<typename TSwap>
  std::ostream const & Write (std::ostream &os) const
- bool WriteBuffer (std::ostream &os) const

Public Member Functions inherited from gdcm::Value

- Value ()=default
- ~Value () override=default

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< SequenceOfFragments > New ()

Additional Inherited Members

Protected Member Functions inherited from gdcm::Value

- virtual void SetLengthOnly (VL l)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.272.1 Detailed Description

Class to represent a Sequence Of Fragments.

Todo I do not enforce that Sequence of Fragments ends with a SQ end del

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetJPEGSamplePrecision.cxx, and MpegVideoInfo.cs.

12.272.2 Member Typedef Documentation

12.272.2.1 ConstIterator

```
typedef FragmentVector::const_iterator gdcm::SequenceOfFragments::ConstIterator
```

12.272.2.2 FragmentVector

```
typedef std::vector<Fragment> gdcm::SequenceOfFragments::FragmentVector
```

12.272.2.3 Iterator

```
typedef FragmentVector::iterator gdcm::SequenceOfFragments::Iterator
```

12.272.2.4 SizeType

```
typedef FragmentVector::size_type gdcm::SequenceOfFragments::SizeType
```

12.272.3 Constructor & Destructor Documentation

12.272.3.1 SequenceOfFragments()

```
gdcm::SequenceOfFragments::SequenceOfFragments ()  [inline]
```

constructor (UndefinedLength by default)

Referenced by New(), and operator==().

12.272.4 Member Function Documentation

12.272.4.1 AddFragment()

```
void gdcm::SequenceOfFragments::AddFragment (
            Fragment const & item)
```

Appends a Fragment to the already added ones.

12.272.4.2 Begin() [1/2]

```
Iterator gdcm::SequenceOfFragments::Begin ()  [inline]
```

Referenced by Print(), and Write().

12.272.4.3 Begin() [2/2]

```
ConstIterator gdcm::SequenceOfFragments::Begin () const  [inline]
```

12.272.4.4 Clear()

```
void gdcm::SequenceOfFragments::Clear ()  [override], [virtual]
```

Clear.

Implements gdcm::Value.

12.272.4.5 ComputeByteLength()

```
unsigned long gdcm::SequenceOfFragments::ComputeByteLength () const
```

12.272.4.6 ComputeLength()

```
VL gdcm::SequenceOfFragments::ComputeLength () const
```

12.272.4.7 End() [1/2]

```
Iterator gdcm::SequenceOfFragments::End ()  [inline]
```

Referenced by Print(), and Write().

12.272.4.8 End() [2/2]

```
ConstIterator gdcm::SequenceOfFragments::End () const  [inline]
```

12.272.4.9 GetBuffer()

```
bool gdcm::SequenceOfFragments::GetBuffer (
            char * buffer,
            unsigned long length) const
```

12.272.4.10 GetFragBuffer()

```
bool gdcm::SequenceOfFragments::GetFragBuffer (
            unsigned int fragNb,
            char * buffer,
            unsigned long & length) const
```

12.272.4.11 GetFragment()

```
const Fragment & gdcm::SequenceOfFragments::GetFragment (
            SizeType num) const
```

Examples

DecompressImage.cs, FixBrokenJ2K.cxx, and FixJAIBugJPEGLS.cxx.

12.272.4.12 GetLength()

```
VL gdcm::SequenceOfFragments::GetLength () const  [inline], [override], [virtual]
```

Returns the SQ length, as read from disk.

Implements gdcm::Value.

12.272.4.13 GetNumberOfFragments()

```
SizeType gdcm::SequenceOfFragments::GetNumberOfFragments () const
```

Examples

FixJAIBugJPEGLS.cxx.

12.272.4.14 GetTable() [1/2]

```
BasicOffsetTable & gdcm::SequenceOfFragments::GetTable ()  [inline]
```

12.272.4.15 GetTable() [2/2]

```
const BasicOffsetTable & gdcm::SequenceOfFragments::GetTable () const  [inline]
```

12.272.4.16 New()

```
SmartPointer< SequenceOfFragments > gdcm::SequenceOfFragments::New ()  [inline], [static]
```

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, and MpegVideoInfo.cs.

References SequenceOfFragments().

12.272.4.17 operator==()

```
bool gdcm::SequenceOfFragments::operator== (
            const Value & val) const  [inline], [override], [virtual]
```

Implements gdcm::Value.

References SequenceOfFragments(), and gdcm::Value::Value().

12.272.4.18 Print()

```
void gdcm::SequenceOfFragments::Print (
            std::ostream & os) const  [inline], [override], [virtual]
```

Reimplemented from gdcm::Object.

References Begin(), and End().

12.272.4.19 Read()

```
template<typename TSwap>
std::istream & gdcm::SequenceOfFragments::Read (
            std::istream & is,
            bool readvalues = true)  [inline]
```

References ReadPreValue(), and ReadValue().

12.272.4.20 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::SequenceOfFragments::ReadPreValue (
            std::istream & is)  [inline]
```

References gdcmDebugMacro.

Referenced by Read().

12.272.4.21 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::SequenceOfFragments::ReadValue (
            std::istream & is,
            bool )  [inline]
```

References gdcmAssertAlwaysMacro, gdcmDebugMacro, gdcmWarningMacro, gdcm::Tag::GetElement(), gdcm::Tag::GetGroup(), gdcm::ByteValue::GetLength(), gdcm::ByteValue::GetPointer(), gdcm::DataElement::GetTag(), gdcm::DataElement::GetVL(), gdcm::Fragment::Read(), gdcm::Fragment::ReadBacktrack(), and gdcm::Exception::what().

Referenced by Read().

12.272.4.22 SetLength()

```
void gdcm::SequenceOfFragments::SetLength (
            VL length)  [inline], [override], [virtual]
```

Sets the actual SQ length.

Implements gdcm::Value.

12.272.4.23 Write()

```
template<typename TSwap>
std::ostream const & gdcm::SequenceOfFragments::Write (
             std::ostream & os) const  [inline]
```

References Begin(), End(), gdcm::Tag::Write(), and gdcm::VL::Write().

12.272.4.24 WriteBuffer()

```
bool gdcm::SequenceOfFragments::WriteBuffer (
             std::ostream & os) const
```

Examples

GetJPEGSamplePrecision.cxx.

The documentation for this class was generated from the following file:

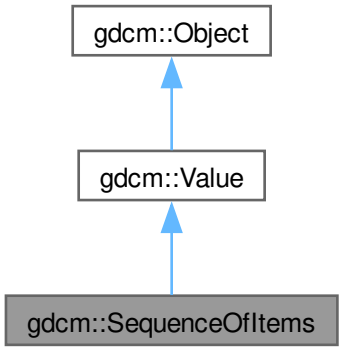
- gdcmSequenceOfFragments.h

12.273 gdcm::SequenceOfItems Class Reference

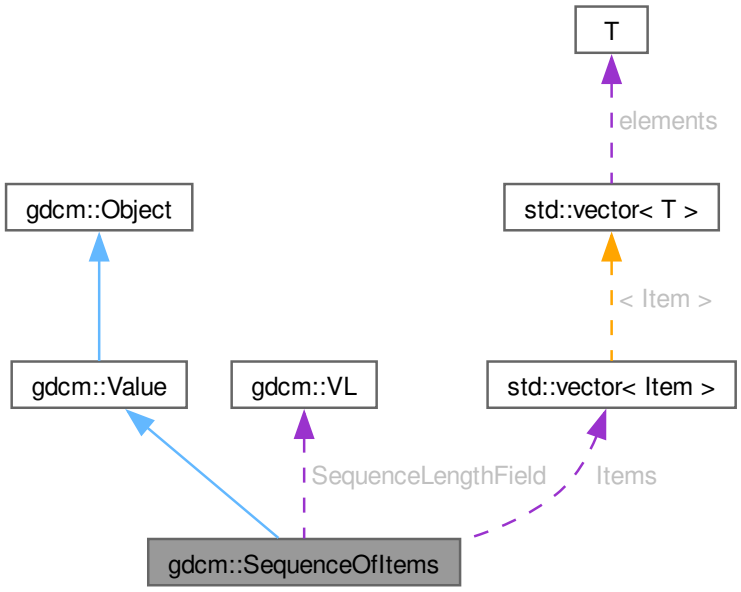
Class to represent a Sequence Of Items.

```
#include <gdcmSequenceOfItems.h>
```

Inheritance diagram for gdcm::SequenceOfItems:



Collaboration diagram for gdcm::SequenceOfItems:



Public Types

- typedef ItemVector::const_iterator ConstIterator
- typedef std::vector< Item > ItemVector
- typedef ItemVector::iterator Iterator
- typedef ItemVector::size_type SizeType

Public Member Functions

- SequenceOfItems ()

  constructor (UndefinedLength by default)
- void AddItem (Item const &item)

  Appends an Item to the already added ones.
- Item & AddNewUndefinedLengthItem ()

  Appends an Item to the already added ones.
- Iterator Begin ()
- ConstIterator Begin () const
- void Clear () override

  remove all items within the sequence
- template<typename TDE>
  VL ComputeLength () const
- Iterator End ()

- ConstIterator End () const
- bool FindDataElement (const Tag &t) const
- Item & GetItem (SizeType position)
- const Item & GetItem (SizeType position) const
- VL GetLength () const override

  Returns the SQ length, as read from disk.
- SizeType GetNumberOfItems () const
- bool IsEmpty () const
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- SequenceOfItems & operator= (const SequenceOfItems &val)
- bool operator== (const Value &val) const override
- void Print (std::ostream &os) const override
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is, bool readvalues=true)
- bool RemoveItemByIndex (const SizeType index)
- void SetLength (VL length) override

  Sets the actual SQ length.
- void SetLengthToUndefined ()

  Properly set the Sequence of Item to be undefined length.
- void SetNumberOfItems (SizeType n)
- template<typename TDE, typename TSwap>
  std::ostream const & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::Value

- Value ()=default
- ~Value () override=default

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< SequenceOfItems > New ()

Public Attributes

- ItemVector Items

  Vector of Sequence Items.
- VL SequenceLengthField

  Total length of the Sequence (or 0xffffffff) if undefined.

Additional Inherited Members

Protected Member Functions inherited from gdcm::Value

- virtual void SetLengthOnly (VL l)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.273.1 Detailed Description

Class to represent a Sequence Of Items.

(value representation : SQ)

- a Value Representation for Data Elements that contains a sequence of Data Sets.
- Sequence of Item allows for Nested Data Sets

See PS 3.5, 7.4.6 Data Element Type Within a Sequence

Note

SEQUENCE OF ITEMS (VALUE REPRESENTATION SQ) A Value Representation for Data Elements that contain a sequence of Data Sets. Sequence of Items allows for Nested Data Sets.

Examples

DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSequenceUltrasound.cxx, and ReadExplicitLengthSQIVR.cxx.

12.273.2 Member Typedef Documentation

12.273.2.1 ConstIterator

```
typedef ItemVector::const_iterator gdcm::SequenceOfItems::ConstIterator
```

12.273.2.2 ItemVector

```
typedef std::vector< Item > gdcm::SequenceOfItems::ItemVector
```

12.273.2.3 Iterator

```
typedef ItemVector::iterator gdcm::SequenceOfItems::Iterator
```

12.273.2.4 SizeType

```
typedef ItemVector::size_type gdcm::SequenceOfItems::SizeType
```

Examples

DumpExamCard.cxx, and DumpGEMSMovieGroup.cxx.

12.273.3 Constructor & Destructor Documentation

12.273.3.1 SequenceOfItems()

```
gdcm::SequenceOfItems::SequenceOfItems () [inline]
```

constructor (UndefinedLength by default)

References SequenceLengthField.

Referenced by New(), operator=(), and operator==().

12.273.4 Member Function Documentation

12.273.4.1 AddItem()

```
void gdcm::SequenceOfItems::AddItem (
            Item const & item)
```

Appends an Item to the already added ones.

Examples

Extracting_All_Resolution.cxx.

12.273.4.2 AddNewUndefinedLengthItem()

```
Item & gdcm::SequenceOfItems::AddNewUndefinedLengthItem ()
```

Appends an Item to the already added ones.

12.273.4.3 Begin() [1/2]

```
Iterator gdcm::SequenceOfItems::Begin ()  [inline]
```

References Items.

12.273.4.4 Begin() [2/2]

```
ConstIterator gdcm::SequenceOfItems::Begin () const  [inline]
```

References Items.

12.273.4.5 Clear()

```
void gdcm::SequenceOfItems::Clear ()  [override], [virtual]
```

remove all items within the sequence

Implements gdcm::Value.

12.273.4.6 ComputeLength()

```
template<typename TDE>
VL gdcm::SequenceOfItems::ComputeLength () const
```

12.273.4.7 End() [1/2]

```
Iterator gdcm::SequenceOfItems::End ()  [inline]
```

References Items.

12.273.4.8 End() [2/2]

```
ConstIterator gdcm::SequenceOfItems::End () const  [inline]
```

References Items.

12.273.4.9 FindDataElement()

```
bool gdcm::SequenceOfItems::FindDataElement (
            const Tag & t) const
```

12.273.4.10 GetItem() [1/2]

```
Item & gdcm::SequenceOfItems::GetItem (
            SizeType position)
```

12.273.4.11 GetItem() [2/2]

```
const Item & gdcm::SequenceOfItems::GetItem (
            SizeType position) const
```

Examples

DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, ExtractEncryptedContent.cxx, and GetSequenceUltrasound.cxx.

12.273.4.12 GetLength()

```
VL gdcm::SequenceOfItems::GetLength () const  [inline], [override], [virtual]
```

Returns the SQ length, as read from disk.

Implements gdcm::Value.

References SequenceLengthField.

Referenced by Read().

12.273.4.13 GetNumberOfItems()

```
SizeType gdcm::SequenceOfItems::GetNumberOfItems () const  [inline]
```

Examples

DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, ExtractEncryptedContent.cxx, and GetSequenceUltrasound.cxx.

References Items.

12.273.4.14 IsEmpty()

```
bool gdcm::SequenceOfItems::IsEmpty () const  [inline]
```

References Items.

12.273.4.15 IsUndefinedLength()

```
bool gdcm::SequenceOfItems::IsUndefinedLength () const  [inline]
```

return if Value Length if of undefined length

References SequenceLengthField.

12.273.4.16 New()

```
SmartPointer< SequenceOfItems > gdcm::SequenceOfItems::New ()  [inline], [static]
```

Examples

NewSequence.cs.

References SequenceOfItems().

12.273.4.17 operator=()

```
SequenceOfItems & gdcm::SequenceOfItems::operator= (
            const SequenceOfItems & val)  [inline]
```

References SequenceOfItems(), Items, and SequenceLengthField.

12.273.4.18 operator==()

```
bool gdcm::SequenceOfItems::operator== (
            const Value & val) const  [inline], [override], [virtual]
```

Implements gdcm::Value.

References SequenceOfItems(), gdcm::Value::Value(), Items, and SequenceLengthField.

12.273.4.19 Print()

```
void gdcm::SequenceOfItems::Print (
            std::ostream & os) const  [inline], [override], [virtual]
```

Reimplemented from gdcm::Object.

References Items, and SequenceLengthField.

12.273.4.20 Read()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::SequenceOfItems::Read (
             std::istream & is,
             bool readvalues = true)  [inline]
```

References gdcm::Item::Clear(), gdcmDebugMacro, gdcmWarningMacro, gdcm::Exception::GetDescription(), GetLength(), gdcm::Item::GetNestedDataSet(), gdcm::DataElement::GetTag(), gdcm::DataElement::GetVL(), Items, gdcm::Item::Read(), SequenceLengthField, and gdcm::DataSet::Size().

12.273.4.21 RemoveItemByIndex()

```
bool gdcm::SequenceOfItems::RemoveItemByIndex (
             const SizeType index)
```

Remove an Item as specified by its index, if index > size, false is returned Index starts at 1 not 0

12.273.4.22 SetLength()

```
void gdcm::SequenceOfItems::SetLength (
             VL length)  [inline], [override], [virtual]
```

Sets the actual SQ length.

Implements gdcm::Value.

References SequenceLengthField.

12.273.4.23 SetLengthToUndefined()

```
void gdcm::SequenceOfItems::SetLengthToUndefined ()
```

Properly set the Sequence of Item to be undefined length.

12.273.4.24 SetNumberOfItems()

```
void gdcm::SequenceOfItems::SetNumberOfItems (
             SizeType n)  [inline]
```

References Items.

12.273.4.25 Write()

```
template<typename TDE, typename TSwap>
std::ostream const & gdcm::SequenceOfItems::Write (
             std::ostream & os) const  [inline]
```

References Items, SequenceLengthField, gdcm::Tag::Write(), and gdcm::VL::Write().

12.273.5 Member Data Documentation

12.273.5.1 Items

```
ItemVector gdcm::SequenceOfItems::Items
```

Vector of Sequence Items.

Referenced by Begin(), Begin(), End(), End(), GetNumberOfItems(), IsEmpty(), operator=(), operator==(), Print(), Read(), SetNumberOfItems(), and Write().

12.273.5.2 SequenceLengthField

```
VL gdcm::SequenceOfItems::SequenceLengthField
```

Total length of the Sequence (or 0xffffffff) if undefined.

Referenced by SequenceOfItems(), GetLength(), IsUndefinedLength(), operator=(), operator==(), Print(), Read(), SetLength(), and Write().

The documentation for this class was generated from the following file:

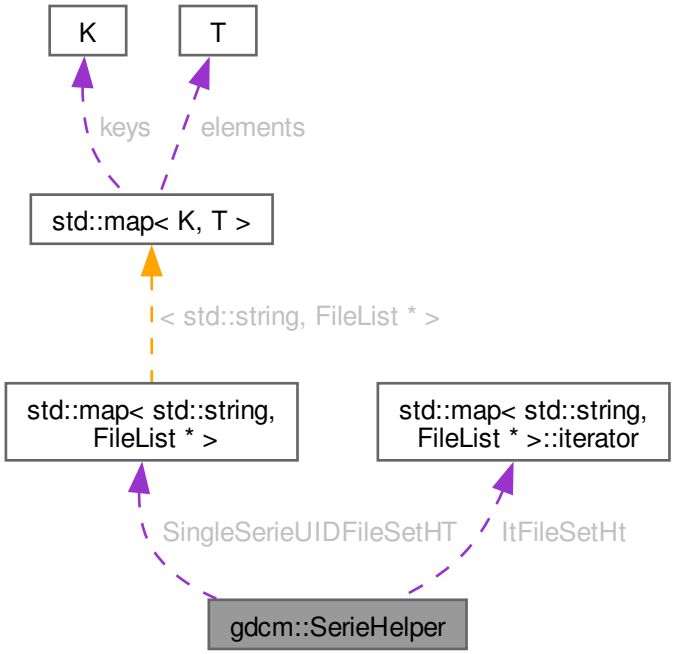
- gdcmSequenceOfItems.h

12.274 gdcm::SerieHelper Class Reference

SerieHelper DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned.

```
#include <gdcmSerieHelper.h>
```

Collaboration diagram for gdcm::SerieHelper:



Public Member Functions

- SerieHelper ()
- ~SerieHelper ()
- void AddRestriction (const std::string &tag)
- void AddRestriction (uint16_t group, uint16_t elem, std::string const &value, int op)
- void Clear ()
- void CreateDefaultUniqueSeriesIdentifier ()
- std::string CreateUniqueSeriesIdentifier (File *inFile)
- FileList * GetFirstSingleSerieUIDFileSet ()
- FileList * GetNextSingleSerieUIDFileSet ()
- void OrderFileList (FileList *fileSet)
- void SetDirectory (std::string const &dir, bool recursive=false)
- void SetLoadMode (int)
- void SetUseSeriesDetails (bool useSeriesDetails)

Protected Types

- using Rule
- typedef std::vector< Rule > SerieRestrictions
- typedef std::map< std::string, FileList * > SingleSerieUIDFileSetmap

Protected Member Functions

- bool AddFile (FileWithName &header)
- void AddFileName (std::string const &filename)
- void AddRestriction (const Tag &tag)
- bool FileNameOrdering (FileList *fileList)
- bool ImageNumberOrdering (FileList *fileList)
- bool ImagePositionPatientOrdering (FileList *fileSet)
- bool UserOrdering (FileList *fileSet)

Protected Attributes

- SingleSerieUIDFileSetmap::iterator ItFileSetHt
- SingleSerieUIDFileSetmap SingleSerieUIDFileSetHT

12.274.1 Detailed Description

SerieHelper DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned.

Instead see ImageHelper or IPPSorter

12.274.2 Member Typedef Documentation

12.274.2.1 Rule

```
using gdcm::SerieHelper::Rule  [protected]
```

Initial value:

```
 struct RuleStructure{
    uint16_t group;
    uint16_t elem;
    std::string value;
    int op;
  }
```

12.274.2.2 SerieRestrictions

```
typedef std::vector<Rule> gdcm::SerieHelper::SerieRestrictions  [protected]
```

12.274.2.3 SingleSerieUIDFileSetmap

```
typedef std::map<std::string, FileList *> gdcm::SerieHelper::SingleSerieUIDFileSetmap  [protected]
```

12.274.3 Constructor & Destructor Documentation

12.274.3.1 SerieHelper()

```
gdcm::SerieHelper::SerieHelper ()
```

12.274.3.2 ~SerieHelper()

```
gdcm::SerieHelper::~SerieHelper ()
```

12.274.4 Member Function Documentation

12.274.4.1 AddFile()

```
bool gdcm::SerieHelper::AddFile (
            FileWithName & header)  [protected]
```

12.274.4.2 AddFileName()

```
void gdcm::SerieHelper::AddFileName (
            std::string const & filename)  [protected]
```

12.274.4.3 AddRestriction() [1/3]

```
void gdcm::SerieHelper::AddRestriction (
            const std::string & tag)
```

12.274.4.4 AddRestriction() [2/3]

```
void gdcm::SerieHelper::AddRestriction (
            const Tag & tag)  [protected]
```

12.274.4.5 AddRestriction() [3/3]

```
void gdcm::SerieHelper::AddRestriction (
            uint16_t group,
            uint16_t elem,
            std::string const & value,
            int op)
```

12.274.4.6 Clear()

```
void gdcm::SerieHelper::Clear ()
```

12.274.4.7 CreateDefaultUniqueSeriesIdentifier()

```
void gdcm::SerieHelper::CreateDefaultUniqueSeriesIdentifier ()
```

12.274.4.8 CreateUniqueSeriesIdentifier()

```
std::string gdcm::SerieHelper::CreateUniqueSeriesIdentifier (
            File * inFile)
```

12.274.4.9 FileNameOrdering()

```
bool gdcm::SerieHelper::FileNameOrdering (
            FileList * fileList)  [protected]
```

12.274.4.10 GetFirstSingleSerieUIDFileSet()

```
FileList * gdcm::SerieHelper::GetFirstSingleSerieUIDFileSet ()
```

12.274.4.11 GetNextSingleSerieUIDFileSet()

```
FileList * gdcm::SerieHelper::GetNextSingleSerieUIDFileSet ()
```

12.274.4.12 ImageNumberOrdering()

```
bool gdcm::SerieHelper::ImageNumberOrdering (
            FileList * fileList)  [protected]
```

12.274.4.13 ImagePositionPatientOrdering()

```
bool gdcm::SerieHelper::ImagePositionPatientOrdering (
            FileList * fileSet)  [protected]
```

12.274.4.14 OrderFileList()

```
void gdcm::SerieHelper::OrderFileList (
            FileList * fileSet)
```

12.274.4.15 SetDirectory()

```
void gdcm::SerieHelper::SetDirectory (
            std::string const & dir,
            bool recursive = false)
```

12.274.4.16 SetLoadMode()

```
void gdcm::SerieHelper::SetLoadMode (
            int )  [inline]
```

12.274.4.17 SetUseSeriesDetails()

```
void gdcm::SerieHelper::SetUseSeriesDetails (
            bool useSeriesDetails)
```

12.274.4.18 UserOrdering()

```
bool gdcm::SerieHelper::UserOrdering (
            FileList * fileSet)  [protected]
```

12.274.5 Member Data Documentation

12.274.5.1 ItFileSetHt

```
SingleSerieUIDFileSetmap::iterator gdcm::SerieHelper::ItFileSetHt  [protected]
```

12.274.5.2 SingleSerieUIDFileSetHT

```
SingleSerieUIDFileSetmap gdcm::SerieHelper::SingleSerieUIDFileSetHT  [protected]
```

The documentation for this class was generated from the following file:

- gdcmSerieHelper.h

12.275 gdcm::Series Class Reference

Series.

```
#include <gdcmSeries.h>
```

Public Member Functions

- Series ()=default

12.275.1 Detailed Description

Series.

12.275.2 Constructor & Destructor Documentation

12.275.2.1 Series()

```
gdcm::Series::Series ()  [default]
```

The documentation for this class was generated from the following file:

- gdcmSeries.h

12.276 gdcm::network::ServiceClassApplicationInformation Class Reference

```
#include <gdcmServiceClassApplicationInformation.h>
```

Public Member Functions

- ServiceClassApplicationInformation ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetTuple (uint8_t levelofsupport, uint8_t levelofdigitalsig, uint8_t elementcoercion)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.276.1 Detailed Description

PS 3.4 Table B.3-1 SERVICE-CLASS-APPLICATION-INFORMATION (A-ASSOCIATE-RQ)

12.276.2 Constructor & Destructor Documentation

12.276.2.1 ServiceClassApplicationInformation()

```
gdcm::network::ServiceClassApplicationInformation::ServiceClassApplicationInformation ()
```

12.276.3 Member Function Documentation

12.276.3.1 Print()

```
void gdcm::network::ServiceClassApplicationInformation::Print (
            std::ostream & os) const
```

12.276.3.2 Read()

```
std::istream & gdcm::network::ServiceClassApplicationInformation::Read (
            std::istream & is)
```

12.276.3.3 SetTuple()

```
void gdcm::network::ServiceClassApplicationInformation::SetTuple (
            uint8_t levelofsupport,
            uint8_t levelofdigitalsig,
            uint8_t elementcoercion)
```

12.276.3.4 Size()

```
size_t gdcm::network::ServiceClassApplicationInformation::Size () const
```

12.276.3.5 Write()

```
const std::ostream & gdcm::network::ServiceClassApplicationInformation::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

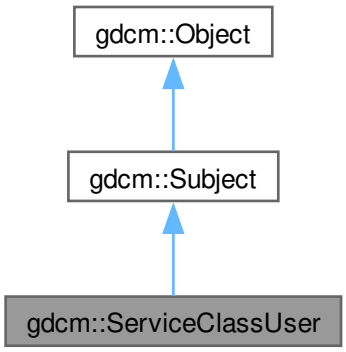
- gdcmServiceClassApplicationInformation.h

12.277 gdcm::ServiceClassUser Class Reference

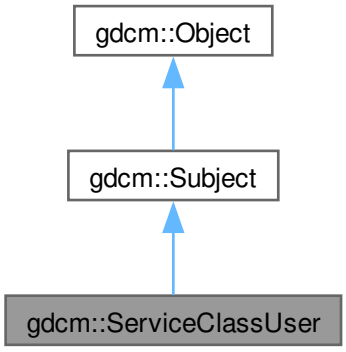
ServiceClassUser.

`#include <gdcmServiceClassUser.h>`

Inheritance diagram for gdcm::ServiceClassUser:



Collaboration diagram for gdcm::ServiceClassUser:



Public Member Functions

- ServiceClassUser ()
- ServiceClassUser (const ServiceClassUser &)=delete
- ~ServiceClassUser () override
- const char * GetAETitle () const
- const char * GetCalledAETitle () const
- double GetTimeout () const
- bool InitializeConnection ()
- bool IsPresentationContextAccepted (const PresentationContext &pc) const

  Return if the passed in presentation was accepted during association negotiation.
- void operator= (const ServiceClassUser &)=delete
- bool SendEcho ()

  C-ECHO.
- bool SendFind (const BaseRootQuery *query, std::vector< DataSet > &retDatasets)

  C-FIND a query, return result are in retDatasets.
- bool SendMove (const BaseRootQuery *query, const char *outputdir)

  Execute a C-MOVE, based on query, return files are written in outputdir.
- bool SendMove (const BaseRootQuery *query, std::vector< DataSet > &retDatasets)

  Execute a C-MOVE, based on query, returned dataset are Implicit.
- bool SendMove (const BaseRootQuery *query, std::vector< File > &retFile)

  Execute a C-MOVE, based on query, returned Files are stored in vector.
- bool SendStore (const char *filename)

  Execute a C-STORE on file on disk, named filename.
- bool SendStore (DataSet const &ds)

  Execute a C-STORE on a DataSet, the transfer syntax used will be Implicit.
- bool SendStore (File const &file)
- void SetAETitle (const char *aetitle)

  set calling ae title
- void SetCalledAETitle (const char *aetitle)

  set called ae title
- void SetHostname (const char *hostname)

  Set the name of the called hostname (hostname or IP address).
- void SetPort (uint16_t port)

  Set port of remote host (called application).
- void SetPortSCP (uint16_t portscp)

  Set the port for any incoming C-STORE-SCP operation (typically in a return of C-MOVE).
- void SetPresentationContexts (std::vector< PresentationContext > const &pcs)

  Set the Presentation Context used for the Association.
- void SetTimeout (double t)

  set/get Timeout
- bool StartAssociation ()

  Start the association. Need to call SetPresentationContexts before.
- bool StopAssociation ()

  Stop the running association.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< ServiceClassUser > New ()

  for wrapped language: instantiate a reference counted object

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.277.1 Detailed Description

ServiceClassUser.

Examples

CStoreQtProgress.cxx.

12.277.2 Constructor & Destructor Documentation

12.277.2.1 ServiceClassUser() [1/2]

```
gdcm::ServiceClassUser::ServiceClassUser ()
```

Construct a SCU with default:

- hostname = localhost
- port = 104

Referenced by ServiceClassUser(), New(), and operator=().

12.277.2.2 ~ServiceClassUser()

```
gdcm::ServiceClassUser::~ServiceClassUser ()  [override]
```

12.277.2.3 ServiceClassUser() [2/2]

```
gdcm::ServiceClassUser::ServiceClassUser (
            const ServiceClassUser & )  [delete]
```

References ServiceClassUser().

12.277.3 Member Function Documentation

12.277.3.1 GetAETitle()

```
const char * gdcm::ServiceClassUser::GetAETitle () const
```

12.277.3.2 GetCalledAETitle()

```
const char * gdcm::ServiceClassUser::GetCalledAETitle () const
```

12.277.3.3 GetTimeout()

```
double gdcm::ServiceClassUser::GetTimeout () const
```

12.277.3.4 InitializeConnection()

```
bool gdcm::ServiceClassUser::InitializeConnection ()
```

Will try to connect This will setup the actual timeout used during the whole connection time. Need to call SetTimeout first

Examples

CStoreQtProgress.cxx.

12.277.3.5 IsPresentationContextAccepted()

```
bool gdcm::ServiceClassUser::IsPresentationContextAccepted (
            const PresentationContext & pc) const
```

Return if the passed in presentation was accepted during association negotiation.

12.277.3.6 New()

```
SmartPointer< ServiceClassUser > gdcm::ServiceClassUser::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

References ServiceClassUser().

12.277.3.7 operator=()

```
void gdcm::ServiceClassUser::operator= (
            const ServiceClassUser & )  [delete]
```

References ServiceClassUser().

12.277.3.8 SendEcho()

```
bool gdcm::ServiceClassUser::SendEcho ()
```

C-ECHO.

12.277.3.9 SendFind()

```
bool gdcm::ServiceClassUser::SendFind (
            const BaseRootQuery * query,
            std::vector< DataSet > & retDatasets)
```

C-FIND a query, return result are in retDatasets.

12.277.3.10 SendMove() [1/3]

```
bool gdcm::ServiceClassUser::SendMove (
            const BaseRootQuery * query,
            const char * outputdir)
```

Execute a C-MOVE, based on query, return files are written in outputdir.

12.277.3.11 SendMove() [2/3]

```
bool gdcm::ServiceClassUser::SendMove (
            const BaseRootQuery * query,
            std::vector< DataSet > & retDatasets)
```

Execute a C-MOVE, based on query, returned dataset are Implicit.

12.277.3.12 SendMove() [3/3]

```
bool gdcm::ServiceClassUser::SendMove (
            const BaseRootQuery * query,
            std::vector< File > & retFile)
```

Execute a C-MOVE, based on query, returned Files are stored in vector.

12.277.3.13 SendStore() [1/3]

```
bool gdcm::ServiceClassUser::SendStore (
            const char * filename)
```

Execute a C-STORE on file on disk, named filename.

Examples

CStoreQtProgress.cxx.

12.277.3.14 SendStore() [2/3]

```
bool gdcm::ServiceClassUser::SendStore (
            DataSet const & ds)
```

Execute a C-STORE on a DataSet, the transfer syntax used will be Implicit.

12.277.3.15 SendStore() [3/3]

```
bool gdcm::ServiceClassUser::SendStore (
            File const & file)
```

Execute a C-STORE on a File, the transfer syntax used for the query is based on the file.

12.277.3.16 SetAETitle()

```
void gdcm::ServiceClassUser::SetAETitle (
            const char * aetitle)
```

set calling ae title

12.277.3.17 SetCalledAETitle()

```
void gdcm::ServiceClassUser::SetCalledAETitle (
            const char * aetitle)
```

set called ae title

Examples

CStoreQtProgress.cxx.

12.277.3.18 SetHostname()

```
void gdcm::ServiceClassUser::SetHostname (
            const char * hostname)
```

Set the name of the called hostname (hostname or IP address).

Examples

CStoreQtProgress.cxx.

12.277.3.19 SetPort()

```
void gdcm::ServiceClassUser::SetPort (
            uint16_t port)
```

Set port of remote host (called application).

Examples

CStoreQtProgress.cxx.

12.277.3.20 SetPortSCP()

```
void gdcm::ServiceClassUser::SetPortSCP (
            uint16_t portscp)
```

Set the port for any incoming C-STORE-SCP operation (typically in a return of C-MOVE).

12.277.3.21 SetPresentationContexts()

```
void gdcm::ServiceClassUser::SetPresentationContexts (
            std::vector< PresentationContext > const & pcs)
```

Set the Presentation Context used for the Association.

Examples

CStoreQtProgress.cxx.

12.277.3.22 SetTimeout()

```
void gdcm::ServiceClassUser::SetTimeout (
            double t)
```

set/get Timeout

Examples

CStoreQtProgress.cxx.

12.277.3.23 StartAssociation()

```
bool gdcm::ServiceClassUser::StartAssociation ()
```

Start the association. Need to call SetPresentationContexts before.

Examples

CStoreQtProgress.cxx.

12.277.3.24 StopAssociation()

```
bool gdcm::ServiceClassUser::StopAssociation ()
```

Stop the running association.

Examples

CStoreQtProgress.cxx.

The documentation for this class was generated from the following file:

- gdcmServiceClassUser.h

12.278 gdcm::SHA1 Class Reference

Class for SHA1.

```
#include <gdcmSHA1.h>
```

Public Member Functions

- SHA1 ()
- SHA1 (const SHA1 &)=delete
- ~SHA1 ()
- void operator= (const SHA1 &)=delete

Static Public Member Functions

- static bool Compute (const char *buffer, unsigned long buf_len, char digest_str[20 *2+1])
- static bool ComputeFile (const char *filename, char digest_str[20 *2+1])

12.278.1 Detailed Description

Class for SHA1.

Warning

this class is able to pick from one implementation:

1. the one from OpenSSL (when GDCM_USE_SYSTEM_OPENSSL is turned ON)

In all other cases it will return an error

12.278.2 Constructor & Destructor Documentation

12.278.2.1 SHA1() [1/2]

```
gdcm::SHA1::SHA1 ()
```

Referenced by SHA1(), and operator=().

12.278.2.2 ~SHA1()

```
gdcm::SHA1::~SHA1 ()
```

12.278.2.3 SHA1() [2/2]

```
gdcm::SHA1::SHA1 (
            const SHA1 & )  [delete]
```

References SHA1().

12.278.3 Member Function Documentation

12.278.3.1 Compute()

```
bool gdcm::SHA1::Compute (
            const char * buffer,
            unsigned long buf_len,
            char digest_str[20 *2+1])  [static]
```

12.278.3.2 ComputeFile()

```
bool gdcm::SHA1::ComputeFile (
            const char * filename,
            char digest_str[20 *2+1])  [static]
```

12.278.3.3 operator=()

```
void gdcm::SHA1::operator= (
            const SHA1 & )  [delete]
```

References SHA1().

The documentation for this class was generated from the following file:

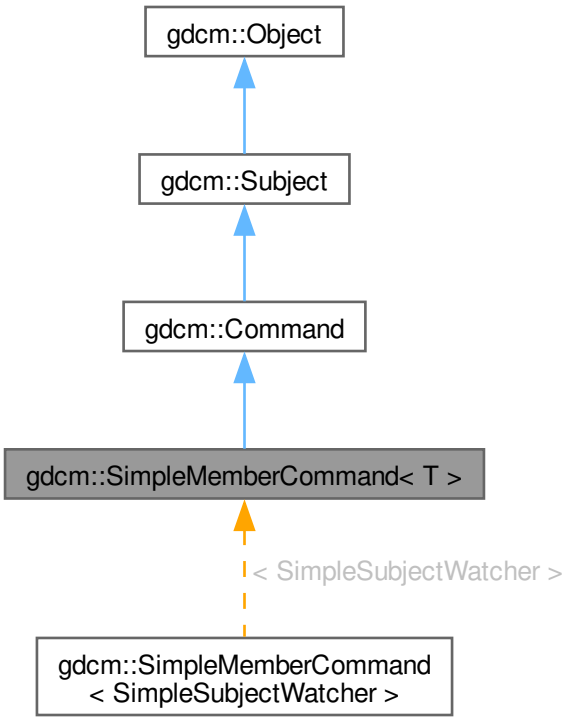
- gdcmSHA1.h

12.279 gdcm::SimpleMemberCommand< T > Class Template Reference

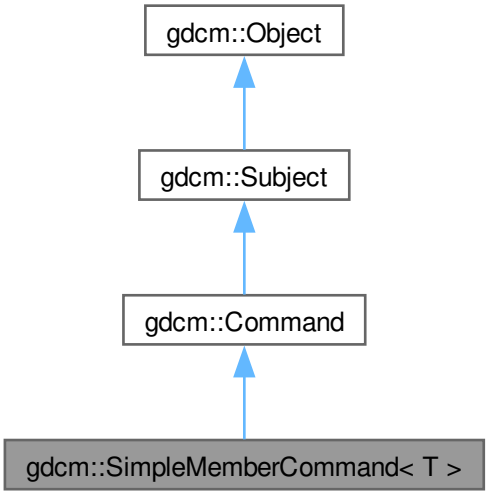
Command subclass that calls a pointer to a member function.

`#include <gdcmCommand.h>`

Inheritance diagram for gdcm::SimpleMemberCommand< T >:



Collaboration diagram for gdcm::SimpleMemberCommand< T >:



Public Types

- typedef SimpleMemberCommand Self
- typedef void(T::* TMemberFunctionPointer) ()

Public Member Functions

- SimpleMemberCommand (const Self &)=delete
- void Execute (const Subject *, const Event &) override
- void Execute (Subject *, const Event &) override
- void operator= (const Self &)=delete
- void SetCallbackFunction (T *object, TMemberFunctionPointer memberFunction)

Public Member Functions inherited from gdcm::Command

- Command (const Command &)=delete
- void operator= (const Command &)=delete

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< SimpleMemberCommand > New ()

Protected Member Functions

- SimpleMemberCommand ()
- ~SimpleMemberCommand () override=default

Protected Member Functions inherited from gdcm::Command

- Command ()
- ~Command () override

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- TMemberFunctionPointer m_MemberFunction
- T * m_This

12.279.1 Detailed Description

template<typename T>
class gdcm::SimpleMemberCommand< T >

Command subclass that calls a pointer to a member function.

SimpleMemberCommand calls a pointer to a member function with no arguments.

12.279.2 Member Typedef Documentation

12.279.2.1 Self

```
template<typename T>
typedef SimpleMemberCommand gdcm::SimpleMemberCommand< T >::Self
```

Standard class typedefs.

12.279.2.2 TMemberFunctionPointer

```
template<typename T>
typedef void(T::* gdcm::SimpleMemberCommand< T >::TMemberFunctionPointer) ()
```

A method callback.

12.279.3 Constructor & Destructor Documentation

12.279.3.1 SimpleMemberCommand() [1/2]

```
template<typename T>
gdcm::SimpleMemberCommand< T >::SimpleMemberCommand (
            const Self & )  [delete]
```

12.279.3.2 SimpleMemberCommand() [2/2]

```
template<typename T>
gdcm::SimpleMemberCommand< T >::SimpleMemberCommand ()  [inline], [protected]
```

12.279.3.3 ~SimpleMemberCommand()

```
template<typename T>
gdcm::SimpleMemberCommand< T >::~SimpleMemberCommand ()  [override], [protected], [default]
```

12.279.4 Member Function Documentation

12.279.4.1 Execute() [1/2]

```
template<typename T>
void gdcm::SimpleMemberCommand< T >::Execute (
            const Subject * caller,
            const Event & event)  [inline], [override], [virtual]
```

Abstract method that defines the action to be taken by the command. This variant is expected to be used when requests comes from a const Object

Implements gdcm::Command.

12.279.4.2 Execute() [2/2]

```
template<typename T>
void gdcm::SimpleMemberCommand< T >::Execute (
            Subject * ,
            const Event & )  [inline], [override], [virtual]
```

Invoke the callback function.

Implements gdcm::Command.

12.279.4.3 New()

```
template<typename T>
SmartPointer< SimpleMemberCommand > gdcm::SimpleMemberCommand< T >::New ()  [inline], [static]
```

Run-time type information (and related methods). Method for creation through the object factory.

12.279.4.4 operator=()

```
template<typename T>
void gdcm::SimpleMemberCommand< T >::operator= (
            const Self & )  [delete]
```

12.279.4.5 SetCallbackFunction()

```
template<typename T>
void gdcm::SimpleMemberCommand< T >::SetCallbackFunction (
            T * object,
            TMemberFunctionPointer memberFunction)  [inline]
```

Specify the callback function.

12.279.5 Member Data Documentation

12.279.5.1 m_MemberFunction

```
template<typename T>
TMemberFunctionPointer gdcm::SimpleMemberCommand< T >::m_MemberFunction  [protected]
```

12.279.5.2 m_This

```
template<typename T>
T* gdcm::SimpleMemberCommand< T >::m_This  [protected]
```

The documentation for this class was generated from the following file:

- gdcmCommand.h

12.280 gdcm::SimpleSubjectWatcher Class Reference

SimpleSubjectWatcher.

```
#include <gdcmSimpleSubjectWatcher.h>
```

Public Member Functions

- SimpleSubjectWatcher (const SimpleSubjectWatcher &)=delete
- SimpleSubjectWatcher (Subject ∗s, const char ∗comment="")
- virtual ∼SimpleSubjectWatcher ()
- void operator= (const SimpleSubjectWatcher &)=delete

Protected Member Functions

- virtual void EndFilter ()
- virtual void ShowAbort ()
- virtual void ShowAnonymization (Subject ∗caller, const Event &evt)
- virtual void ShowData (Subject ∗caller, const Event &evt)
- virtual void ShowDataSet (Subject ∗caller, const Event &evt)
- virtual void ShowFileName (Subject ∗caller, const Event &evt)
- virtual void ShowIteration ()
- virtual void ShowProgress (Subject ∗caller, const Event &evt)
- virtual void StartFilter ()
- void TestAbortOff ()
- void TestAbortOn ()

12.280.1 Detailed Description

SimpleSubjectWatcher.

This is a typical Subject Watcher class. It will observe all events.

Examples

BasicAnonymizer.cs, CStoreQtProgress.cxx, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, FileChangeTS.cs, FileChangeTSLossy.cs, ScanDirectory.cs, and SimpleScanner.cxx.

12.280.2 Constructor & Destructor Documentation

12.280.2.1 SimpleSubjectWatcher() [1/2]

```
gdcm::SimpleSubjectWatcher::SimpleSubjectWatcher (
            Subject * s,
            const char * comment = "")
```

Referenced by SimpleSubjectWatcher(), and operator=().

12.280.2.2 ~SimpleSubjectWatcher()

```
virtual gdcm::SimpleSubjectWatcher::~SimpleSubjectWatcher ()  [virtual]
```

12.280.2.3 SimpleSubjectWatcher() [2/2]

```
gdcm::SimpleSubjectWatcher::SimpleSubjectWatcher (
            const SimpleSubjectWatcher & )  [delete]
```

References SimpleSubjectWatcher().

12.280.3 Member Function Documentation

12.280.3.1 EndFilter()

```
virtual void gdcm::SimpleSubjectWatcher::EndFilter ()  [protected], [virtual]
```

12.280.3.2 operator=()

```
void gdcm::SimpleSubjectWatcher::operator= (
            const SimpleSubjectWatcher & )  [delete]
```

References SimpleSubjectWatcher().

12.280.3.3 ShowAbort()

```
virtual void gdcm::SimpleSubjectWatcher::ShowAbort ()  [protected], [virtual]
```

12.280.3.4 ShowAnonymization()

```
virtual void gdcm::SimpleSubjectWatcher::ShowAnonymization (
            Subject * caller,
            const Event & evt)  [protected], [virtual]
```

12.280.3.5 ShowData()

```
virtual void gdcm::SimpleSubjectWatcher::ShowData (
            Subject * caller,
            const Event & evt)  [protected], [virtual]
```

12.280.3.6 ShowDataSet()

```
virtual void gdcm::SimpleSubjectWatcher::ShowDataSet (
            Subject * caller,
            const Event & evt)  [protected], [virtual]
```

12.280.3.7 ShowFileName()

```
virtual void gdcm::SimpleSubjectWatcher::ShowFileName (
            Subject * caller,
            const Event & evt)  [protected], [virtual]
```

Examples

SimpleScanner.cxx.

12.280.3.8 ShowIteration()

```
virtual void gdcm::SimpleSubjectWatcher::ShowIteration ()  [protected], [virtual]
```

12.280.3.9 ShowProgress()

```
virtual void gdcm::SimpleSubjectWatcher::ShowProgress (
            Subject * caller,
            const Event & evt)  [protected], [virtual]
```

12.280.3.10 StartFilter()

```
virtual void gdcm::SimpleSubjectWatcher::StartFilter ()  [protected], [virtual]
```

12.280.3.11 TestAbortOff()

```
void gdcm::SimpleSubjectWatcher::TestAbortOff ()  [protected]
```

12.280.3.12 TestAbortOn()

```
void gdcm::SimpleSubjectWatcher::TestAbortOn ()  [protected]
```

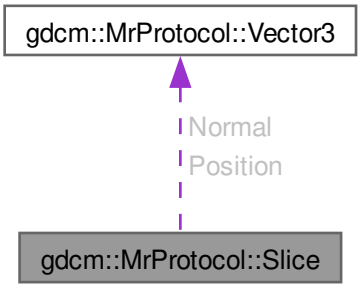
The documentation for this class was generated from the following file:

- gdcmSimpleSubjectWatcher.h

12.281 gdcm::MrProtocol::Slice Struct Reference

```
#include <gdcmMrProtocol.h>
```

Collaboration diagram for gdcm::MrProtocol::Slice:



Public Attributes

- Vector3 Normal
- Vector3 Position

12.281.1 Member Data Documentation

12.281.1.1 Normal

```
Vector3 gdcm::MrProtocol::Slice::Normal
```

12.281.1.2 Position

```
Vector3 gdcm::MrProtocol::Slice::Position
```

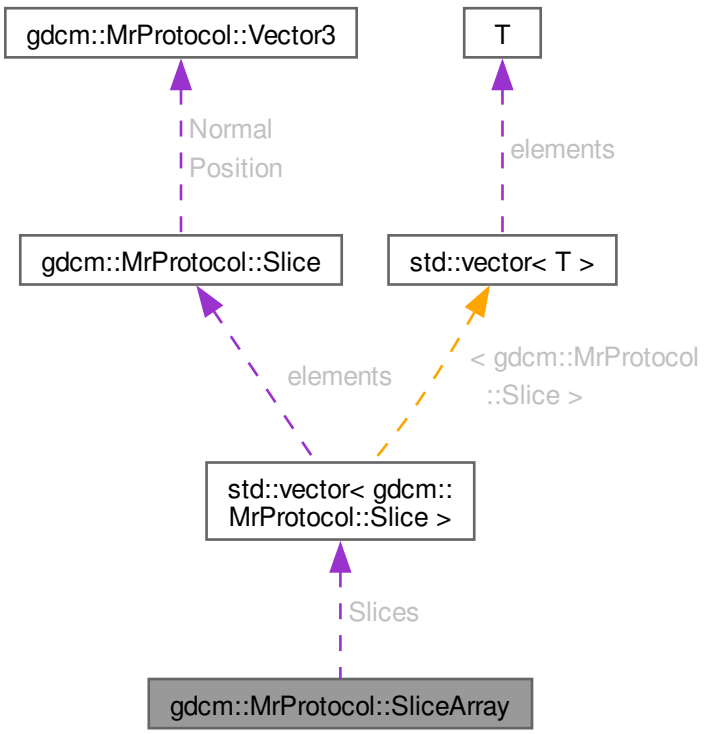
The documentation for this struct was generated from the following file:

- gdcmMrProtocol.h

12.282 gdcm::MrProtocol::SliceArray Struct Reference

```
#include <gdcmMrProtocol.h>
```

Collaboration diagram for gdcm::MrProtocol::SliceArray:



Public Attributes

- std::vector< Slice > Slices

12.282.1 Member Data Documentation

12.282.1.1 Slices

`std::vector< Slice > gdcm::MrProtocol::SliceArray::Slices`

The documentation for this struct was generated from the following file:

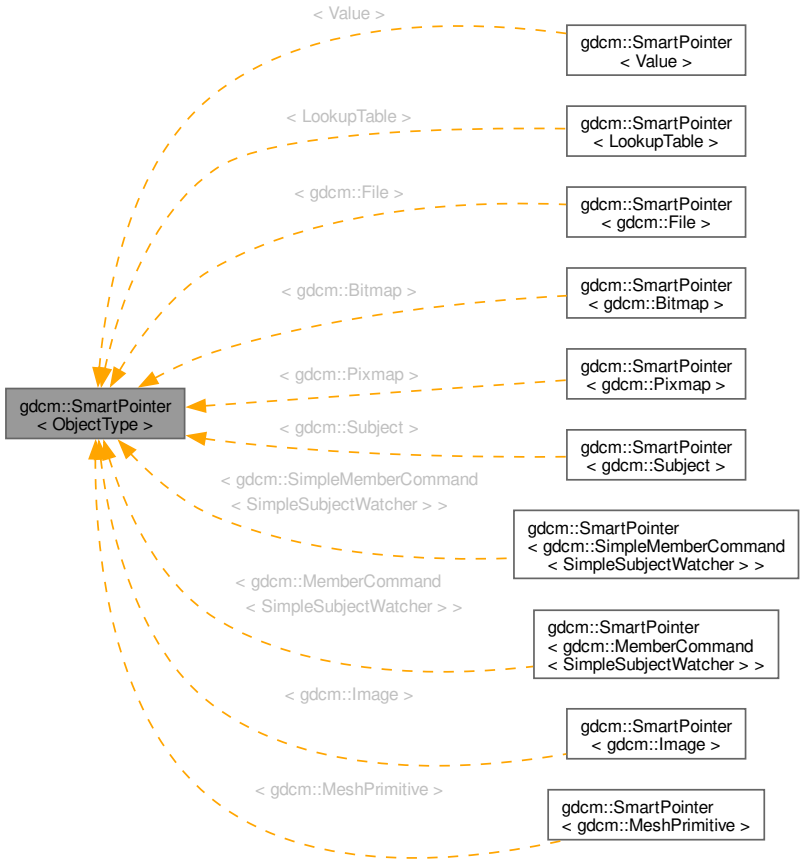
- gdcmMrProtocol.h

12.283 gdcm::SmartPointer< ObjectType > Class Template Reference

Class for Smart Pointer.

`#include <gdcmSmartPointer.h>`

Inheritance diagram for gdcm::SmartPointer< ObjectType >:



Public Member Functions

- SmartPointer ()
- SmartPointer (const SmartPointer< ObjectType > &p)
- SmartPointer (ObjectType *p)
- SmartPointer (ObjectType const &p)
- ~SmartPointer ()
- ObjectType * GetPointer () const

  Explicit function to retrieve the pointer.
- operator ObjectType * () const

  Return pointer to object.
- ObjectType & operator* () const
- ObjectType * operator-> () const

  Overload operator ->.
- SmartPointer & operator= (ObjectType *r)

  Overload operator assignment.
- SmartPointer & operator= (ObjectType const &r)
- SmartPointer & operator= (SmartPointer const &r)

  Overload operator assignment.

12.283.1 Detailed Description

template<class ObjectType>
class gdcm::SmartPointer< ObjectType >

Class for Smart Pointer.

Will only work for subclass of gdcm::Object See tr1/shared_ptr for a more general approach (not invasive) #include <tr1/memory> { shared_ptr<Bla> b(new Bla); }

Note

Class partly based on post by Bill Hubauer: `http://groups.google.com/group/comp.lang.c++/msg/173ddc38a827a930`

See also

`http://www.davethehat.com/articles/smartp.htm`

and itk::SmartPointer

Examples

CStoreQtProgress.cxx, ChangeSequenceUltrasound.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_ FixBrokenJ2K.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, ReadAndDumpDICOMDIR.cxx, ReadExplicitLengthSQIVR.cxx, SimpleScanner.cxx, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.283.2 Constructor & Destructor Documentation

12.283.2.1 SmartPointer() [1/4]

```
template<class ObjectType>
gdcm::SmartPointer< ObjectType >::SmartPointer ()  [inline]
```

12.283.2.2 SmartPointer() [2/4]

```
template<class ObjectType>
gdcm::SmartPointer< ObjectType >::SmartPointer (
            const SmartPointer< ObjectType > & p)  [inline]
```

12.283.2.3 SmartPointer() [3/4]

```
template<class ObjectType>
gdcm::SmartPointer< ObjectType >::SmartPointer (
            ObjectType * p)  [inline]
```

12.283.2.4 SmartPointer() [4/4]

```
template<class ObjectType>
gdcm::SmartPointer< ObjectType >::SmartPointer (
            ObjectType const & p)  [inline]
```

12.283.2.5 ~SmartPointer()

```
template<class ObjectType>
gdcm::SmartPointer< ObjectType >::~SmartPointer ()  [inline]
```

12.283.3 Member Function Documentation

12.283.3.1 GetPointer()

```
template<class ObjectType>
ObjectType * gdcm::SmartPointer< ObjectType >::GetPointer () const  [inline]
```

Explicit function to retrieve the pointer.

12.283.3.2 operator ObjectType *()

```
template<class ObjectType>
gdcm::SmartPointer< ObjectType >::operator ObjectType * () const  [inline]
```

Return pointer to object.

12.283.3.3 operator*()

```
template<class ObjectType>
ObjectType & gdcm::SmartPointer< ObjectType >::operator* () const  [inline]
```

12.283.3.4 operator->()

```
template<class ObjectType>
ObjectType * gdcm::SmartPointer< ObjectType >::operator-> () const  [inline]
```

Overload operator ->.

12.283.3.5 operator=() [1/3]

```
template<class ObjectType>
SmartPointer & gdcm::SmartPointer< ObjectType >::operator= (
            ObjectType * r)  [inline]
```

Overload operator assignment.

12.283.3.6 operator=() [2/3]

```
template<class ObjectType>
SmartPointer & gdcm::SmartPointer< ObjectType >::operator= (
            ObjectType const & r)  [inline]
```

12.283.3.7 operator=() [3/3]

```
template<class ObjectType>
SmartPointer & gdcm::SmartPointer< ObjectType >::operator= (
            SmartPointer< ObjectType > const & r)  [inline]
```

Overload operator assignment.

Referenced by gdcm::SmartPointer< Value >::operator=(), and gdcm::SmartPointer< Value >::operator=().

The documentation for this class was generated from the following files:

- gdcmObject.h
- gdcmSmartPointer.h

12.284 gdcm::network::SOPClassExtendedNegociationSub Class Reference

SOPClassExtendedNegociationSub.

```
#include <gdcmSOPClassExtendedNegociationSub.h>
```

Public Member Functions

- SOPClassExtendedNegociationSub ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetTuple (const char *uid, uint8_t levelofsupport=3, uint8_t levelofdigitalsig=0, uint8_t elementcoercion=2)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.284.1 Detailed Description

SOPClassExtendedNegociationSub.

PS 3.7 Table D.3-11 SOP CLASS EXTENDED NEGOTIATION SUB-ITEM FIELDS (A-ASSOCIATE-RQ and A-↩ ASSOCIATE-AC)

12.284.2 Constructor & Destructor Documentation

12.284.2.1 SOPClassExtendedNegociationSub()

```
gdcm::network::SOPClassExtendedNegociationSub::SOPClassExtendedNegociationSub ()
```

12.284.3 Member Function Documentation

12.284.3.1 Print()

```
void gdcm::network::SOPClassExtendedNegociationSub::Print (
            std::ostream & os) const
```

12.284.3.2 Read()

```
std::istream & gdcm::network::SOPClassExtendedNegociationSub::Read (
            std::istream & is)
```

12.284.3.3 SetTuple()

```
void gdcm::network::SOPClassExtendedNegociationSub::SetTuple (
            const char * uid,
            uint8_t levelofsupport = 3,
            uint8_t levelofdigitalsig = 0,
            uint8_t elementcoercion = 2)
```

12.284.3.4 Size()

```
size_t gdcm::network::SOPClassExtendedNegociationSub::Size () const
```

12.284.3.5 Write()

```
const std::ostream & gdcm::network::SOPClassExtendedNegociationSub::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

- gdcmSOPClassExtendedNegociationSub.h

12.285 gdcm::SOPClassUIDToIOD Class Reference

Class convert a class SOP Class UID into IOD.

```
#include <gdcmSOPClassUIDToIOD.h>
```

Public Types

- typedef const char * const(SOPClassUIDToIODType)[2]

Static Public Member Functions

- static const char * GetIOD (UIDs const &uid)
- static const char * GetIODFromSOPClassUID (const char *sopclassuid)
- static unsigned int GetNumberOfSOPClassToIOD ()

  Return the number of SOP Class UID listed internally.
- static const char * GetSOPClassUIDFromIOD (const char *iod)
- static SOPClassUIDToIODType & GetSOPClassUIDToIOD (unsigned int i)
- static SOPClassUIDToIODType * GetSOPClassUIDToIODs ()

12.285.1 Detailed Description

Class convert a class SOP Class UID into IOD.

Reference PS 3.4 Table B.5-1 STANDARD SOP CLASSES

12.285.2 Member Typedef Documentation

12.285.2.1 const

```
typedef const char * gdcm::SOPClassUIDToIOD::const(SOPClassUIDToIODType)[2]
```

12.285.3 Member Function Documentation

12.285.3.1 GetIOD()

```
const char * gdcm::SOPClassUIDToIOD::GetIOD (
            UIDs const & uid)  [static]
```

Return the associated IOD based on a SOP Class UID uid (there is a one-to-one mapping from SOP Class UID to matching IOD)

Examples

GenerateStandardSOPClasses.cxx.

12.285.3.2 GetIODFromSOPClassUID()

```
const char * gdcm::SOPClassUIDToIOD::GetIODFromSOPClassUID (
            const char * sopclassuid)  [static]
```

12.285.3.3 GetNumberOfSOPClassToIOD()

```
unsigned int gdcm::SOPClassUIDToIOD::GetNumberOfSOPClassToIOD ()  [static]
```

Return the number of SOP Class UID listed internally.

12.285.3.4 GetSOPClassUIDFromIOD()

```
const char * gdcm::SOPClassUIDToIOD::GetSOPClassUIDFromIOD (
            const char * iod)  [static]
```

12.285.3.5 GetSOPClassUIDToIOD()

```
SOPClassUIDToIODType & gdcm::SOPClassUIDToIOD::GetSOPClassUIDToIOD (
            unsigned int i)  [static]
```

12.285.3.6 GetSOPClassUIDToIODs()

```
SOPClassUIDToIODType * gdcm::SOPClassUIDToIOD::GetSOPClassUIDToIODs ()  [static]
```

The documentation for this class was generated from the following file:

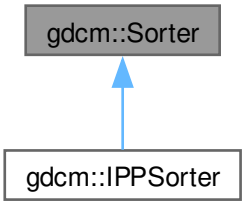
- gdcmSOPClassUIDToIOD.h

12.286 gdcm::Sorter Class Reference

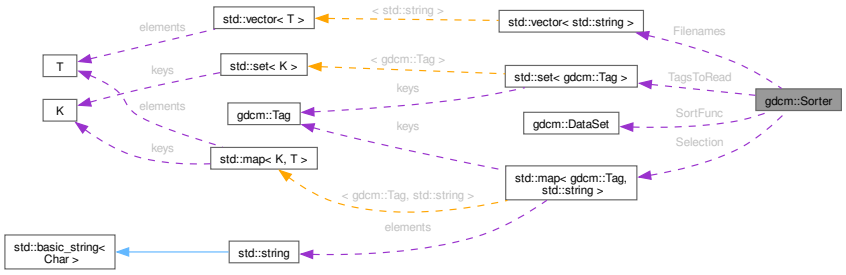
Sorter.

```
#include <gdcmSorter.h>
```

Inheritance diagram for gdcm::Sorter:



Collaboration diagram for gdcm::Sorter:



Public Types

- typedef bool(∗ SortFunction) (DataSet const &, DataSet const &)

  Set the sort function which compares one dataset to the other.

Public Member Functions

- Sorter ()
- virtual ∼Sorter ()
- bool AddSelect (Tag const &tag, const char ∗value)

  UNSUPPORTED FOR NOW.
- const std::vector< std::string > & GetFilenames () const
- void Print (std::ostream &os) const

  Print.
- void SetSortFunction (SortFunction f)
- void SetTagsToRead (std::set< Tag > const &tags)
- virtual bool Sort (std::vector< std::string > const &filenames)

  Typically the output of Directory::GetFilenames().
- virtual bool StableSort (std::vector< std::string > const &filenames)

Protected Types

- typedef std::map< Tag, std::string > SelectionMap

Protected Attributes

- std::vector< std::string > Filenames
- std::map< Tag, std::string > Selection
- SortFunction SortFunc
- std::set< Tag > TagsToRead

Friends

- std::ostream & operator<< (std::ostream &_os, const Sorter &s)

12.286.1 Detailed Description

Sorter.

General class to do sorting using a custom function You simply need to provide a function of type: Sorter::SortFunction

Warning

implementation details. For now there is no cache mechanism. Which means that every time you call Sort, all files specified as input parameter are *read*

See also

Scanner

Examples

SortImage.cxx, SortImage2.cs, and VolumeSorter.cxx.

12.286.2 Member Typedef Documentation

12.286.2.1 SelectionMap

```
typedef std::map<Tag,std::string> gdcm::Sorter::SelectionMap  [protected]
```

12.286.2.2 SortFunction

```
typedef bool(* gdcm::Sorter::SortFunction) (DataSet const &, DataSet const &)
```

Set the sort function which compares one dataset to the other.

12.286.3 Constructor & Destructor Documentation

12.286.3.1 Sorter()

```
gdcm::Sorter::Sorter ()
```

Referenced by operator<<.

12.286.3.2 ~Sorter()

```
virtual gdcm::Sorter::~Sorter ()  [virtual]
```

12.286.4 Member Function Documentation

12.286.4.1 AddSelect()

```
bool gdcm::Sorter::AddSelect (
            Tag const & tag,
            const char * value)
```

UNSUPPORTED FOR NOW.

12.286.4.2 GetFilenames()

```
const std::vector< std::string > & gdcm::Sorter::GetFilenames () const  [inline]
```

Return the list of filenames as sorted by the specific algorithm used. Empty by default (before Sort() is called)

Examples

Compute3DSpacing.cxx, SortImage.cxx, VolumeSorter.cxx, gdcmorthoplanes.cxx, and reslicesphere.cxx.

References Filenames.

12.286.4.3 Print()

```
void gdcm::Sorter::Print (
            std::ostream & os) const
```

Print.

Examples

SortImage.cxx, VolumeSorter.cxx, and gdcmorthoplanes.cxx.

Referenced by operator<<.

12.286.4.4 SetSortFunction()

```
void gdcm::Sorter::SetSortFunction (
            SortFunction f)
```

Examples

SortImage.cxx, SortImage2.cs, and VolumeSorter.cxx.

12.286.4.5 SetTagsToRead()

```
void gdcm::Sorter::SetTagsToRead (
            std::set< Tag > const & tags)
```

Specify a set of tags to be read in during the sort procedure. By default this set is empty, in which case the entire image, including pixel data, is read in.

12.286.4.6 Sort()

```
virtual bool gdcm::Sorter::Sort (
            std::vector< std::string > const & filenames)  [virtual]
```

Typically the output of Directory::GetFilenames().

Reimplemented in gdcm::IPPSorter.

Examples

SortImage.cxx.

12.286.4.7 StableSort()

```
virtual bool gdcm::Sorter::StableSort (
            std::vector< std::string > const & filenames)  [virtual]
```

Examples

SortImage.cxx, and VolumeSorter.cxx.

12.286.5 Friends And Related Symbol Documentation

12.286.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Sorter & s)  [friend]
```

References Sorter(), and Print().

12.286.6 Member Data Documentation

12.286.6.1 Filenames

```
std::vector<std::string> gdcm::Sorter::Filenames  [protected]
```

Referenced by GetFilenames().

12.286.6.2 Selection

```
std::map<Tag,std::string> gdcm::Sorter::Selection  [protected]
```

12.286.6.3 SortFunc

```
SortFunction gdcm::Sorter::SortFunc  [protected]
```

12.286.6.4 TagsToRead

```
std::set<Tag> gdcm::Sorter::TagsToRead  [protected]
```

The documentation for this class was generated from the following file:

- gdcmSorter.h

12.287 gdcm::Spacing Class Reference

Class for Spacing.

`#include <gdcmSpacing.h>`

Public Types

- enum SpacingType {
  DETECTOR = 0 ,
  MAGNIFIED ,
  CALIBRATED ,
  UNKNOWN }

Public Member Functions

- Spacing ()
- ~Spacing ()=default

Static Public Member Functions

- static Attribute< 0x28, 0x34 > ComputePixelAspectRatioFromPixelSpacing (const Attribute< 0x28, 0x30 > &pixelspacing)

12.287.1 Detailed Description

Class for Spacing.

It all began with a mail to WG6:

Subject: Imager Pixel Spacing vs Pixel Spacing Body: [Apologies for the duplicate post, namely to David Clunie & OFFIS team]

I have been trying to understand CP-586 in the following two cases:

On the one hand:

- DISCIMG/IMAGES/CRIMAGE taken from `http://dclunie.com/images/pixelspacingtestimages.zip`

And on the other hand:

- `http://gdcm.sourceforge.net/thingies/cr_pixelspacing.dcm`

If I understand correctly the CP, one is required to use Pixel Spacing for measurement ('true size' print) instead of Imager Pixel Spacing, since the two attributes are present and Pixel Spacing is different from Imager Pixel Spacing.

If this is correct, then the test data DISCIMG/IMAGES/CRIMAGE is incorrect. If this is incorrect (ie. I need to use Imager Pixel Spacing), then the display of cr_pixelspacing.dcm for measurement will be incorrect.

Could someone please let me know what am I missing here? I could not find any information in any header that would allow me to differentiate those.

Thank you for your time,

Ref: `http://lists.nema.org/scripts/lyris.pl?sub=488573&id=400720477`

See PS 3.3-2008, Table C.7-11b IMAGE PIXEL MACRO ATTRIBUTES

Ratio of the vertical size and horizontal size of the pixels in the image specified by a pair of integer values where the first value is the vertical pixel size, and the second value is the horizontal pixel size. Required if the aspect ratio values do not have a ratio of 1:1 and the physical pixel spacing is not specified by Pixel Spacing (0028,0030), or Imager Pixel Spacing (0018,1164) or Nominal Scanned Pixel Spacing (0018,2010), either for the entire Image or per-frame in a Functional Group Macro. See C.7.6.3.1.7.

PS 3.3-2008 10.7.1.3 Pixel Spacing Value Order and Valid Values All pixel spacing related attributes shall have non-zero values, except when there is only a single row or column or pixel of data present, in which case the corresponding value may be zero.

Ref: `http://gdcm.sourceforge.net/wiki/index.php/Imager_Pixel_Spacing`

12.287.2 Member Enumeration Documentation

12.287.2.1 SpacingType

`enum gdcm::Spacing::SpacingType`

Enumerator

DETECTOR	
MAGNIFIED	
CALIBRATED	
UNKNOWN	

12.287.3 Constructor & Destructor Documentation

12.287.3.1 Spacing()

`gdcm::Spacing::Spacing ()`

12.287.3.2 ~Spacing()

```
gdcm::Spacing::~Spacing ()  [default]
```

12.287.4 Member Function Documentation

12.287.4.1 ComputePixelAspectRatioFromPixelSpacing()

```
Attribute< 0x28, 0x34 > gdcm::Spacing::ComputePixelAspectRatioFromPixelSpacing (
            const Attribute< 0x28, 0x30 > & pixelspacing)  [static]
```

The documentation for this class was generated from the following file:

- gdcmSpacing.h

12.288 gdcm::Spectroscopy Class Reference

Spectroscopy class.

```
#include <gdcmSpectroscopy.h>
```

Public Member Functions

- Spectroscopy ()=default

12.288.1 Detailed Description

Spectroscopy class.

12.288.2 Constructor & Destructor Documentation

12.288.2.1 Spectroscopy()

```
gdcm::Spectroscopy::Spectroscopy ()  [default]
```

The documentation for this class was generated from the following file:

- gdcmSpectroscopy.h

12.289 gdcm::SplitMosaicFilter Class Reference

SplitMosaicFilter class.

`#include <gdcmSplitMosaicFilter.h>`

Public Member Functions

- SplitMosaicFilter ()
- ~SplitMosaicFilter ()
- bool ComputeMOSAICDimensions (unsigned int dims[3])
- bool ComputeMOSAICImagePositionPatient (double pos[3], const double ipp[6], const double dircos[6], const double pixelspacing[3], const unsigned int image_dims[3], const unsigned int mosaic_dims[3], bool inverted)

  Extract the value for ImagePositionPatient.
- bool ComputeMOSAICSliceNormal (double dims[3], bool &inverted)

  Extract the value for SliceNormalVector (CSA header).
- bool ComputeMOSAICSlicePosition (double pos[3], bool inverted)
- File & GetFile ()
- const File & GetFile () const
- Image & GetImage ()
- const Image & GetImage () const
- void SetFile (const File &f)
- void SetImage (const Image &image)
- bool Split ()

  Split the SIEMENS MOSAIC image.

Static Public Member Functions

- static bool GetAcquisitionSize (unsigned int size[2], DataSet const &ds)

  Get the Acquisition Matrix (non zero value):
- static unsigned int GetNumberOfImagesInMosaic (File const &file)

  Return the value for NumberOfImagesInMosaic, or compute it from Acquisition Size.

12.289.1 Detailed Description

SplitMosaicFilter class.

Class to reshuffle bytes for a SIEMENS Mosaic image Siemens CSA Image Header CSA:= Common Siemens Architecture, sometimes also known as Common syngo Architecture

Warning

when private attributes are not found, the acquisition matrix is used to compute the NumberOfImagesInMosaic. This means trailing black slices will be considered in the volume (instead of discarded). CSA 0029,1010 is needed for correct NumberOfImagesInMosaic CSA 0029,1020 is needed to compute the correct origin without above info default are taken (may not be accurate).

12.289.2 Constructor & Destructor Documentation

12.289.2.1 SplitMosaicFilter()

```
gdcm::SplitMosaicFilter::SplitMosaicFilter ()
```

12.289.2.2 ~SplitMosaicFilter()

```
gdcm::SplitMosaicFilter::~SplitMosaicFilter ()
```

12.289.3 Member Function Documentation

12.289.3.1 ComputeMOSAICDimensions()

```
bool gdcm::SplitMosaicFilter::ComputeMOSAICDimensions (
            unsigned int dims[3])
```

Compute the new dimensions according to private information stored in the MOSAIC header.

12.289.3.2 ComputeMOSAICImagePositionPatient()

```
bool gdcm::SplitMosaicFilter::ComputeMOSAICImagePositionPatient (
            double pos[3],
            const double ipp[6],
            const double dircos[6],
            const double pixelspacing[3],
            const unsigned int image_dims[3],
            const unsigned int mosaic_dims[3],
            bool inverted)
```

Extract the value for ImagePositionPatient.

12.289.3.3 ComputeMOSAICSliceNormal()

```
bool gdcm::SplitMosaicFilter::ComputeMOSAICSliceNormal (
            double dims[3],
            bool & inverted)
```

Extract the value for SliceNormalVector (CSA header).

12.289.3.4 ComputeMOSAICSlicePosition()

```
bool gdcm::SplitMosaicFilter::ComputeMOSAICSlicePosition (
            double pos[3],
            bool inverted)
```

Extract the value for ImagePositionPatient (requires inverted flag) Deprecated

12.289.3.5 GetAcquisitionSize()

```
bool gdcm::SplitMosaicFilter::GetAcquisitionSize (
            unsigned int size[2],
            DataSet const & ds)  [static]
```

Get the Acquisition Matrix (non zero value):

12.289.3.6 GetFile() [1/2]

```
File & gdcm::SplitMosaicFilter::GetFile ()  [inline]
```

12.289.3.7 GetFile() [2/2]

```
const File & gdcm::SplitMosaicFilter::GetFile () const  [inline]
```

12.289.3.8 GetImage() [1/2]

```
Image & gdcm::SplitMosaicFilter::GetImage ()  [inline]
```

12.289.3.9 GetImage() [2/2]

```
const Image & gdcm::SplitMosaicFilter::GetImage () const  [inline]
```

12.289.3.10 GetNumberOfImagesInMosaic()

```
unsigned int gdcm::SplitMosaicFilter::GetNumberOfImagesInMosaic (
            File const & file)  [static]
```

Return the value for NumberOfImagesInMosaic, or compute it from Acquisition Size.

12.289.3.11 SetFile()

```
void gdcm::SplitMosaicFilter::SetFile (
            const File & f)  [inline]
```

12.289.3.12 SetImage()

```
void gdcm::SplitMosaicFilter::SetImage (
            const Image & image)
```

12.289.3.13 Split()

```
bool gdcm::SplitMosaicFilter::Split ()
```

Split the SIEMENS MOSAIC image.

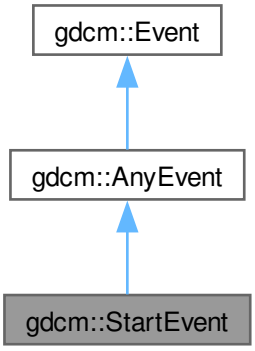
The documentation for this class was generated from the following file:

- gdcmSplitMosaicFilter.h

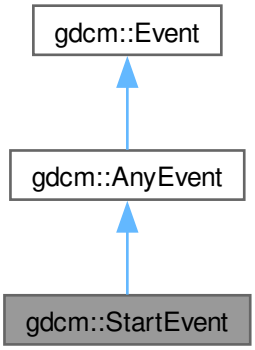
12.290 gdcm::StartEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::StartEvent:



Collaboration diagram for gdcm::StartEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

12.291 gdcm::static_assert_test< x > Struct Template Reference

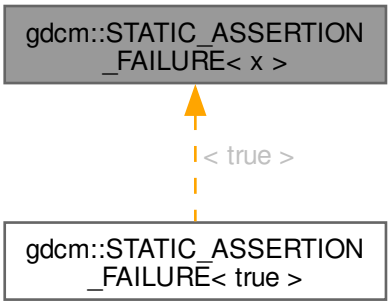
`#include <gdcmStaticAssert.h>`

The documentation for this struct was generated from the following file:

- gdcmStaticAssert.h

12.292 gdcm::STATIC_ASSERTION_FAILURE< x > Struct Template Reference

Inheritance diagram for gdcm::STATIC_ASSERTION_FAILURE< x >:



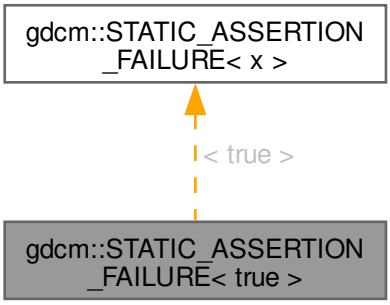
The documentation for this struct was generated from the following file:

- gdcmStaticAssert.h

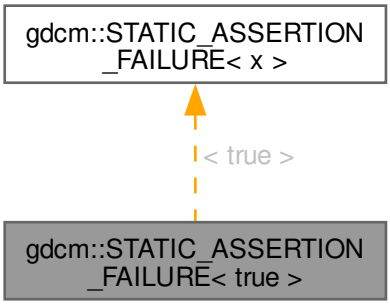
12.293 gdcm::STATIC_ASSERTION_FAILURE< true > Struct Reference

`#include <gdcmStaticAssert.h>`

Inheritance diagram for gdcm::STATIC_ASSERTION_FAILURE< true >:



Collaboration diagram for gdcm::STATIC_ASSERTION_FAILURE< true >:



Public Types

- enum { value = 1 }

12.293.1 Member Enumeration Documentation

12.293.1.1 anonymous enum

```
anonymous enum
```

Enumerator

value	

The documentation for this struct was generated from the following file:

- gdcmStaticAssert.h

12.294 gdcm::StreamImageReader Class Reference

StreamImageReader.

```
#include <gdcmStreamImageReader.h>
```

Public Member Functions

- StreamImageReader ()
- virtual ~StreamImageReader ()
- bool CanReadImage () const
- void DefinePixelExtent (uint16_t inXMin, uint16_t inXMax, uint16_t inYMin, uint16_t inYMax, uint16_t inZMin=0, uint16_t inZMax=1)
- uint32_t DefineProperBufferLength () const
- std::vector< unsigned int > GetDimensionsValueForResolution (unsigned int)
- File const & GetFile () const
- bool Read (char *inReadBuffer, const std::size_t &inBufferLength)
- virtual bool ReadImageInformation ()
- void SetFileName (const char *inFileName)
- void SetStream (std::istream &inStream)

12.294.1 Detailed Description

StreamImageReader.

Note

its role is to convert the DICOM DataSet into a Image representation via an ITK streaming (ie, multithreaded) interface Image is different from Pixmap has it has a position and a direction in Space. Currently, this class is thread safe in that it can read a single extent in a single thread. Multiple versions can be used for multiple extents/threads.

See also

Image

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

12.294.2 Constructor & Destructor Documentation

12.294.2.1 StreamImageReader()

```
gdcm::StreamImageReader::StreamImageReader ()
```

12.294.2.2 ~StreamImageReader()

```
virtual gdcm::StreamImageReader::~StreamImageReader ()  [virtual]
```

12.294.3 Member Function Documentation

12.294.3.1 CanReadImage()

```
bool gdcm::StreamImageReader::CanReadImage () const
```

Only RAW images are currently readable by the stream reader. As more streaming codecs are added, then this function will be updated to reflect those changes. Calling this function prior to reading will ensure that only streamable files are streamed. Make sure to call ReadImageInformation prior to calling this function.

Examples

StreamImageReaderTest.cxx.

12.294.3.2 DefinePixelExtent()

```
void gdcm::StreamImageReader::DefinePixelExtent (
            uint16_t inXMin,
            uint16_t inXMax,
            uint16_t inYMin,
            uint16_t inYMax,
            uint16_t inZMin = 0,
            uint16_t inZMax = 1)
```

Defines an image extent for the Read function. DICOM states that an image can have no more than 2^16 pixels per edge (as of 2009) In this case, the pixel extents ignore the direction cosines entirely, and assumes that the origin of the image is at location 0,0 (regardless of the definition in space per the tags). So, if the first 100 pixels of the first row are to be read in, this function should be called with DefinePixelExtent(0, 100, 0, 1), regardless of pixel size or orientation.

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

12.294.3.3 DefineProperBufferLength()

```
uint32_t gdcm::StreamImageReader::DefineProperBufferLength () const
```

Paying attention to the pixel format and so forth, define the proper buffer length for the user. The return amount is in bytes. Call this function to determine the size of the char* buffer that will need to be passed in to ReadImageSubregion(). If the return is 0, then that means that the pixel extent was not defined prior

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

12.294.3.4 GetDimensionsValueForResolution()

```
std::vector< unsigned int > gdcm::StreamImageReader::GetDimensionsValueForResolution (
            unsigned int )
```

12.294.3.5 GetFile()

```
File const & gdcm::StreamImageReader::GetFile () const
```

Returns the dataset read by ReadImageInformation Couple this with the ImageHelper to get statistics about the image, like pixel extent, to be able to initialize buffers for reading

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

12.294.3.6 Read()

```
bool gdcm::StreamImageReader::Read (
            char * inReadBuffer,
            const std::size_t & inBufferLength)
```

Read the DICOM image. There are three reasons for failure:

1. The extent is not set
2. the conversion from char* to std::ostream (internally) fails
3. the given buffer isn't large enough to accommodate the desired pixel extent. This method has been implemented to look similar to the metaimageio in itk MUST have an extent defined, or else Read will return false. If no particular extent is required, use ImageReader instead.

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

12.294.3.7 ReadImageInformation()

```
virtual bool gdcm::StreamImageReader::ReadImageInformation ()  [virtual]
```

Set the spacing and dimension information for the set filename. returns false if the file is not initialized or not an image, with the pixel (7fe0,0010) tag.

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

12.294.3.8 SetFileName()

```
void gdcm::StreamImageReader::SetFileName (
            const char * inFileName)
```

One of either SetFileName or SetStream must be called prior to any other functions. These initialize an internal Reader class to be able to get non-pixel image information.

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

12.294.3.9 SetStream()

```
void gdcm::StreamImageReader::SetStream (
            std::istream & inStream)
```

The documentation for this class was generated from the following file:

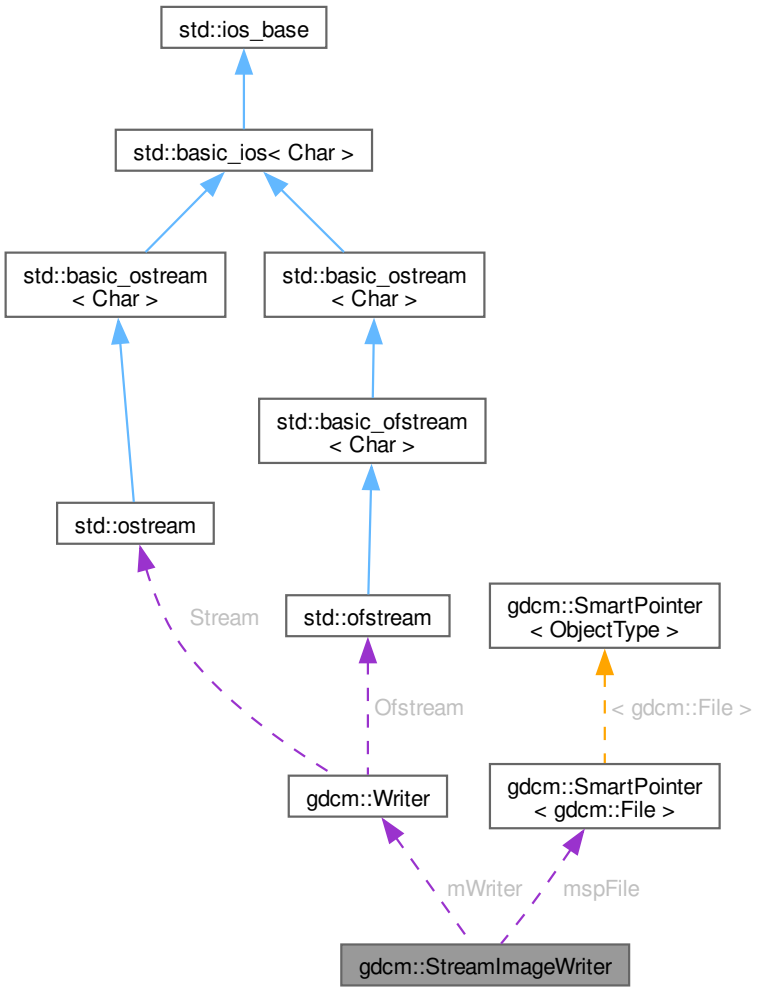
- gdcmStreamImageReader.h

12.295 gdcm::StreamImageWriter Class Reference

StreamImageReader.

```
#include <gdcmStreamImageWriter.h>
```

Collaboration diagram for gdcm::StreamImageWriter:



Public Member Functions

- StreamImageWriter ()
- virtual ~StreamImageWriter ()
- bool CanWriteFile () const
- void DefinePixelExtent (uint16_t inXMin, uint16_t inXMax, uint16_t inYMin, uint16_t inYMax, uint16_t inZMin=0, uint16_t inZMax=1)
- uint32_t DefineProperBufferLength ()
- void SetFile (const File &inFile)
- void SetFileName (const char *inFileName)
- void SetStream (std::ostream &inStream)
- bool Write (void *inWriteBuffer, const std::size_t &inBufferLength)
- virtual bool WriteImageInformation ()

Protected Member Functions

- virtual bool WriteImageSubregionRAW (char *inWriteBuffer, const std::size_t &inBufferLength)
- int WriteRawHeader (RAWCodec *inCodec, std::ostream *inStream)

Protected Attributes

- int mElementOffsets
- int mElementOffsets1
- SmartPointer< File > mspFile
- Writer mWriter
- uint16_t mXMax
- uint16_t mXMin
- uint16_t mYMax
- uint16_t mYMin
- uint16_t mZMax
- uint16_t mZMin

12.295.1 Detailed Description

StreamImageReader.

Note

its role is to convert the DICOM DataSet into a Image representation via an ITK streaming (ie, multithreaded) interface Image is different from Pixmap has it has a position and a direction in Space. Currently, this class is threadsafe in that it can read a single extent in a single thread. Multiple versions can be used for multiple extents/threads.

See also

Image

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.295.2 Constructor & Destructor Documentation

12.295.2.1 StreamImageWriter()

```
gdcm::StreamImageWriter::StreamImageWriter ()
```

12.295.2.2 ~StreamImageWriter()

```
virtual gdcm::StreamImageWriter::~StreamImageWriter ()  [virtual]
```

12.295.3 Member Function Documentation

12.295.3.1 CanWriteFile()

```
bool gdcm::StreamImageWriter::CanWriteFile () const
```

This function determines if a file can even be written using the streaming writer unlike the reader, can be called before WriteImageInformation, but must be called after SetFile.

Examples

Extracting_All_Resolution.cxx, and Fake_Image_Using_Stream_Image_Writer.cxx.

12.295.3.2 DefinePixelExtent()

```
void gdcm::StreamImageWriter::DefinePixelExtent (
            uint16_t inXMin,
            uint16_t inXMax,
            uint16_t inYMin,
            uint16_t inYMax,
            uint16_t inZMin = 0,
            uint16_t inZMax = 1)
```

Defines an image extent for the Read function. DICOM states that an image can have no more than 2^16 pixels per edge (as of 2009) In this case, the pixel extents ignore the direction cosines entirely, and assumes that the origin of the image is at location 0,0 (regardless of the definition in space per the tags). So, if the first 100 pixels of the first row are to be read in, this function should be called with DefinePixelExtent(0, 100, 0, 1), regardless of pixel size or orientation. 15 nov 2010: added z dimension, defaults to being 1 plane large

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.295.3.3 DefineProperBufferLength()

```
uint32_t gdcm::StreamImageWriter::DefineProperBufferLength ()
```

Paying attention to the pixel format and so forth, define the proper buffer length for the user. The return amount is in bytes. If the return is 0, then that means that the pixel extent was not defined prior this return is for RAW inputs which are then encoded by the writer, but are used to ensure that the writer gets the proper buffer size

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.295.3.4 SetFile()

```
void gdcm::StreamImageWriter::SetFile (
            const File & inFile)
```

Set the image information to be written to disk that is everything but the pixel information: (7fe0,0010) PixelData

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.295.3.5 SetFileName()

```
void gdcm::StreamImageWriter::SetFileName (
            const char * inFileName)
```

One of either SetFileName or SetStream must be called prior to any other functions. These initialize an internal Reader class to be able to get non-pixel image information.

12.295.3.6 SetStream()

```
void gdcm::StreamImageWriter::SetStream (
            std::ostream & inStream)
```

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.295.3.7 Write()

```
bool gdcm::StreamImageWriter::Write (
            void * inWriteBuffer,
            const std::size_t & inBufferLength)
```

Read the DICOM image. There are three reasons for failure:

1. The extent is not set
2. the conversion from void* to std::ostream (internally) fails
3. the given buffer isn't large enough to accommodate the desired pixel extent. This method has been implemented to look similar to the metaimageio in itk MUST have an extent defined, or else Read will return false. If no particular extent is required, use ImageReader instead.

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.295.3.8 WriteImageInformation()

```
virtual bool gdcm::StreamImageWriter::WriteImageInformation ()  [virtual]
```

Write the header information to disk, and a bunch of zeros for the actual pixel information Of course, if we're doing a non-compressed format, that works but if it's compressed, we have to force the ordering of chunks that are written.

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.295.3.9 WriteImageSubregionRAW()

```
virtual bool gdcm::StreamImageWriter::WriteImageSubregionRAW (
            char * inWriteBuffer,
            const std::size_t & inBufferLength)  [protected], [virtual]
```

Using the min, max, etc set by DefinePixelExtent, this will fill the given buffer Make sure to call DefinePixelExtent and to initialize the buffer with the amount given by DefineProperBufferLength prior to calling this. reads by the RAW codec; other codecs are added once implemented

12.295.3.10 WriteRawHeader()

```
int gdcm::StreamImageWriter::WriteRawHeader (
            RAWCodec * inCodec,
            std::ostream * inStream)  [protected]
```

when writing a raw file, we know the full extent, and can just write the first 12 bytes out (the tag, the VR, and the size) when we do compressed files, we'll do it in chunks, as described in 2009-3, part 5, Annex A, section 4. Pass the raw codec so that in the rare case of a bigendian explicit raw, the first 12 bytes written out should still be kosher. returns -1 if there's any failure, or the complete offset (12 bytes) if it works. Those 12 bytes are then added to the position in order to determine where to write.

12.295.4 Member Data Documentation

12.295.4.1 mElementOffsets

```
int gdcm::StreamImageWriter::mElementOffsets  [protected]
```

The result of WriteRawHeader (or another header, when that's implemented) This result is saved so that the first N bytes aren't constantly being rewritten for each chunk that's passed in. For compressed data, the offset table will require rewrites of data.

12.295.4.2 mElementOffsets1

```
int gdcm::StreamImageWriter::mElementOffsets1  [protected]
```

12.295.4.3 mspFile

```
SmartPointer<File> gdcm::StreamImageWriter::mspFile  [protected]
```

12.295.4.4 mWriter

```
Writer gdcm::StreamImageWriter::mWriter  [protected]
```

12.295.4.5 mXMax

```
uint16_t gdcm::StreamImageWriter::mXMax  [protected]
```

12.295.4.6 mXMin

```
uint16_t gdcm::StreamImageWriter::mXMin  [protected]
```

12.295.4.7 mYMax

```
uint16_t gdcm::StreamImageWriter::mYMax  [protected]
```

12.295.4.8 mYMin

```
uint16_t gdcm::StreamImageWriter::mYMin  [protected]
```

12.295.4.9 mZMax

```
uint16_t gdcm::StreamImageWriter::mZMax  [protected]
```

12.295.4.10 mZMin

```
uint16_t gdcm::StreamImageWriter::mZMin  [protected]
```

The documentation for this class was generated from the following file:

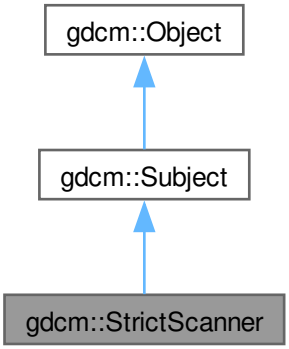
- gdcmStreamImageWriter.h

12.296 gdcm::StrictScanner Class Reference

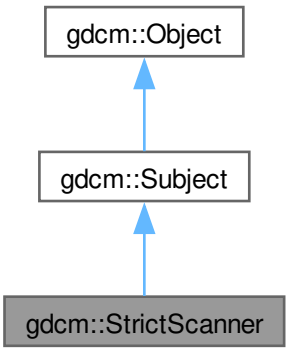
StrictScanner.

`#include <gdcmStrictScanner.h>`

Inheritance diagram for gdcm::StrictScanner:



Collaboration diagram for gdcm::StrictScanner:



Classes

- struct ltstr

Public Types

- typedef MappingType::const_iterator ConstIterator
- typedef std::map< const char *, TagToValue, ltstr > MappingType
- typedef std::map< Tag, const char * > TagToValue
- typedef TagToValue::value_type TagToValueValueType
- typedef std::set< std::string > ValuesType

Public Member Functions

- StrictScanner ()
- ~StrictScanner () override
- void AddPrivateTag (PrivateTag const &t)
- void AddSkipTag (Tag const &t)

  Add a tag that will need to be skipped. Those are root level skip tags.
- void AddTag (Tag const &t)

  Add a tag that will need to be read. Those are root level skip tags.
- ConstIterator Begin () const
- void ClearSkipTags ()
- void ClearTags ()
- ConstIterator End () const
- Directory::FilenamesType GetAllFilenamesFromTagToValue (Tag const &t, const char *valueref) const
- const char * GetFilenameFromTagToValue (Tag const &t, const char *valueref) const
- Directory::FilenamesType const & GetFilenames () const
- Directory::FilenamesType GetKeys () const
- TagToValue const & GetMapping (const char *filename) const

  Get the std::map mapping filenames to value for file 'filename'.
- TagToValue const & GetMappingFromTagToValue (Tag const &t, const char *value) const

  See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.
- MappingType const & GetMappings () const

  Mappings are the mapping from a particular tag to the map, mapping filename to value:
- Directory::FilenamesType GetOrderedValues (Tag const &t) const
- const char * GetValue (const char *filename, Tag const &t) const
- ValuesType const & GetValues () const

  Get all the values found (in lexicographic order).
- ValuesType GetValues (Tag const &t) const

  Get all the values found (in lexicographic order) associated with Tag 't'.
- bool IsKey (const char *filename) const
- void Print (std::ostream &os) const override

  Print result.
- void PrintTable (std::ostream &os) const
- bool Scan (Directory::FilenamesType const &filenames)

  Start the scan !

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< StrictScanner > New ()

  for wrapped language: instantiate a reference counted object

Protected Member Functions

- void ProcessPublicTag (StringFilter &sf, const char *filename)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- std::ostream & operator<< (std::ostream &_os, const StrictScanner &s)

12.296.1 Detailed Description

StrictScanner.

This filter is meant for quickly browsing a FileSet (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM Attribute.

This filter is dealing with both VRASCII and VRBINARY element, thanks to the help of StringFilter

Warning

IMPORTANT In case of file where tags are not ordered (illegal as per DICOM specification), the output will be missing information

Note

implementation details. All values are stored in a std::set of std::string. Then the address of the cstring underlying the std::string is used in the std::map.

This class implement the Subject/Observer pattern trigger the following events:

- ProgressEvent
- StartEvent
- EndEvent

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

12.296.2 Member Typedef Documentation

12.296.2.1 ConstIterator

```
typedef MappingType::const_iterator gdcm::StrictScanner::ConstIterator
```

12.296.2.2 MappingType

```
typedef std::map<const char *,TagToValue, ltstr> gdcm::StrictScanner::MappingType
```

12.296.2.3 TagToValue

```
typedef std::map<Tag, const char*> gdcm::StrictScanner::TagToValue
```

struct to map a filename to a value Implementation note: all std::map in this class will be using const char * and not std::string since we are pointing to existing std::string (hold in a std::vector) this avoid an extra copy of the byte array. Tag are used as Tag class since sizeof(tag) <= sizeof(pointer)

Examples

SimpleScanner.cxx.

12.296.2.4 TagToValueValueType

```
typedef TagToValue::value_type gdcm::StrictScanner::TagToValueValueType
```

12.296.2.5 ValuesType

```
typedef std::set< std::string > gdcm::StrictScanner::ValuesType
```

12.296.3 Constructor & Destructor Documentation

12.296.3.1 StrictScanner()

```
gdcm::StrictScanner::StrictScanner () [inline]
```

Referenced by New(), and operator<<.

12.296.3.2 ~StrictScanner()

```
gdcm::StrictScanner::~StrictScanner () [override]
```

12.296.4 Member Function Documentation

12.296.4.1 AddPrivateTag()

```
void gdcm::StrictScanner::AddPrivateTag (
            PrivateTag const & t)
```

12.296.4.2 AddSkipTag()

```
void gdcm::StrictScanner::AddSkipTag (
            Tag const & t)
```

Add a tag that will need to be skipped. Those are root level skip tags.

12.296.4.3 AddTag()

```
void gdcm::StrictScanner::AddTag (
            Tag const & t)
```

Add a tag that will need to be read. Those are root level skip tags.

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

12.296.4.4 Begin()

```
ConstIterator gdcm::StrictScanner::Begin () const  [inline]
```

12.296.4.5 ClearSkipTags()

```
void gdcm::StrictScanner::ClearSkipTags ()
```

12.296.4.6 ClearTags()

```
void gdcm::StrictScanner::ClearTags ()
```

12.296.4.7 End()

```
ConstIterator gdcm::StrictScanner::End () const  [inline]
```

12.296.4.8 GetAllFilenamesFromTagToValue()

```
Directory::FilenamesType gdcm::StrictScanner::GetAllFilenamesFromTagToValue (
            Tag const & t,
            const char * valueref) const
```

Will loop over all files and return a vector of std::strings of filenames where value match the reference value 'valueref'

12.296.4.9 GetFilenameFromTagToValue()

```
const char * gdcm::StrictScanner::GetFilenameFromTagToValue (
            Tag const & t,
            const char * valueref) const
```

Will loop over all files and return the first file where value match the reference value 'valueref'

12.296.4.10 GetFilenames()

```
Directory::FilenamesType const & gdcm::StrictScanner::GetFilenames () const  [inline]
```

12.296.4.11 GetKeys()

```
Directory::FilenamesType gdcm::StrictScanner::GetKeys () const
```

Return the list of filename that are key in the internal map, which means those filename were properly parsed

12.296.4.12 GetMapping()

```
TagToValue const & gdcm::StrictScanner::GetMapping (
            const char * filename) const
```

Get the std::map mapping filenames to value for file 'filename'.

Examples

SimpleScanner.cxx.

12.296.4.13 GetMappingFromTagToValue()

```
TagToValue const & gdcm::StrictScanner::GetMappingFromTagToValue (
            Tag const & t,
            const char * value) const
```

See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.

12.296.4.14 GetMappings()

```
MappingType const & gdcm::StrictScanner::GetMappings () const  [inline]
```

Mappings are the mapping from a particular tag to the map, mapping filename to value:

12.296.4.15 GetOrderedValues()

```
Directory::FilenamesType gdcm::StrictScanner::GetOrderedValues (
            Tag const & t) const
```

Get all the values found (in a vector) associated with Tag 't' This function is identical to GetValues, but is accessible from the wrapped layer (python, C#, java)

12.296.4.16 GetValue()

```
const char * gdcm::StrictScanner::GetValue (
            const char * filename,
            Tag const & t) const
```

Retrieve the value found for tag: t associated with file: filename This is meant for a single short call. If multiple calls (multiple tags) should be done, prefer the GetMapping function, and then reuse the TagToValue hash table.

Warning

Tag 't' should have been added via AddTag() prior to the Scan() call !

12.296.4.17 GetValues() [1/2]

```
ValuesType const & gdcm::StrictScanner::GetValues () const  [inline]
```

Get all the values found (in lexicographic order).

12.296.4.18 GetValues() [2/2]

```
ValuesType gdcm::StrictScanner::GetValues (
            Tag const & t) const
```

Get all the values found (in lexicographic order) associated with Tag 't'.

12.296.4.19 IsKey()

```
bool gdcm::StrictScanner::IsKey (
            const char * filename) const
```

Check if filename is a key in the Mapping table. returns true only of file can be found, which means the file was indeed a DICOM file that could be processed

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

12.296.4.20 New()

```
SmartPointer< StrictScanner > gdcm::StrictScanner::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

Examples

ScanDirectory.cs.

References StrictScanner().

12.296.4.21 Print()

```
void gdcm::StrictScanner::Print (
            std::ostream & os) const  [override], [virtual]
```

Print result.

Reimplemented from gdcm::Object.

Referenced by operator<<.

12.296.4.22 PrintTable()

```
void gdcm::StrictScanner::PrintTable (
            std::ostream & os) const
```

12.296.4.23 ProcessPublicTag()

```
void gdcm::StrictScanner::ProcessPublicTag (
            StringFilter & sf,
            const char * filename)  [protected]
```

12.296.4.24 Scan()

```
bool gdcm::StrictScanner::Scan (
            Directory::FilenamesType const & filenames)
```

Start the scan !

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

12.296.5 Friends And Related Symbol Documentation

12.296.5.1 operator<<

```
std::ostream & operator<< (
             std::ostream & _os,
             const StrictScanner & s)  [friend]
```

References StrictScanner(), and Print().

The documentation for this class was generated from the following file:

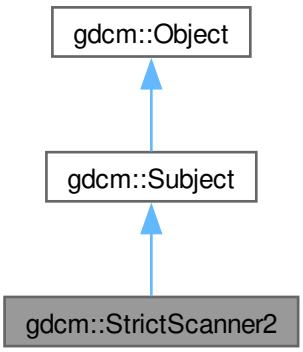
- gdcmStrictScanner.h

12.297 gdcm::StrictScanner2 Class Reference

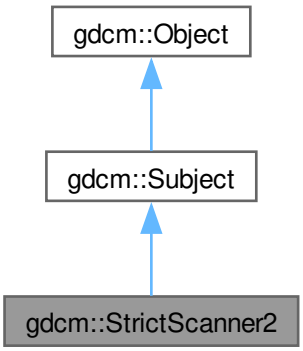
StrictScanner2.

```
#include <gdcmStrictScanner2.h>
```

Inheritance diagram for gdcm::StrictScanner2:



Collaboration diagram for gdcm::StrictScanner2:



Classes

- struct ltstr

Public Types

- typedef PrivateMappingType::const_iterator PrivateConstIterator
- typedef std::map< const char *, PrivateTagToValue, ltstr > PrivateMappingType
- typedef std::map< PrivateTag, const char * > PrivateTagToValue
- typedef PrivateTagToValue::value_type PrivateTagToValueValueType
- typedef PublicMappingType::const_iterator PublicConstIterator
- typedef std::map< const char *, PublicTagToValue, ltstr > PublicMappingType
- typedef std::map< Tag, const char * > PublicTagToValue
- typedef PublicTagToValue::value_type PublicTagToValueValueType
- typedef std::set< std::string > ValuesType

Public Member Functions

- StrictScanner2 ()
- ~StrictScanner2 () override
- bool AddPrivateTag (PrivateTag const &pt)
- bool AddPublicTag (Tag const &t)

  Add a tag that will need to be read. Those are root level tags.
- bool AddSkipTag (Tag const &t)

  Add a tag that will need to be skipped. Those are root level skip tags.
- PublicConstIterator Begin () const
- void ClearPrivateTags ()
- void ClearPublicTags ()

- void ClearSkipTags ()
- PublicConstIterator End () const
- Directory::FilenamesType GetAllFilenamesFromPrivateTagToValue (PrivateTag const &pt, const char *valueref) const
- Directory::FilenamesType GetAllFilenamesFromPublicTagToValue (Tag const &t, const char *valueref) const
- const char * GetFilenameFromPrivateTagToValue (PrivateTag const &pt, const char *valueref) const
- const char * GetFilenameFromPublicTagToValue (Tag const &t, const char *valueref) const
- Directory::FilenamesType const & GetFilenames () const

  Return the list of filenames.
- Directory::FilenamesType GetKeys () const
- PrivateTagToValue const & GetMappingFromPrivateTagToValue (PrivateTag const &pt, const char *value) const
- PublicTagToValue const & GetMappingFromPublicTagToValue (Tag const &t, const char *value) const
- PrivateTagToValue const & GetPrivateMapping (const char *filename) const
- PrivateMappingType const & GetPrivateMappings () const
- Directory::FilenamesType GetPrivateOrderedValues (PrivateTag const &pt) const
- const char * GetPrivateValue (const char *filename, PrivateTag const &t) const
- ValuesType GetPrivateValues (PrivateTag const &pt) const
- PublicTagToValue const & GetPublicMapping (const char *filename) const

  Get the std::map mapping filenames to value for file 'filename'.
- PublicMappingType const & GetPublicMappings () const
- Directory::FilenamesType GetPublicOrderedValues (Tag const &t) const
- const char * GetPublicValue (const char *filename, Tag const &t) const
- ValuesType GetPublicValues (Tag const &t) const

  Get all the values found (in lexicographic order) associated with Tag 't'.
- ValuesType const & GetValues () const

  Get all the values found (in lexicographic order).
- bool IsKey (const char *filename) const
- void Print (std::ostream &os) const override

  Print result.
- void PrintTable (std::ostream &os, bool header=false) const

  Print result as CSV table.
- PrivateConstIterator PrivateBegin () const
- PrivateConstIterator PrivateEnd () const
- bool Scan (Directory::FilenamesType const &filenames)

  Start the scan !

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< StrictScanner2 > New ()

  for wrapped language: instantiate a reference counted object

Protected Member Functions

- void ProcessPrivateTag (StringFilter &sf, const char *filename)
- void ProcessPublicTag (StringFilter &sf, const char *filename)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- std::ostream & operator<< (std::ostream &_os, const StrictScanner2 &s)

12.297.1 Detailed Description

StrictScanner2.

This filter is meant for quickly browsing a FileSet (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM Attribute.

This filter is dealing with both VRASCII and VRBINARY element, thanks to the help of StringFilter

Warning

IMPORTANT In case of file where tags are not ordered (illegal as per DICOM specification), the output will be missing information

Note

implementation details. All values are stored in a std::set of std::string. Then the address of the cstring underlying the std::string is used in the std::map.

This class implement the Subject/Observer pattern trigger the following events:

- ProgressEvent
- StartEvent
- EndEvent

12.297.2 Member Typedef Documentation

12.297.2.1 PrivateConstIterator

```
typedef PrivateMappingType::const_iterator gdcm::StrictScanner2::PrivateConstIterator
```

12.297.2.2 PrivateMappingType

```
typedef std::map<const char *, PrivateTagToValue, ltstr> gdcm::StrictScanner2::PrivateMappingType
```

12.297.2.3 PrivateTagToValue

```
typedef std::map<PrivateTag, const char *> gdcm::StrictScanner2::PrivateTagToValue
```

12.297.2.4 PrivateTagToValueValueType

```
typedef PrivateTagToValue::value_type gdcm::StrictScanner2::PrivateTagToValueValueType
```

12.297.2.5 PublicConstIterator

```
typedef PublicMappingType::const_iterator gdcm::StrictScanner2::PublicConstIterator
```

12.297.2.6 PublicMappingType

```
typedef std::map<const char *, PublicTagToValue, ltstr> gdcm::StrictScanner2::PublicMappingType
```

12.297.2.7 PublicTagToValue

```
typedef std::map<Tag, const char *> gdcm::StrictScanner2::PublicTagToValue
```

struct to map a filename to a value Implementation note: all std::map in this class will be using const char * and not std::string since we are pointing to existing std::string (held in a std::vector) this avoid an extra copy of the byte array. Tag are used as Tag class since sizeof(tag) <= sizeof(pointer)

12.297.2.8 PublicTagToValueValueType

```
typedef PublicTagToValue::value_type gdcm::StrictScanner2::PublicTagToValueValueType
```

12.297.2.9 ValuesType

```
typedef std::set<std::string> gdcm::StrictScanner2::ValuesType
```

12.297.3 Constructor & Destructor Documentation

12.297.3.1 StrictScanner2()

```
gdcm::StrictScanner2::StrictScanner2 ()  [inline]
```

Referenced by New(), and operator<<.

12.297.3.2 ~StrictScanner2()

```
gdcm::StrictScanner2::~StrictScanner2 ()  [override]
```

12.297.4 Member Function Documentation

12.297.4.1 AddPrivateTag()

```
bool gdcm::StrictScanner2::AddPrivateTag (
            PrivateTag const & pt)
```

12.297.4.2 AddPublicTag()

```
bool gdcm::StrictScanner2::AddPublicTag (
            Tag const & t)
```

Add a tag that will need to be read. Those are root level tags.

12.297.4.3 AddSkipTag()

```
bool gdcm::StrictScanner2::AddSkipTag (
            Tag const & t)
```

Add a tag that will need to be skipped. Those are root level skip tags.

12.297.4.4 Begin()

```
PublicConstIterator gdcm::StrictScanner2::Begin () const  [inline]
```

12.297.4.5 ClearPrivateTags()

```
void gdcm::StrictScanner2::ClearPrivateTags ()
```

12.297.4.6 ClearPublicTags()

```
void gdcm::StrictScanner2::ClearPublicTags ()
```

12.297.4.7 ClearSkipTags()

```
void gdcm::StrictScanner2::ClearSkipTags ()
```

12.297.4.8 End()

```
PublicConstIterator gdcm::StrictScanner2::End () const  [inline]
```

12.297.4.9 GetAllFilenamesFromPrivateTagToValue()

```
Directory::FilenamesType gdcm::StrictScanner2::GetAllFilenamesFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * valueref) const
```

12.297.4.10 GetAllFilenamesFromPublicTagToValue()

```
Directory::FilenamesType gdcm::StrictScanner2::GetAllFilenamesFromPublicTagToValue (
            Tag const & t,
            const char * valueref) const
```

Will loop over all files and return a vector of std::strings of filenames where value match the reference value 'valueref'

12.297.4.11 GetFilenameFromPrivateTagToValue()

```
const char * gdcm::StrictScanner2::GetFilenameFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * valueref) const
```

12.297.4.12 GetFilenameFromPublicTagToValue()

```
const char * gdcm::StrictScanner2::GetFilenameFromPublicTagToValue (
            Tag const & t,
            const char * valueref) const
```

Will loop over all files and return the first file where value match the reference value 'valueref'

12.297.4.13 GetFilenames()

```
Directory::FilenamesType const & gdcm::StrictScanner2::GetFilenames () const  [inline]
```

Return the list of filenames.

12.297.4.14 GetKeys()

```
Directory::FilenamesType gdcm::StrictScanner2::GetKeys () const
```

Return the list of filename that are key in the internal map, which means those filename were properly parsed

12.297.4.15 GetMappingFromPrivateTagToValue()

```
PrivateTagToValue const & gdcm::StrictScanner2::GetMappingFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * value) const
```

12.297.4.16 GetMappingFromPublicTagToValue()

```
PublicTagToValue const & gdcm::StrictScanner2::GetMappingFromPublicTagToValue (
            Tag const & t,
            const char * value) const
```

See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed

12.297.4.17 GetPrivateMapping()

```
PrivateTagToValue const & gdcm::StrictScanner2::GetPrivateMapping (
            const char * filename) const
```

12.297.4.18 GetPrivateMappings()

```
PrivateMappingType const & gdcm::StrictScanner2::GetPrivateMappings () const  [inline]
```

12.297.4.19 GetPrivateOrderedValues()

```
Directory::FilenamesType gdcm::StrictScanner2::GetPrivateOrderedValues (
            PrivateTag const & pt) const
```

12.297.4.20 GetPrivateValue()

```
const char * gdcm::StrictScanner2::GetPrivateValue (
            const char * filename,
            PrivateTag const & t) const
```

12.297.4.21 GetPrivateValues()

```
ValuesType gdcm::StrictScanner2::GetPrivateValues (
            PrivateTag const & pt) const
```

Get all the values found (in lexicographic order) associated with PrivateTag 'pt'

12.297.4.22 GetPublicMapping()

```
PublicTagToValue const & gdcm::StrictScanner2::GetPublicMapping (
            const char * filename) const
```

Get the std::map mapping filenames to value for file 'filename'.

12.297.4.23 GetPublicMappings()

```
PublicMappingType const & gdcm::StrictScanner2::GetPublicMappings () const  [inline]
```

Mappings are the mapping from a particular tag to the map, mapping filename to value:

12.297.4.24 GetPublicOrderedValues()

```
Directory::FilenamesType gdcm::StrictScanner2::GetPublicOrderedValues (
            Tag const & t) const
```

Get all the values found (in a vector) associated with Tag 't' This function is identical to GetValues, but is accessible from the wrapped layer (python, C#, java)

12.297.4.25 GetPublicValue()

```
const char * gdcm::StrictScanner2::GetPublicValue (
            const char * filename,
            Tag const & t) const
```

Retrieve the value found for tag: t associated with file: filename This is meant for a single short call. If multiple calls (multiple tags) should be done, prefer the GetMapping function, and then reuse the TagToValue hash table.

Warning

Tag 't' should have been added via AddTag() prior to the Scan() call !

12.297.4.26 GetPublicValues()

```
ValuesType gdcm::StrictScanner2::GetPublicValues (
            Tag const & t) const
```

Get all the values found (in lexicographic order) associated with Tag 't'.

12.297.4.27 GetValues()

```
ValuesType const & gdcm::StrictScanner2::GetValues () const  [inline]
```

Get all the values found (in lexicographic order).

12.297.4.28 IsKey()

```
bool gdcm::StrictScanner2::IsKey (
            const char * filename) const
```

Check if filename is a key in the Mapping table. returns true only of file can be found, which means the file was indeed a DICOM file that could be processed

12.297.4.29 New()

```
SmartPointer< StrictScanner2 > gdcm::StrictScanner2::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

References StrictScanner2().

12.297.4.30 Print()

```
void gdcm::StrictScanner2::Print (
            std::ostream & os) const  [override], [virtual]
```

Print result.

Reimplemented from gdcm::Object.

Referenced by operator<<.

12.297.4.31 PrintTable()

```
void gdcm::StrictScanner2::PrintTable (
            std::ostream & os,
            bool header = false) const
```

Print result as CSV table.

12.297.4.32 PrivateBegin()

```
PrivateConstIterator gdcm::StrictScanner2::PrivateBegin () const  [inline]
```

12.297.4.33 PrivateEnd()

```
PrivateConstIterator gdcm::StrictScanner2::PrivateEnd () const  [inline]
```

12.297.4.34 ProcessPrivateTag()

```
void gdcm::StrictScanner2::ProcessPrivateTag (
            StringFilter & sf,
            const char * filename)  [protected]
```

12.297.4.35 ProcessPublicTag()

```
void gdcm::StrictScanner2::ProcessPublicTag (
            StringFilter & sf,
            const char * filename)  [protected]
```

12.297.4.36 Scan()

```
bool gdcm::StrictScanner2::Scan (
            Directory::FilenamesType const & filenames)
```

Start the scan !

12.297.5 Friends And Related Symbol Documentation

12.297.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const StrictScanner2 & s)  [friend]
```

References StrictScanner2(), and Print().

The documentation for this class was generated from the following file:

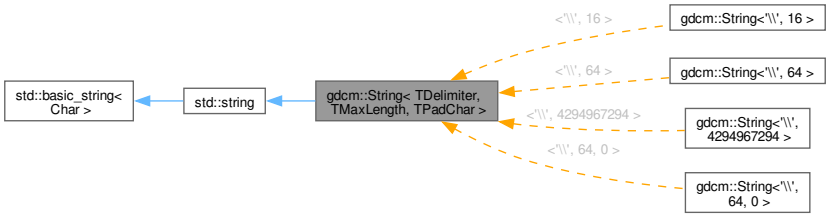
- gdcmStrictScanner2.h

12.298 gdcm::String< TDelimiter, TMaxLength, TPadChar > Class Template Reference

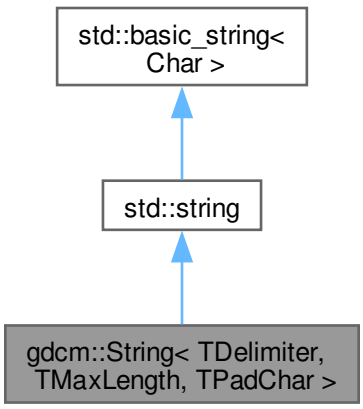
String.

`#include <gdcmString.h>`

Inheritance diagram for gdcm::String< TDelimiter, TMaxLength, TPadChar >:



Collaboration diagram for gdcm::String< TDelimiter, TMaxLength, TPadChar >:



Public Types

- typedef std::string::const_iterator const_iterator
- typedef std::string::const_reference const_reference
- typedef std::string::const_reverse_iterator const_reverse_iterator
- typedef std::string::difference_type difference_type

- typedef std::string::iterator iterator
- typedef std::string::pointer pointer
- typedef std::string::reference reference
- typedef std::string::reverse_iterator reverse_iterator
- typedef std::string::size_type size_type
- typedef std::string::value_type value_type

Public Member Functions

- String ()
  String constructors.
- String (const std::string &s, size_type pos=0, size_type n=npos)
- String (const value_type *s)
- String (const value_type *s, size_type n)
- bool IsValid () const
  return if string is valid
- operator const char * () const
  WARNING: Trailing \0 might be lost in this operation:
- std::string Trim () const
- gdcm::String< TDelimiter, TMaxLength, TPadChar > Truncate () const

Static Public Member Functions

- static std::string Trim (const char *input)

12.298.1 Detailed Description

template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
class gdcm::String< TDelimiter, TMaxLength, TPadChar >

String.

Note

TDelimiter template parameter is used to separate multiple String (VM1 >) TMaxLength is only a hint. No one actually respect the max length TPadChar is the string padding (0 or space)

12.298.2 Member Typedef Documentation

12.298.2.1 const_iterator

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::const_iterator gdcm::String< TDelimiter, TMaxLength, TPadChar >::const_↩
iterator
```

12.298.2.2 const_reference

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::const_reference gdcm::String< TDelimiter, TMaxLength, TPadChar >::const_↩
reference
```

12.298.2.3 const_reverse_iterator

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::const_reverse_iterator gdcm::String< TDelimiter, TMaxLength, TPadChar >↩
::const_reverse_iterator
```

12.298.2.4 difference_type

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::difference_type gdcm::String< TDelimiter, TMaxLength, TPadChar >::difference↩
_type
```

12.298.2.5 iterator

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::iterator gdcm::String< TDelimiter, TMaxLength, TPadChar >::iterator
```

12.298.2.6 pointer

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::pointer gdcm::String< TDelimiter, TMaxLength, TPadChar >::pointer
```

12.298.2.7 reference

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::reference gdcm::String< TDelimiter, TMaxLength, TPadChar >::reference
```

12.298.2.8 reverse_iterator

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::reverse_iterator gdcm::String< TDelimiter, TMaxLength, TPadChar >::reverse↩
_iterator
```

12.298.2.9 size_type

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::size_type gdcm::String< TDelimiter, TMaxLength, TPadChar >::size_type
```

12.298.2.10 value_type

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::value_type gdcm::String< TDelimiter, TMaxLength, TPadChar >::value_type
```

12.298.3 Constructor & Destructor Documentation

12.298.3.1 String() [1/4]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar >::String ()  [inline]
```

String constructors.

12.298.3.2 String() [2/4]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar >::String (
            const value_type * s)  [inline]
```

12.298.3.3 String() [3/4]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar >::String (
            const value_type * s,
            size_type n)  [inline]
```

12.298.3.4 String() [4/4]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar >::String (
            const std::string & s,
            size_type pos = 0,
            size_type n = npos)  [inline]
```

12.298.4 Member Function Documentation

12.298.4.1 IsValid()

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
bool gdcm::String< TDelimiter, TMaxLength, TPadChar >::IsValid () const  [inline]
```

return if string is valid

Referenced by gdcm::String<'\\', 16 >::Truncate().

12.298.4.2 operator const char *()

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar >::operator const char * () const  [inline]
```

WARNING: Trailing \0 might be lost in this operation:

12.298.4.3 Trim() [1/2]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
std::string gdcm::String< TDelimiter, TMaxLength, TPadChar >::Trim () const  [inline]
```

Trim function is required to return a std::string object, otherwise we could not create a gdcm::String object with an odd number of bytes...

12.298.4.4 Trim() [2/2]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
std::string gdcm::String< TDelimiter, TMaxLength, TPadChar >::Trim (
            const char * input)  [inline], [static]
```

12.298.4.5 Truncate()

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar > gdcm::String< TDelimiter, TMaxLength, TPadChar
>::Truncate () const  [inline]
```

The documentation for this class was generated from the following file:

- gdcmString.h

12.299 gdcm::StringFilter Class Reference

StringFilter.

```
#include <gdcmStringFilter.h>
```

Public Member Functions

- StringFilter ()
- ~StringFilter ()
- bool ExecuteQuery (std::string const &query, std::string &value) const
- std::string FromString (const Tag &t, const char *value, size_t len)

  Convert to string the char array defined by the pair (value,len).
- File & GetFile ()
- const File & GetFile () const
- void SetDicts (const Dicts &dicts)

  Allow user to pass in there own dicts.
- void SetFile (const File &f)

  Set/Get File.
- std::string ToString (const DataElement &de) const
- std::string ToString (const PrivateTag &t) const
- std::string ToString (const Tag &t) const

  Directly from a Tag:
- std::pair< std::string, std::string > ToStringPair (const DataElement &de) const
- std::pair< std::string, std::string > ToStringPair (const Tag &t) const

  Directly from a Tag:
- void UseDictAlways (bool)

Protected Member Functions

- bool ExecuteQuery (std::string const &query, DataSet const &ds, std::string &value) const
- std::pair< std::string, std::string > ToStringPair (const Tag &t, DataSet const &ds) const

12.299.1 Detailed Description

StringFilter.

StringFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language

Examples

DumpVisusChange.cxx, ReadAndPrintAttributes.cxx, and SimplePrintPatientName.cs.

12.299.2 Constructor & Destructor Documentation

12.299.2.1 StringFilter()

```
gdcm::StringFilter::StringFilter ()
```

12.299.2.2 ~StringFilter()

```
gdcm::StringFilter::~StringFilter ()
```

12.299.3 Member Function Documentation

12.299.3.1 ExecuteQuery() [1/2]

```
bool gdcm::StringFilter::ExecuteQuery (
            std::string const & query,
            DataSet const & ds,
            std::string & value) const  [protected]
```

12.299.3.2 ExecuteQuery() [2/2]

```
bool gdcm::StringFilter::ExecuteQuery (
            std::string const & query,
            std::string & value) const
```

Execute the XPATH query to find a value (as string) return false when attribute is not found (or an error in the XPATH query) You need to make sure that your XPATH query is syntactically correct

12.299.3.3 FromString()

```
std::string gdcm::StringFilter::FromString (
            const Tag & t,
            const char * value,
            size_t len)
```

Convert to string the char array defined by the pair (value,len).

12.299.3.4 GetFile() [1/2]

```
File & gdcm::StringFilter::GetFile ()  [inline]
```

12.299.3.5 GetFile() [2/2]

```
const File & gdcm::StringFilter::GetFile () const  [inline]
```

12.299.3.6 SetDicts()

```
void gdcm::StringFilter::SetDicts (
            const Dicts & dicts)
```

Allow user to pass in there own dicts.

12.299.3.7 SetFile()

```
void gdcm::StringFilter::SetFile (
            const File & f)  [inline]
```

Set/Get File.

Examples

DumpVisusChange.cxx, ReadAndPrintAttributes.cxx, and SimplePrintPatientName.cs.

12.299.3.8 ToString() [1/3]

```
std::string gdcm::StringFilter::ToString (
            const DataElement & de) const
```

Convert to string the ByteValue contained in a DataElement. The DataElement must be coming from the actual DataSet associated with File (see SetFile).

Examples

DumpVisusChange.cxx, ReadAndPrintAttributes.cxx, and SimplePrintPatientName.cs.

12.299.3.9 ToString() [2/3]

```
std::string gdcm::StringFilter::ToString (
            const PrivateTag & t) const
```

12.299.3.10 ToString() [3/3]

```
std::string gdcm::StringFilter::ToString (
            const Tag & t) const
```

Directly from a Tag:

12.299.3.11 ToStringPair() [1/3]

```
std::pair< std::string, std::string > gdcm::StringFilter::ToStringPair (
            const DataElement & de) const
```

Convert to string the ByteValue contained in a DataElement the returned elements are: pair.first : the name as found in the dictionary of DataElement pari.second : the value encoded into a string (US,UL...) are properly converted

Examples

ReadAndPrintAttributes.cxx.

12.299.3.12 ToStringPair() [2/3]

```
std::pair< std::string, std::string > gdcm::StringFilter::ToStringPair (
            const Tag & t) const
```

Directly from a Tag:

12.299.3.13 ToStringPair() [3/3]

```
std::pair< std::string, std::string > gdcm::StringFilter::ToStringPair (
            const Tag & t,
            DataSet const & ds) const  [protected]
```

12.299.3.14 UseDictAlways()

```
void gdcm::StringFilter::UseDictAlways (
            bool )  [inline]
```

The documentation for this class was generated from the following file:

- gdcmStringFilter.h

12.300 gdcm::Study Class Reference

Study.

```
#include <gdcmStudy.h>
```

Public Member Functions

- Study ()=default

12.300.1 Detailed Description

Study.

12.300.2 Constructor & Destructor Documentation

12.300.2.1 Study()

```
gdcm::Study::Study ()  [default]
```

The documentation for this class was generated from the following file:

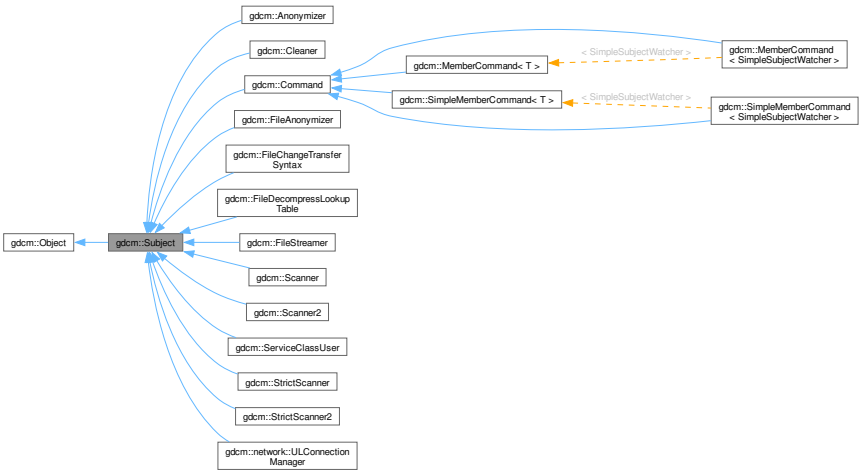
- gdcmStudy.h

12.301 gdcm::Subject Class Reference

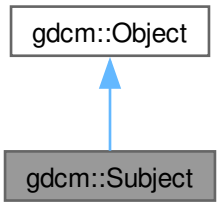
Subject.

`#include <gdcmSubject.h>`

Inheritance diagram for gdcm::Subject:



Collaboration diagram for gdcm::Subject:



Public Member Functions

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)

- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.301.1 Detailed Description

Subject.

See also

Command Event

Examples

BasicAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, ScanDirectory.cs, and SimpleScanner.cxx.

12.301.2 Constructor & Destructor Documentation

12.301.2.1 Subject()

```
gdcm::Subject::Subject ()
```

Referenced by gdcm::Command::Execute(), and gdcm::Command::Execute().

12.301.2.2 ~Subject()

```
gdcm::Subject::~Subject ()  [override]
```

12.301.3 Member Function Documentation

12.301.3.1 AddObserver() [1/2]

```
unsigned long gdcm::Subject::AddObserver (
             const Event & event,
             Command * )
```

Allow people to add/remove/invoke observers (callbacks) to any GDCM object. This is an implementation of the subject/observer design pattern. An observer is added by specifying an event to respond to and an gdcm::Command to execute. It returns an unsigned long tag which can be used later to remove the event or retrieve the command. The memory for the Command becomes the responsibility of this object, so don't pass the same instance of a command to two different objects

12.301.3.2 AddObserver() [2/2]

```
unsigned long gdcm::Subject::AddObserver (
             const Event & event,
             Command * ) const
```

12.301.3.3 GetCommand()

```
Command * gdcm::Subject::GetCommand (
             unsigned long tag)
```

Get the command associated with the given tag. NOTE: This returns a pointer to a Command, but it is safe to assign this to a Command::Pointer. Since Command inherits from LightObject, at this point in the code, only a pointer or a reference to the Command can be used.

12.301.3.4 HasObserver()

```
bool gdcm::Subject::HasObserver (
             const Event & event) const
```

Return true if an observer is registered for this event.

12.301.3.5 InvokeEvent() [1/2]

```
void gdcm::Subject::InvokeEvent (
             const Event & )
```

Call Execute on all the Commands observing this event id.

12.301.3.6 InvokeEvent() [2/2]

```
void gdcm::Subject::InvokeEvent (
            const Event & ) const
```

Call Execute on all the Commands observing this event id. The actions triggered by this call doesn't modify this object.

12.301.3.7 RemoveAllObservers()

```
void gdcm::Subject::RemoveAllObservers ()
```

Remove all observers .

12.301.3.8 RemoveObserver()

```
void gdcm::Subject::RemoveObserver (
            unsigned long tag)
```

Remove the observer with this tag value.

The documentation for this class was generated from the following file:

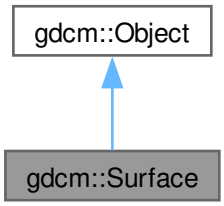
- gdcmSubject.h

12.302 gdcm::Surface Class Reference

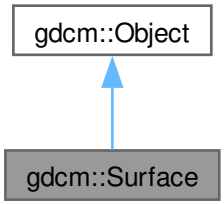
This class defines a SURFACE IE.

`#include <gdcmSurface.h>`

Inheritance diagram for gdcm::Surface:



Collaboration diagram for gdcm::Surface:



Public Types

- enum STATES {
  NO = 0 ,
  YES ,
  UNKNOWN ,
  STATES_END }
- enum VIEWType {
  SURFACE = 0 ,
  WIREFRAME ,
  POINTS ,
  VIEWType_END }

  Enumeration for Recommended Presentation Type.

Public Member Functions

- Surface ()
- ~Surface () override
- SegmentHelper::BasicCodedEntry & GetAlgorithmFamily ()
- SegmentHelper::BasicCodedEntry const & GetAlgorithmFamily () const
- const char * GetAlgorithmName () const
- const char * GetAlgorithmVersion () const
- const float * GetAxisOfRotation () const
- const float * GetCenterOfRotation () const
- STATES GetFiniteVolume () const
- STATES GetManifold () const
- float GetMaximumPointDistance () const
- float GetMeanPointDistance () const
- MeshPrimitive & GetMeshPrimitive ()
- MeshPrimitive const & GetMeshPrimitive () const
- unsigned long GetNumberOfSurfacePoints () const
- unsigned long GetNumberOfVectors () const
- DataElement & GetPointCoordinatesData ()

- const DataElement & GetPointCoordinatesData () const
- const float * GetPointPositionAccuracy () const
- const float * GetPointsBoundingBoxCoordinates () const
- SegmentHelper::BasicCodedEntry & GetProcessingAlgorithm ()
- SegmentHelper::BasicCodedEntry const & GetProcessingAlgorithm () const
- const unsigned short * GetRecommendedDisplayCIELabValue () const
- unsigned short GetRecommendedDisplayCIELabValue (const unsigned int idx) const
- unsigned short GetRecommendedDisplayGrayscaleValue () const
- float GetRecommendedPresentationOpacity () const
- VIEWType GetRecommendedPresentationType () const
- const char * GetSurfaceComments () const
- unsigned long GetSurfaceNumber () const
- bool GetSurfaceProcessing () const
- const char * GetSurfaceProcessingDescription () const
- float GetSurfaceProcessingRatio () const
- const float * GetVectorAccuracy () const
- DataElement & GetVectorCoordinateData ()
- const DataElement & GetVectorCoordinateData () const
- unsigned short GetVectorDimensionality () const
- void SetAlgorithmFamily (SegmentHelper::BasicCodedEntry const &BSE)
- void SetAlgorithmName (const char *str)
- void SetAlgorithmVersion (const char *str)
- void SetAxisOfRotation (const float *axis)
- void SetCenterOfRotation (const float *center)
- void SetFiniteVolume (STATES state)
- void SetManifold (STATES state)
- void SetMaximumPointDistance (float maximum)
- void SetMeanPointDistance (float average)
- void SetMeshPrimitive (MeshPrimitive &mp)
- void SetNumberOfSurfacePoints (const unsigned long nb)
- void SetNumberOfVectors (const unsigned long nb)
- void SetPointCoordinatesData (DataElement const &de)
- void SetPointPositionAccuracy (const float *accuracies)
- void SetPointsBoundingBoxCoordinates (const float *coordinates)
- void SetProcessingAlgorithm (SegmentHelper::BasicCodedEntry const &BSE)
- void SetRecommendedDisplayCIELabValue (const std::vector< unsigned short > &vl)
- void SetRecommendedDisplayCIELabValue (const unsigned short vl, const unsigned int idx=0)
- void SetRecommendedDisplayCIELabValue (const unsigned short vl[3])
- void SetRecommendedDisplayGrayscaleValue (const unsigned short vl)
- void SetRecommendedPresentationOpacity (const float opacity)
- void SetRecommendedPresentationType (VIEWType type)
- void SetSurfaceComments (const char *comment)
- void SetSurfaceNumber (const unsigned long nb)
- void SetSurfaceProcessing (bool b)
- void SetSurfaceProcessingDescription (const char *description)
- void SetSurfaceProcessingRatio (const float ratio)
- void SetVectorAccuracy (const float *accuracy)
- void SetVectorCoordinateData (DataElement const &de)
- void SetVectorDimensionality (const unsigned short dim)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static STATES GetSTATES (const char *state)
- static const char * GetSTATESString (STATES state)
- static VIEWType GetVIEWType (const char *type)
- static const char * GetVIEWTypeString (VIEWType type)

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.302.1 Detailed Description

This class defines a SURFACE IE.

This members are taken from required surface mesh module attributes.

See also

PS 3.3 A.1.2.18 , A.57 and C.27

12.302.2 Member Enumeration Documentation

12.302.2.1 STATES

`enum gdcm::Surface::STATES`

Enumerator

NO	

YES	
UNKNOWN	
STATES_END	

12.302.2.2 VIEWType

`enum gdcm::Surface::VIEWType`

Enumeration for Recommended Presentation Type.

See also

Tag(0x0066, 0x000D) and PS 3.3 C.27.1.1.3

Enumerator

SURFACE	
WIREFRAME	
POINTS	
VIEWType_END	

12.302.3 Constructor & Destructor Documentation

12.302.3.1 Surface()

```
gdcm::Surface::Surface ()
```

12.302.3.2 ~Surface()

```
gdcm::Surface::~Surface ()  [override]
```

12.302.4 Member Function Documentation

12.302.4.1 GetAlgorithmFamily() [1/2]

```
SegmentHelper::BasicCodedEntry & gdcm::Surface::GetAlgorithmFamily ()
```

12.302.4.2 GetAlgorithmFamily() [2/2]

```
SegmentHelper::BasicCodedEntry const & gdcm::Surface::GetAlgorithmFamily () const
```

12.302.4.3 GetAlgorithmName()

```
const char * gdcm::Surface::GetAlgorithmName () const
```

12.302.4.4 GetAlgorithmVersion()

```
const char * gdcm::Surface::GetAlgorithmVersion () const
```

12.302.4.5 GetAxisOfRotation()

```
const float * gdcm::Surface::GetAxisOfRotation () const
```

Note

Pointer is null if undefined

12.302.4.6 GetCenterOfRotation()

```
const float * gdcm::Surface::GetCenterOfRotation () const
```

Note

Pointer is null if undefined

12.302.4.7 GetFiniteVolume()

```
STATES gdcm::Surface::GetFiniteVolume () const
```

12.302.4.8 GetManifold()

```
STATES gdcm::Surface::GetManifold () const
```

12.302.4.9 GetMaximumPointDistance()

```
float gdcm::Surface::GetMaximumPointDistance () const
```

12.302.4.10 GetMeanPointDistance()

```
float gdcm::Surface::GetMeanPointDistance () const
```

12.302.4.11 GetMeshPrimitive() [1/2]

```
MeshPrimitive & gdcm::Surface::GetMeshPrimitive ()
```

12.302.4.12 GetMeshPrimitive() [2/2]

```
MeshPrimitive const & gdcm::Surface::GetMeshPrimitive () const
```

12.302.4.13 GetNumberOfSurfacePoints()

```
unsigned long gdcm::Surface::GetNumberOfSurfacePoints () const
```

12.302.4.14 GetNumberOfVectors()

```
unsigned long gdcm::Surface::GetNumberOfVectors () const
```

12.302.4.15 GetPointCoordinatesData() [1/2]

```
DataElement & gdcm::Surface::GetPointCoordinatesData ()
```

12.302.4.16 GetPointCoordinatesData() [2/2]

```
const DataElement & gdcm::Surface::GetPointCoordinatesData () const
```

12.302.4.17 GetPointPositionAccuracy()

```
const float * gdcm::Surface::GetPointPositionAccuracy () const
```

Note

Pointer is null if undefined

12.302.4.18 GetPointsBoundingBoxCoordinates()

```
const float * gdcm::Surface::GetPointsBoundingBoxCoordinates () const
```

Note

Pointer is null if undefined

12.302.4.19 GetProcessingAlgorithm() [1/2]

```
SegmentHelper::BasicCodedEntry & gdcm::Surface::GetProcessingAlgorithm ()
```

12.302.4.20 GetProcessingAlgorithm() [2/2]

```
SegmentHelper::BasicCodedEntry const & gdcm::Surface::GetProcessingAlgorithm () const
```

12.302.4.21 GetRecommendedDisplayCIELabValue() [1/2]

```
const unsigned short * gdcm::Surface::GetRecommendedDisplayCIELabValue () const
```

12.302.4.22 GetRecommendedDisplayCIELabValue() [2/2]

```
unsigned short gdcm::Surface::GetRecommendedDisplayCIELabValue (
            const unsigned int idx) const
```

12.302.4.23 GetRecommendedDisplayGrayscaleValue()

```
unsigned short gdcm::Surface::GetRecommendedDisplayGrayscaleValue () const
```

12.302.4.24 GetRecommendedPresentationOpacity()

```
float gdcm::Surface::GetRecommendedPresentationOpacity () const
```

12.302.4.25 GetRecommendedPresentationType()

```
VIEWType gdcm::Surface::GetRecommendedPresentationType () const
```

12.302.4.26 GetSTATES()

```
STATES gdcm::Surface::GetSTATES (
            const char * state)  [static]
```

12.302.4.27 GetSTATESString()

```
const char * gdcm::Surface::GetSTATESString (
            STATES state)  [static]
```

12.302.4.28 GetSurfaceComments()

```
const char * gdcm::Surface::GetSurfaceComments () const
```

12.302.4.29 GetSurfaceNumber()

```
unsigned long gdcm::Surface::GetSurfaceNumber () const
```

12.302.4.30 GetSurfaceProcessing()

```
bool gdcm::Surface::GetSurfaceProcessing () const
```

12.302.4.31 GetSurfaceProcessingDescription()

```
const char * gdcm::Surface::GetSurfaceProcessingDescription () const
```

12.302.4.32 GetSurfaceProcessingRatio()

```
float gdcm::Surface::GetSurfaceProcessingRatio () const
```

12.302.4.33 GetVectorAccuracy()

```
const float * gdcm::Surface::GetVectorAccuracy () const
```

12.302.4.34 GetVectorCoordinateData() [1/2]

```
DataElement & gdcm::Surface::GetVectorCoordinateData ()
```

12.302.4.35 GetVectorCoordinateData() [2/2]

```
const DataElement & gdcm::Surface::GetVectorCoordinateData () const
```

12.302.4.36 GetVectorDimensionality()

```
unsigned short gdcm::Surface::GetVectorDimensionality () const
```

12.302.4.37 GetVIEWType()

```
VIEWType gdcm::Surface::GetVIEWType (
            const char * type)  [static]
```

12.302.4.38 GetVIEWTypeString()

```
const char * gdcm::Surface::GetVIEWTypeString (
            VIEWType type)  [static]
```

12.302.4.39 SetAlgorithmFamily()

```
void gdcm::Surface::SetAlgorithmFamily (
            SegmentHelper::BasicCodedEntry const & BSE)
```

12.302.4.40 SetAlgorithmName()

```
void gdcm::Surface::SetAlgorithmName (
            const char * str)
```

12.302.4.41 SetAlgorithmVersion()

```
void gdcm::Surface::SetAlgorithmVersion (
            const char * str)
```

12.302.4.42 SetAxisOfRotation()

```
void gdcm::Surface::SetAxisOfRotation (
            const float * axis)
```

12.302.4.43 SetCenterOfRotation()

```
void gdcm::Surface::SetCenterOfRotation (
            const float * center)
```

12.302.4.44 SetFiniteVolume()

```
void gdcm::Surface::SetFiniteVolume (
            STATES state)
```

12.302.4.45 SetManifold()

```
void gdcm::Surface::SetManifold (
            STATES state)
```

12.302.4.46 SetMaximumPointDistance()

```
void gdcm::Surface::SetMaximumPointDistance (
            float maximum)
```

12.302.4.47 SetMeanPointDistance()

```
void gdcm::Surface::SetMeanPointDistance (
            float average)
```

12.302.4.48 SetMeshPrimitive()

```
void gdcm::Surface::SetMeshPrimitive (
            MeshPrimitive & mp)
```

References gdcm::Object::SmartPointer.

12.302.4.49 SetNumberOfSurfacePoints()

```
void gdcm::Surface::SetNumberOfSurfacePoints (
            const unsigned long nb)
```

12.302.4.50 SetNumberOfVectors()

```
void gdcm::Surface::SetNumberOfVectors (
            const unsigned long nb)
```

12.302.4.51 SetPointCoordinatesData()

```
void gdcm::Surface::SetPointCoordinatesData (
            DataElement const & de)
```

12.302.4.52 SetPointPositionAccuracy()

```
void gdcm::Surface::SetPointPositionAccuracy (
            const float * accuracies)
```

12.302.4.53 SetPointsBoundingBoxCoordinates()

```
void gdcm::Surface::SetPointsBoundingBoxCoordinates (
            const float * coordinates)
```

12.302.4.54 SetProcessingAlgorithm()

```
void gdcm::Surface::SetProcessingAlgorithm (
            SegmentHelper::BasicCodedEntry const & BSE)
```

12.302.4.55 SetRecommendedDisplayCIELabValue() [1/3]

```
void gdcm::Surface::SetRecommendedDisplayCIELabValue (
            const std::vector< unsigned short > & vl)
```

12.302.4.56 SetRecommendedDisplayCIELabValue() [2/3]

```
void gdcm::Surface::SetRecommendedDisplayCIELabValue (
            const unsigned short vl,
            const unsigned int idx = 0)
```

12.302.4.57 SetRecommendedDisplayCIELabValue() [3/3]

```
void gdcm::Surface::SetRecommendedDisplayCIELabValue (
            const unsigned short vl[3])
```

12.302.4.58 SetRecommendedDisplayGrayscaleValue()

```
void gdcm::Surface::SetRecommendedDisplayGrayscaleValue (
            const unsigned short vl)
```

12.302.4.59 SetRecommendedPresentationOpacity()

```
void gdcm::Surface::SetRecommendedPresentationOpacity (
            const float opacity)
```

12.302.4.60 SetRecommendedPresentationType()

```
void gdcm::Surface::SetRecommendedPresentationType (
            VIEWType type)
```

12.302.4.61 SetSurfaceComments()

```
void gdcm::Surface::SetSurfaceComments (
            const char * comment)
```

12.302.4.62 SetSurfaceNumber()

```
void gdcm::Surface::SetSurfaceNumber (
            const unsigned long nb)
```

12.302.4.63 SetSurfaceProcessing()

```
void gdcm::Surface::SetSurfaceProcessing (
            bool b)
```

12.302.4.64 SetSurfaceProcessingDescription()

```
void gdcm::Surface::SetSurfaceProcessingDescription (
            const char * description)
```

12.302.4.65 SetSurfaceProcessingRatio()

```
void gdcm::Surface::SetSurfaceProcessingRatio (
            const float ratio)
```

12.302.4.66 SetVectorAccuracy()

```
void gdcm::Surface::SetVectorAccuracy (
            const float * accuracy)
```

12.302.4.67 SetVectorCoordinateData()

```
void gdcm::Surface::SetVectorCoordinateData (
            DataElement const & de)
```

12.302.4.68 SetVectorDimensionality()

```
void gdcm::Surface::SetVectorDimensionality (
            const unsigned short dim)
```

The documentation for this class was generated from the following file:

- gdcmSurface.h

12.303 gdcm::SurfaceHelper Class Reference

SurfaceHelper.

```
#include <gdcmSurfaceHelper.h>
```

Public Types

- typedef std::vector< unsigned short > ColorArray

Static Public Member Functions

- template<typename U>
  static std::vector< float > RecommendedDisplayCIELabToRGB (const ColorArray &CIELab, const U rangeMax=255)

  Convert a DICOM CIE-Lab (after reading) color into RGB.
- template<typename T, typename U>
  static std::vector< T > RecommendedDisplayCIELabToRGB (const ColorArray &CIELab, const U rangeMax=255)

  Convert a DICOM CIE-Lab (after reading) color into RGB.
- template<typename T, typename U>
  static ColorArray RGBToRecommendedDisplayCIELab (const std::vector< T > &RGB, const U rangeMax=255)

  Convert a RGB color into DICOM CIE-Lab (ready to write).
- template<typename T, typename U>
  static unsigned short RGBToRecommendedDisplayGrayscale (const std::vector< T > &RGB, const U rangeMax=255)

  Convert a RGB color into DICOM grayscale (ready to write).

12.303.1 Detailed Description

SurfaceHelper.

Helper class for Surface object

12.303.2 Member Typedef Documentation

12.303.2.1 ColorArray

```
typedef std::vector< unsigned short > gdcm::SurfaceHelper::ColorArray
```

12.303.3 Member Function Documentation

12.303.3.1 RecommendedDisplayCIELabToRGB() [1/2]

```
template<typename U>
std::vector< float > gdcm::SurfaceHelper::RecommendedDisplayCIELabToRGB (
            const ColorArray & CIELab,
            const U rangeMax = 255)  [static]
```

Convert a DICOM CIE-Lab (after reading) color into RGB.

See also

PS 3.3 C.10.7.1.1

Parameters

CIELab	DICOM CIE-Lab array.
rangeMax	Max value of the RGB range.

Template Parameters

U	Type of rangeMax value.

References RecommendedDisplayCIELabToRGB().

12.303.3.2 RecommendedDisplayCIELabToRGB() [2/2]

```
template<typename T, typename U>
std::vector< T > gdcm::SurfaceHelper::RecommendedDisplayCIELabToRGB (
            const ColorArray & CIELab,
            const U rangeMax = 255)  [static]
```

Convert a DICOM CIE-Lab (after reading) color into RGB.

See also

PS 3.3 C.10.7.1.1

Parameters

CIELab	DICOM CIE-Lab array.
rangeMax	Max value of the RGB range.

Template Parameters

T	Type of CIELab components.
U	Type of rangeMax value.

Referenced by RecommendedDisplayCIELabToRGB().

12.303.3.3 RGBToRecommendedDisplayCIELab()

```
template<typename T, typename U>
SurfaceHelper::ColorArray gdcm::SurfaceHelper::RGBToRecommendedDisplayCIELab (
            const std::vector< T > & RGB,
            const U rangeMax = 255)  [static]
```

Convert a RGB color into DICOM CIE-Lab (ready to write).

See also

PS 3.3 C.10.7.1.1

Parameters

RGB	RGB array.
rangeMax	Max value of the RGB range.

Template Parameters

T	Type of RGB components.
U	Type of rangeMax value.

12.303.3.4 RGBToRecommendedDisplayGrayscale()

```
template<typename T, typename U>
unsigned short gdcm::SurfaceHelper::RGBToRecommendedDisplayGrayscale (
            const std::vector< T > & RGB,
            const U rangeMax = 255)  [static]
```

Convert a RGB color into DICOM grayscale (ready to write).

See also

PS 3.3 C.27.1 tag(0062,000C)

Parameters

RGB	RGB array.
rangeMax	Max value of the RGB range.

Template Parameters

T	Type of RGB components.
U	Type of rangeMax value.

The documentation for this class was generated from the following file:

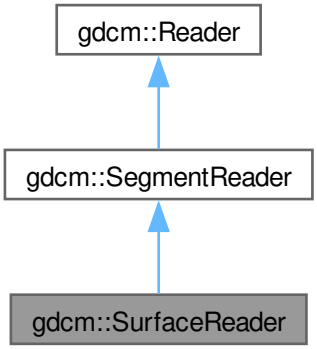
- gdcmSurfaceHelper.h

12.304 gdcm::SurfaceReader Class Reference

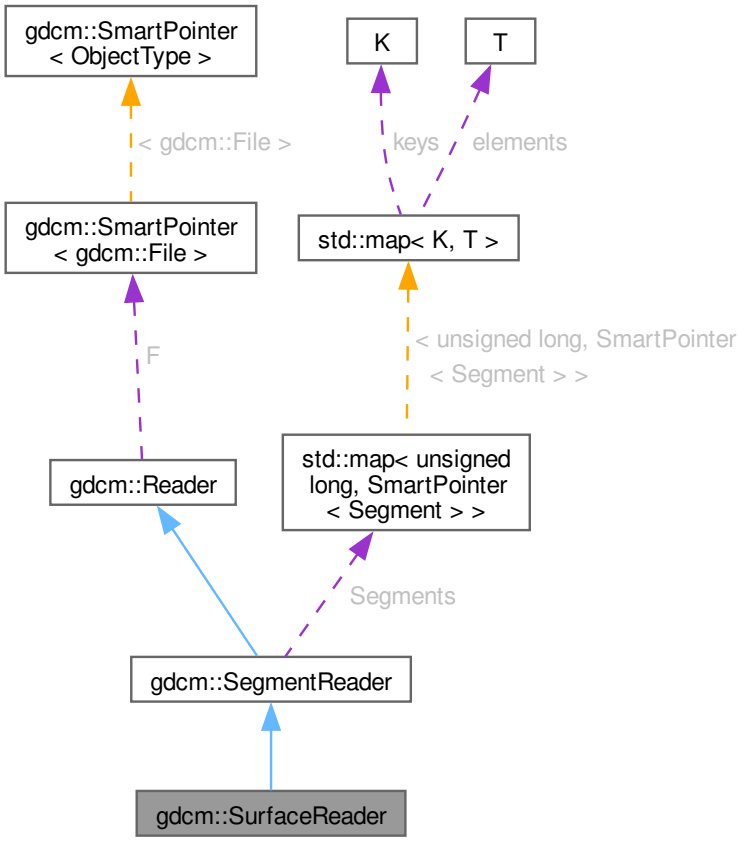
This class defines a SURFACE IE reader.

`#include <gdcmSurfaceReader.h>`

Inheritance diagram for gdcm::SurfaceReader:



Collaboration diagram for gdcm::SurfaceReader:



Public Member Functions

- SurfaceReader ()
- ~SurfaceReader () override
- unsigned long GetNumberOfSurfaces () const
- bool Read () override

  Read.

Public Member Functions inherited from gdcm::SegmentReader

- SegmentReader ()
- ~SegmentReader () override
- SegmentVector GetSegments ()
- SegmentVector GetSegments () const

Public Member Functions inherited from gdcm::Reader

- Reader ()
- virtual ~Reader ()
- bool CanRead () const
- File & GetFile ()

  Set/Get File.
- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const
- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

  Will only read the specified selected private tags.
- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Member Functions

- bool ReadPointMacro (SmartPointer< Surface > surface, const DataSet &surfaceDS)
- bool ReadSurface (const Item &surfaceItem, const unsigned long idx)
- bool ReadSurfaces ()

Protected Member Functions inherited from gdcm::SegmentReader

- bool ReadSegment (const Item &segmentItem, const unsigned int idx)
- bool ReadSegments ()

Protected Member Functions inherited from gdcm::Reader

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Additional Inherited Members

Public Types inherited from gdcm::SegmentReader

- typedef std::vector< SmartPointer< Segment > > SegmentVector

Protected Types inherited from gdcm::SegmentReader

- typedef std::map< unsigned long, SmartPointer< Segment > > SegmentMap

Protected Attributes inherited from gdcm::SegmentReader

- SegmentMap Segments

Protected Attributes inherited from gdcm::Reader

- SmartPointer< File > F

12.304.1 Detailed Description

This class defines a SURFACE IE reader.

It reads surface mesh module attributes.

See also

PS 3.3 A.1.2.18 , A.57 and C.27

12.304.2 Constructor & Destructor Documentation

12.304.2.1 SurfaceReader()

```
gdcm::SurfaceReader::SurfaceReader ()
```

12.304.2.2 ~SurfaceReader()

```
gdcm::SurfaceReader::~SurfaceReader ()  [override]
```

12.304.3 Member Function Documentation

12.304.3.1 GetNumberOfSurfaces()

```
unsigned long gdcm::SurfaceReader::GetNumberOfSurfaces () const
```

12.304.3.2 Read()

```
bool gdcm::SurfaceReader::Read ()  [override], [virtual]
```

Read.

Reimplemented from gdcm::SegmentReader.

12.304.3.3 ReadPointMacro()

```
bool gdcm::SurfaceReader::ReadPointMacro (
            SmartPointer< Surface > surface,
            const DataSet & surfaceDS)  [protected]
```

12.304.3.4 ReadSurface()

```
bool gdcm::SurfaceReader::ReadSurface (
            const Item & surfaceItem,
            const unsigned long idx)  [protected]
```

12.304.3.5 ReadSurfaces()

```
bool gdcm::SurfaceReader::ReadSurfaces ()  [protected]
```

The documentation for this class was generated from the following file:

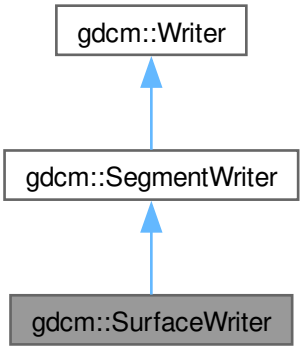
- gdcmSurfaceReader.h

12.305 gdcm::SurfaceWriter Class Reference

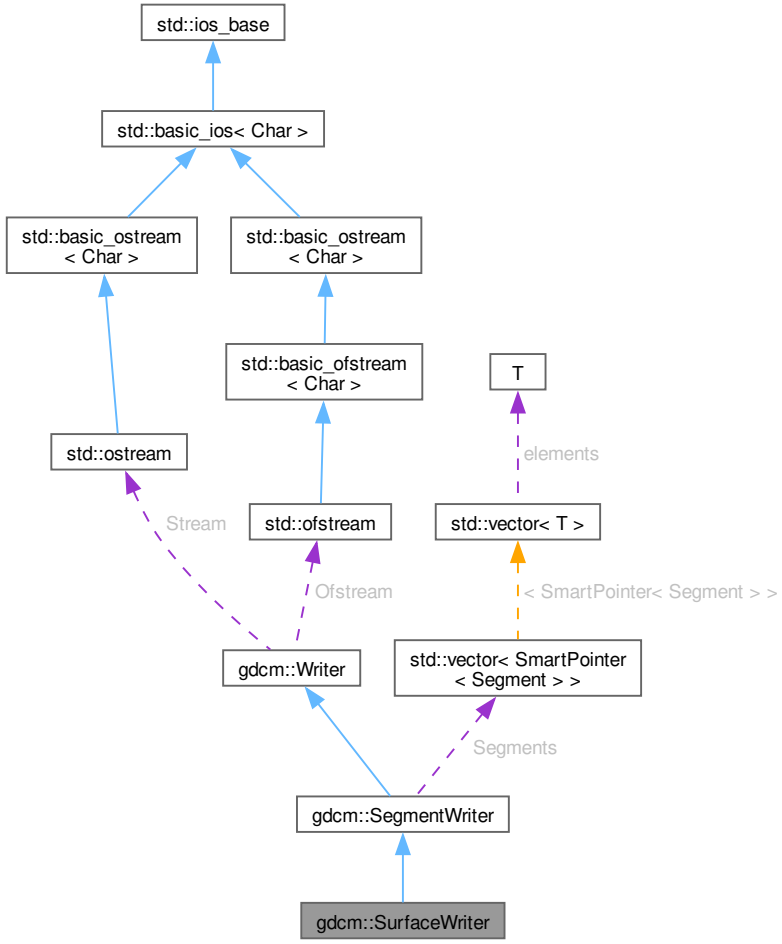
This class defines a SURFACE IE writer.

```
#include <gdcmSurfaceWriter.h>
```

Inheritance diagram for gdcm::SurfaceWriter:



Collaboration diagram for gdcm::SurfaceWriter:



Public Member Functions

- SurfaceWriter ()
- ~SurfaceWriter () override
- unsigned long GetNumberOfSurfaces ()
- void SetNumberOfSurfaces (const unsigned long nb)
- bool Write () override

  Write.

Public Member Functions inherited from gdcm::SegmentWriter

- SegmentWriter ()
- ~SegmentWriter () override

- void AddSegment (SmartPointer< Segment > segment)
- unsigned int GetNumberOfSegments () const
- SmartPointer< Segment > GetSegment (const unsigned int idx=0) const
- SegmentVector & GetSegments ()
- const SegmentVector & GetSegments () const
- void SetNumberOfSegments (const unsigned int size)
- void SetSegments (SegmentVector &segments)

Public Member Functions inherited from gdcm::Writer

- Writer ()
- virtual ~Writer ()
- void CheckFileMetaInformationOff ()
- void CheckFileMetaInformationOn ()
- File & GetFile ()
- void SetCheckFileMetaInformation (bool b)

  Undocumented function, do not use (= leave default).
- void SetFile (const File &f)

  Set/Get the DICOM file (DataSet + Header).
- void SetFileName (const char *filename_native)

  Set the filename of DICOM file to write:
- void SetStream (std::ostream &output_stream)

  Set user ostream buffer.

Protected Member Functions

- void ComputeNumberOfSurfaces ()
- bool PrepareWrite ()
- bool PrepareWritePointMacro (SmartPointer< Surface > surface, DataSet &surfaceDS, const TransferSyntax &ts)

Protected Member Functions inherited from gdcm::SegmentWriter

- bool PrepareWrite ()

Protected Member Functions inherited from gdcm::Writer

- bool GetCheckFileMetaInformation () const
- std::ostream * GetStreamPtr () const
- void SetWriteDataSetOnly (bool b)

Protected Attributes

- unsigned long NumberOfSurfaces

Protected Attributes inherited from gdcm::SegmentWriter

- SegmentVector Segments

Protected Attributes inherited from gdcm::Writer

- std::ofstream * Ofstream
- std::ostream * Stream

Additional Inherited Members

Public Types inherited from gdcm::SegmentWriter

- typedef std::vector< SmartPointer< Segment > > SegmentVector

12.305.1 Detailed Description

This class defines a SURFACE IE writer.

It writes surface mesh module attributes.

See also

PS 3.3 A.1.2.18 , A.57 and C.27

12.305.2 Constructor & Destructor Documentation

12.305.2.1 SurfaceWriter()

```
gdcm::SurfaceWriter::SurfaceWriter ()
```

12.305.2.2 ~SurfaceWriter()

```
gdcm::SurfaceWriter::~SurfaceWriter ()  [override]
```

12.305.3 Member Function Documentation

12.305.3.1 ComputeNumberOfSurfaces()

```
void gdcm::SurfaceWriter::ComputeNumberOfSurfaces ()  [protected]
```

12.305.3.2 GetNumberOfSurfaces()

```
unsigned long gdcm::SurfaceWriter::GetNumberOfSurfaces ()
```

12.305.3.3 PrepareWrite()

```
bool gdcm::SurfaceWriter::PrepareWrite ()  [protected]
```

12.305.3.4 PrepareWritePointMacro()

```
bool gdcm::SurfaceWriter::PrepareWritePointMacro (
            SmartPointer< Surface > surface,
            DataSet & surfaceDS,
            const TransferSyntax & ts)  [protected]
```

12.305.3.5 SetNumberOfSurfaces()

```
void gdcm::SurfaceWriter::SetNumberOfSurfaces (
            const unsigned long nb)
```

12.305.3.6 Write()

```
bool gdcm::SurfaceWriter::Write ()  [override], [virtual]
```

Write.

Reimplemented from gdcm::SegmentWriter.

12.305.4 Member Data Documentation

12.305.4.1 NumberOfSurfaces

```
unsigned long gdcm::SurfaceWriter::NumberOfSurfaces  [protected]
```

The documentation for this class was generated from the following file:

- gdcmSurfaceWriter.h

12.306 gdcm::SwapCode Class Reference

SwapCode representation.

```
#include <gdcmSwapCode.h>
```

Public Types

- enum SwapCodeType {
  Unknown = 0 ,
  LittleEndian = 1234 ,
  BigEndian = 4321 ,
  BadLittleEndian = 3412 ,
  BadBigEndian = 2143 }

Public Member Functions

- SwapCode (SwapCodeType sc=Unknown)
- operator SwapCode::SwapCodeType () const

Static Public Member Functions

- static const char * GetSwapCodeString (SwapCode const &sc)

Static Protected Member Functions

- static int GetIndex (SwapCode const &sc)

Friends

- std::ostream & operator<< (std::ostream &os, const SwapCode &sc)

12.306.1 Detailed Description

SwapCode representation.

Examples

TestByteSwap.cxx.

12.306.2 Member Enumeration Documentation

12.306.2.1 SwapCodeType

`enum gdcm::SwapCode::SwapCodeType`

Enumerator

Unknown	
LittleEndian	
BigEndian	
BadLittleEndian	
BadBigEndian	

12.306.3 Constructor & Destructor Documentation

12.306.3.1 SwapCode()

```
gdcm::SwapCode::SwapCode (
            SwapCodeType sc = Unknown)  [inline]
```

References Unknown.

Referenced by GetIndex(), GetSwapCodeString(), and operator<<.

12.306.4 Member Function Documentation

12.306.4.1 GetIndex()

```
int gdcm::SwapCode::GetIndex (
            SwapCode const & sc)  [static], [protected]
```

References SwapCode().

12.306.4.2 GetSwapCodeString()

```
const char * gdcm::SwapCode::GetSwapCodeString (
            SwapCode const & sc)  [static]
```

References SwapCode(), and operator<<.

Referenced by operator<<.

12.306.4.3 operator SwapCode::SwapCodeType()

```
gdcm::SwapCode::operator SwapCode::SwapCodeType () const  [inline]
```

12.306.5 Friends And Related Symbol Documentation

12.306.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const SwapCode & sc)  [friend]
```

References SwapCode(), and GetSwapCodeString().

Referenced by GetSwapCodeString().

The documentation for this class was generated from the following file:

- gdcmSwapCode.h

12.307 gdcm::SwapperDoOp Class Reference

```
#include <gdcmSwapper.h>
```

Static Public Member Functions

- template<typename T>
  static T Swap (T val)
- template<typename T>
  static void SwapArray (T *array, size_t n)

12.307.1 Member Function Documentation

12.307.1.1 Swap()

```
template<typename T>
T gdcm::SwapperDoOp::Swap (
            T val)  [static]
```

Referenced by gdcm::Item::Read(), and SwapArray().

12.307.1.2 SwapArray()

```
template<typename T>
void gdcm::SwapperDoOp::SwapArray (
            T * array,
            size_t n)  [inline], [static]
```

References Swap().

The documentation for this class was generated from the following file:

- gdcmSwapper.h

12.308 gdcm::SwapperNoOp Class Reference

`#include <gdcmSwapper.h>`

Static Public Member Functions

- template<typename T>
  static T Swap (T val)
- template<typename T>
  static void SwapArray (T *, size_t)

12.308.1 Detailed Description

Examples

DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, and ReadExplicitLengthSQIVR.cxx.

12.308.2 Member Function Documentation

12.308.2.1 Swap()

```
template<typename T>
T gdcm::SwapperNoOp::Swap (
            T val)  [inline], [static]
```

Referenced by gdcm::EncodingImplementation< VR::VRBINARY >::Write().

12.308.2.2 SwapArray()

```
template<typename T>
void gdcm::SwapperNoOp::SwapArray (
            T * ,
            size_t )  [inline], [static]
```

Referenced by gdcm::EncodingImplementation< VR::VRBINARY >::Read().

The documentation for this class was generated from the following file:

- gdcmSwapper.h

12.309 gdcm::System Class Reference

Class to do system operation.

`#include <gdcmSystem.h>`

Static Public Member Functions

- static std::wstring ConvertToUNC (const char *utf8path)
- static bool DeleteDirectory (const char *source)

  remove a directory named source
- static size_t EncodeBytes (char *out, const unsigned char *data, int size)
- static bool FileExists (const char *filename)

  Check whether the specified file exist on the system.
- static bool FileIsDirectory (const char *name)

  Check whether the file specified is a directory:
- static bool FileIsSymlink (const char *name)

  Check whether name is a symlink.
- static size_t FileSize (const char *filename)
- static time_t FileTime (const char *filename)
- static bool FormatDateTime (char date[22], time_t t, long milliseconds=0)
- static bool GetCurrentDateTime (char date[22])
- static const char * GetCurrentModuleFileName ()
- static const char * GetCurrentProcessFileName ()
- static const char * GetCurrentResourcesDirectory ()
- static const char * GetCWD ()
- static bool GetHostName (char hostname[255])
- static const char * GetLastSystemError ()

  Return the last error.
- static const char * GetLocaleCharset ()

  return `locale charmap`
- static const char * GetTimezoneOffsetFromUTC ()
- static bool MakeDirectory (const char *path)

  Create a directory name path.
- static bool ParseDateTime (time_t &timep, const char date[22])

  Parse a date stored as ASCII text into a time_t structured (discard millisecond if any).
- static bool ParseDateTime (time_t &timep, long &milliseconds, const char date[22])
- static bool RemoveFile (const char *source)

  remove a file named source
- static int StrCaseCmp (const char *s1, const char *s2)

  consistent func for C99 spec of strcasecmp/strncasecmp
- static int StrNCaseCmp (const char *s1, const char *s2, size_t n)
- static char * StrSep (char **stringp, const char *delim)
- static char * StrTokR (char *ptr, const char *sep, char **end)

  strtok_r

Static Protected Member Functions

- static bool GetPermissions (const char *file, unsigned short &mode)

  NOT THREAD SAFE.
- static bool SetPermissions (const char *file, unsigned short mode)

12.309.1 Detailed Description

Class to do system operation.

OS independent functionalities

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, CompressLossyJPEG.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, DumpCSA.cs, ExtractEncapsulatedFile.cs, ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, FileAnonymize.cs, FileChangeTS.cs, FileChangeTSLossy.cs, FileStreaming.cs, GetArray.cs, MetaImageMD5Activiz.cs, MpegVideoInfo.cs, ReformatFile.cs, RescaleImage.cs, ScanDirectory.cs, SimplePrint.cs, and StandardizeFiles.cs.

12.309.2 Member Function Documentation

12.309.2.1 ConvertToUNC()

```
std::wstring gdcm::System::ConvertToUNC (
            const char * utf8path)  [static]
```

When needed convert a PATH into a UNC equivalent. This allow transparent support for path longer that MAX_PATH. Only on _MSC_VER compiler, return empty string otherwise.

12.309.2.2 DeleteDirectory()

```
bool gdcm::System::DeleteDirectory (
            const char * source)  [static]
```

remove a directory named source

12.309.2.3 EncodeBytes()

```
size_t gdcm::System::EncodeBytes (
            char * out,
            const unsigned char * data,
            int size)  [static]
```

Used internally by the UIDGenerator class to convert a uuid tape to a DICOM VR:UI type

12.309.2.4 FileExists()

```
bool gdcm::System::FileExists (
            const char * filename)  [static]
```

Check whether the specified file exist on the system.

Examples

DumpVisusChange.cxx, EncapsulateFileInRawData.cxx, MagnifyFile.cxx, and gdcmorthoplanes.cxx.

12.309.2.5 FileIsDirectory()

```
bool gdcm::System::FileIsDirectory (
            const char * name)  [static]
```

Check whether the file specified is a directory:

Examples

DumpVisusChange.cxx, gdcmorthoplanes.cxx, and threadgdcm.cxx.

12.309.2.6 FileIsSymlink()

```
bool gdcm::System::FileIsSymlink (
            const char * name)  [static]
```

Check whether name is a symlink.

12.309.2.7 FileSize()

```
size_t gdcm::System::FileSize (
            const char * filename)  [static]
```

Return the filesize. 0 if file does not exist.

Warning

you need to use FileExists to differentiate between empty file and missing file.

for very large size file and on system where size_t is not appropriate to store off_t value the function will return 0.

Examples

CheckBigEndianBug.cxx, CreateARGBImage.cxx, CreateCMYKImage.cxx, EncapsulateFileInRawData.cxx, and SimpleScanner.cxx.

12.309.2.8 FileTime()

```
time_t gdcm::System::FileTime (
            const char * filename)  [static]
```

Return the time of last modification of file 0 if the file does not exist

12.309.2.9 FormatDateTime()

```
bool gdcm::System::FormatDateTime (
            char date[22],
            time_t t,
            long milliseconds = 0)  [static]
```

format as ASCII text a time_t with milliseconds See VR::DT from DICOM PS 3.5 milliseconds is in the range [0, 999999]

12.309.2.10 GetCurrentDateTime()

```
bool gdcm::System::GetCurrentDateTime (
            char date[22])  [static]
```

Return the current data time, and format it as ASCII text. This is simply a call to gettimeofday + FormatDateTime, since WIN32 do not have an implementation for gettimeofday, this is more portable. The call time(0) is not precise for our resolution

Examples

TemplateEmptyImage.cxx.

12.309.2.11 GetCurrentModuleFileName()

```
const char * gdcm::System::GetCurrentModuleFileName ()  [static]
```

Return the directory the current module is located: NOT THREAD SAFE

12.309.2.12 GetCurrentProcessFileName()

```
const char * gdcm::System::GetCurrentProcessFileName ()  [static]
```

Return the directory the current process (executable) is located: NOT THREAD SAFE

12.309.2.13 GetCurrentResourcesDirectory()

```
const char * gdcm::System::GetCurrentResourcesDirectory ()  [static]
```

On some system (Apple) return the path to the current bundled 'Resources' directory NOT THREAD SAFE

12.309.2.14 GetCWD()

```
const char * gdcm::System::GetCWD ()  [static]
```

Return current working directory Warning: if current working path is too long (>2048 bytes) the call will fail and call will return NULL NOT THREAD SAFE

12.309.2.15 GetHostName()

```
bool gdcm::System::GetHostName (
            char hostname[255])  [static]
```

Retrieve the hostname, only the first 255 byte are copied. This may come handy to specify the Station Name

12.309.2.16 GetLastSystemError()

```
const char * gdcm::System::GetLastSystemError ()  [static]
```

Return the last error.

12.309.2.17 GetLocaleCharset()

```
const char * gdcm::System::GetLocaleCharset ()  [static]
```

return `locale charmap`

12.309.2.18 GetPermissions()

```
bool gdcm::System::GetPermissions (
            const char * file,
            unsigned short & mode)  [static], [protected]
```

NOT THREAD SAFE.

12.309.2.19 GetTimezoneOffsetFromUTC()

```
const char * gdcm::System::GetTimezoneOffsetFromUTC ()  [static]
```

Return the value for Timezone Offset From UTC as string.

Warning

not thread safe

12.309.2.20 MakeDirectory()

```
bool gdcm::System::MakeDirectory (
            const char * path)  [static]
```

Create a directory name path.

12.309.2.21 ParseDateTime() [1/2]

```
bool gdcm::System::ParseDateTime (
            time_t & timep,
            const char date[22])  [static]
```

Parse a date stored as ASCII text into a time_t structured (discard millisecond if any).

12.309.2.22 ParseDateTime() [2/2]

```
bool gdcm::System::ParseDateTime (
            time_t & timep,
            long & milliseconds,
            const char date[22])  [static]
```

Parse a date stored as ASCII text into a time_t structured and millisecond

See also

FormatDateTime

12.309.2.23 RemoveFile()

```
bool gdcm::System::RemoveFile (
            const char * source)  [static]
```

remove a file named source

12.309.2.24 SetPermissions()

```
bool gdcm::System::SetPermissions (
            const char * file,
            unsigned short mode)  [static], [protected]
```

12.309.2.25 StrCaseCmp()

```
int gdcm::System::StrCaseCmp (
            const char * s1,
            const char * s2)  [static]
```

consistent func for C99 spec of strcasecmp/strncasecmp

12.309.2.26 StrNCaseCmp()

```
int gdcm::System::StrNCaseCmp (
             const char * s1,
             const char * s2,
             size_t n)  [static]
```

Precondition

n != 0

12.309.2.27 StrSep()

```
char * gdcm::System::StrSep (
             char ** stringp,
             const char * delim)  [static]
```

strsep param stringp is passed by pointer, it may be modified, you'll need to make a copy, in case you want to free the memory pointed at

12.309.2.28 StrTokR()

```
char * gdcm::System::StrTokR (
             char * ptr,
             const char * sep,
             char ** end)  [static]
```

strtok_r

The documentation for this class was generated from the following file:

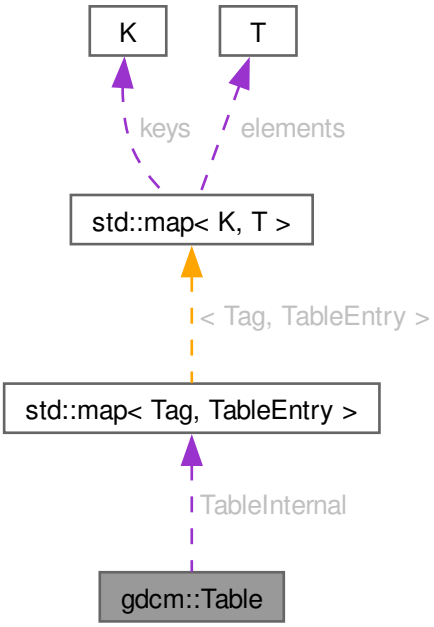
- gdcmSystem.h

12.310 gdcm::Table Class Reference

Table.

```
#include <gdcmTable.h>
```

Collaboration diagram for gdcm::Table:



Public Types

- typedef std::map< Tag, TableEntry > MapTableEntry

Public Member Functions

- Table ()=default
- Table (const Table &_val)=delete
- ~Table ()=default
- const TableEntry & GetTableEntry (const Tag &tag) const
- void InsertEntry (Tag const &tag, TableEntry const &te)
- Table & operator= (const Table &_val)=delete

Public Attributes

- MapTableEntry TableInternal

Friends

- std::ostream & operator<< (std::ostream &_os, const Table &_val)

12.310.1 Detailed Description

Table.

12.310.2 Member Typedef Documentation

12.310.2.1 MapTableEntry

```
typedef std::map<Tag, TableEntry> gdcm::Table::MapTableEntry
```

12.310.3 Constructor & Destructor Documentation

12.310.3.1 Table() [1/2]

```
gdcm::Table::Table ()  [default]
```

Referenced by Table(), operator<<, and operator=().

12.310.3.2 ~Table()

```
gdcm::Table::~Table ()  [default]
```

12.310.3.3 Table() [2/2]

```
gdcm::Table::Table (
            const Table & _val)  [delete]
```

References Table().

12.310.4 Member Function Documentation

12.310.4.1 GetTableEntry()

```
const TableEntry & gdcm::Table::GetTableEntry (
            const Tag & tag) const  [inline]
```

References GetTableEntry(), and TableInternal.

Referenced by GetTableEntry().

12.310.4.2 InsertEntry()

```
void gdcm::Table::InsertEntry (
            Tag const & tag,
            TableEntry const & te)  [inline]
```

References TableInternal.

12.310.4.3 operator=()

```
Table & gdcm::Table::operator= (
            const Table & _val)  [delete]
```

References Table().

12.310.5 Friends And Related Symbol Documentation

12.310.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Table & _val)  [friend]
```

References Table().

12.310.6 Member Data Documentation

12.310.6.1 TableInternal

```
MapTableEntry gdcm::Table::TableInternal
```

Referenced by GetTableEntry(), and InsertEntry().

The documentation for this class was generated from the following file:

- gdcmTable.h

12.311 gdcm::TableEntry Class Reference

TableEntry.

```
#include <gdcmTableEntry.h>
```

Public Member Functions

- TableEntry (const char *attribute=nullptr, Type const &type=Type(), const char *des=nullptr)
- ~TableEntry ()=default

12.311.1 Detailed Description

TableEntry.

12.311.2 Constructor & Destructor Documentation

12.311.2.1 TableEntry()

```
gdcm::TableEntry::TableEntry (
            const char * attribute = nullptr,
            Type const & type = Type(),
            const char * des = nullptr)  [inline]
```

12.311.2.2 ~TableEntry()

```
gdcm::TableEntry::~TableEntry ()  [default]
```

The documentation for this class was generated from the following file:

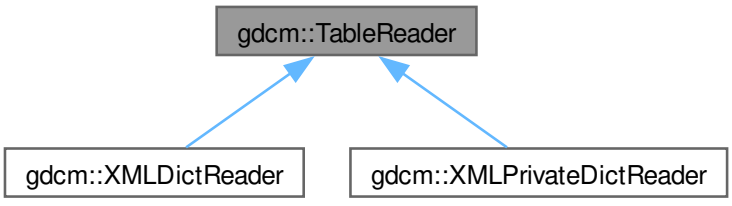
- gdcmTableEntry.h

12.312 gdcm::TableReader Class Reference

Class for representing a TableReader.

```
#include <gdcmTableReader.h>
```

Inheritance diagram for gdcm::TableReader:



Public Member Functions

- TableReader (Defs &defs)
- virtual ~TableReader ()=default
- virtual void CharacterDataHandler (const char *data, int length)
- virtual void EndElement (const char *name)
- const Defs & GetDefs () const
- const char * GetFilename ()
- void HandleIOD (const char **atts)
- void HandleIODEntry (const char **atts)
- void HandleMacro (const char **atts)
- void HandleMacroEntry (const char **atts)
- void HandleMacroEntryDescription (const char **atts)
- void HandleModule (const char **atts)
- void HandleModuleEntry (const char **atts)
- void HandleModuleEntryDescription (const char **atts)
- void HandleModuleInclude (const char **atts)
- int Read ()
- void SetFilename (const char *filename)
- virtual void StartElement (const char *name, const char **atts)

12.312.1 Detailed Description

Class for representing a TableReader.

Note

This class is an empty shell meant to be derived

12.312.2 Constructor & Destructor Documentation

12.312.2.1 TableReader()

```
gdcm::TableReader::TableReader (
            Defs & defs)  [inline]
```

12.312.2.2 ~TableReader()

```
virtual gdcm::TableReader::~TableReader ()  [virtual], [default]
```

12.312.3 Member Function Documentation

12.312.3.1 CharacterDataHandler()

```
virtual void gdcm::TableReader::CharacterDataHandler (
            const char * data,
            int length)  [virtual]
```

Reimplemented in gdcm::XMLDictReader, and gdcm::XMLPrivateDictReader.

12.312.3.2 EndElement()

```
virtual void gdcm::TableReader::EndElement (
            const char * name)  [virtual]
```

Reimplemented in gdcm::XMLDictReader, and gdcm::XMLPrivateDictReader.

12.312.3.3 GetDefs()

```
const Defs & gdcm::TableReader::GetDefs () const  [inline]
```

12.312.3.4 GetFilename()

```
const char * gdcm::TableReader::GetFilename ()  [inline]
```

12.312.3.5 HandleIOD()

```
void gdcm::TableReader::HandleIOD (
            const char ** atts)
```

12.312.3.6 HandleIODEntry()

```
void gdcm::TableReader::HandleIODEntry (
            const char ** atts)
```

12.312.3.7 HandleMacro()

```
void gdcm::TableReader::HandleMacro (
            const char ** atts)
```

12.312.3.8 HandleMacroEntry()

```
void gdcm::TableReader::HandleMacroEntry (
            const char ** atts)
```

12.312.3.9 HandleMacroEntryDescription()

```
void gdcm::TableReader::HandleMacroEntryDescription (
            const char ** atts)
```

12.312.3.10 HandleModule()

```
void gdcm::TableReader::HandleModule (
            const char ** atts)
```

12.312.3.11 HandleModuleEntry()

```
void gdcm::TableReader::HandleModuleEntry (
            const char ** atts)
```

12.312.3.12 HandleModuleEntryDescription()

```
void gdcm::TableReader::HandleModuleEntryDescription (
            const char ** atts)
```

12.312.3.13 HandleModuleInclude()

```
void gdcm::TableReader::HandleModuleInclude (
            const char ** atts)
```

12.312.3.14 Read()

```
int gdcm::TableReader::Read ()
```

12.312.3.15 SetFilename()

```
void gdcm::TableReader::SetFilename (
            const char * filename)  [inline]
```

12.312.3.16 StartElement()

```
virtual void gdcm::TableReader::StartElement (
            const char * name,
            const char ** atts)  [virtual]
```

Reimplemented in gdcm::XMLDictReader, and gdcm::XMLPrivateDictReader.

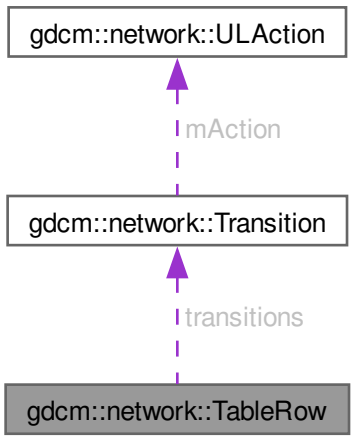
The documentation for this class was generated from the following file:

- gdcmTableReader.h

12.313 gdcm::network::TableRow Class Reference

```
#include <gdcmULTransitionTable.h>
```

Collaboration diagram for gdcm::network::TableRow:



Public Member Functions

- TableRow ()
- ~TableRow ()

Public Attributes

- Transition * transitions [cMaxStateID]

12.313.1 Constructor & Destructor Documentation

12.313.1.1 TableRow()

```
gdcm::network::TableRow::TableRow ()  [inline]
```

References gdcm::network::cMaxStateID, and transitions.

12.313.1.2 ~TableRow()

```
gdcm::network::TableRow::~TableRow ()  [inline]
```

References gdcm::network::cMaxStateID, and transitions.

12.313.2 Member Data Documentation

12.313.2.1 transitions

```
Transition* gdcm::network::TableRow::transitions[cMaxStateID]
```

Referenced by TableRow(), and ~TableRow().

The documentation for this class was generated from the following file:

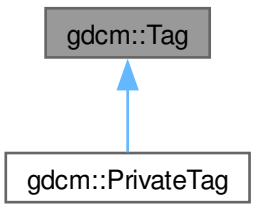
- gdcmULTransitionTable.h

12.314 gdcm::Tag Class Reference

Class to represent a DICOM Data Element (Attribute) Tag (Group, Element).

```
#include <gdcmTag.h>
```

Inheritance diagram for gdcm::Tag:



Public Member Functions

- Tag (const Tag &_val)
- Tag (uint16_t group, uint16_t element)

  Constructor with 2∗uint16_t.
- Tag (uint32_t tag=0)

  Constructor with 1∗uint32_t Prefer the cstor that takes two uint16_t.
- uint16_t GetElement () const

  Returns the 'Element number' of the given Tag.
- uint32_t GetElementTag () const

  Returns the full tag value of the given Tag.
- uint16_t GetGroup () const

  Returns the 'Group number' of the given Tag.
- uint32_t GetLength () const

  return the length of tag (read: size on disk)
- Tag GetPrivateCreator () const

  Return the Private Creator Data Element tag of a private data element.
- bool IsGroupLength () const

  return whether the tag correspond to a group length tag:
- bool IsGroupXX (const Tag &t) const

  e.g 6002,3000 belong to groupXX: 6000,3000
- bool IsIllegal () const

  return if the tag is considered to be an illegal tag
- bool IsPrivate () const
- bool IsPrivateCreator () const
- bool IsPublic () const
- bool operator!= (const Tag &_val) const
- bool operator< (const Tag &_val) const
- bool operator<= (const Tag &t2) const
- Tag & operator= (const Tag &_val)
- bool operator== (const Tag &_val) const
- uint16_t & operator[ ] (const unsigned int &_id)

  Returns the Group or Element of the given Tag, depending on id (0/1).
- const uint16_t & operator[ ] (const unsigned int &_id) const

  Returns the Group or Element of the given Tag, depending on id (0/1).
- std::string PrintAsContinuousString () const
- std::string PrintAsContinuousUpperCaseString () const

  Same as PrintAsContinuousString, but hexadecimal [a-f] are printed using upper case.
- std::string PrintAsPipeSeparatedString () const
- template<typename TSwap>
  std::istream & Read (std::istream &is)

  Read a tag from binary representation.
- bool ReadFromCommaSeparatedString (const char ∗str)
- bool ReadFromContinuousString (const char ∗str)
- bool ReadFromPipeSeparatedString (const char ∗str)
- void SetElement (uint16_t element)

  Sets the 'Element number' of the given Tag.
- void SetElementTag (uint16_t group, uint16_t element)

Sets the 'Group number' & 'Element number' of the given Tag.

- void SetElementTag (uint32_t tag)

  Sets the full tag value of the given Tag.
- void SetGroup (uint16_t group)

  Sets the 'Group number' of the given Tag.
- void SetPrivateCreator (Tag const &t)

  Set private creator:
- template<typename TSwap>
  const std::ostream & Write (std::ostream &os) const

  Write a tag in binary rep.

Friends

- std::ostream & operator<< (std::ostream &_os, const Tag &_val)
- std::istream & operator>> (std::istream &_is, Tag &_val)

12.314.1 Detailed Description

Class to represent a DICOM Data Element (Attribute) Tag (Group, Element).

Basically an uint32_t which can also be expressed as two uint16_t (group and element)

Note

DATA ELEMENT TAG: A unique identifier for a Data Element composed of an ordered pair of numbers (a Group Number followed by an Element Number). GROUP NUMBER: The first number in the ordered pair of numbers that makes up a Data Element Tag. ELEMENT NUMBER: The second number in the ordered pair of numbers that makes up a Data Element Tag.

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DecompressImage.cs, DeriveSeries.cxx, DiscriminateVolume.cxx, DumpToSQLITE3.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, EncapsulateFileInRawData.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FileAnonymize.cs, FileChangeTS.cs, FileChangeTSLossy.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, MergeTwoFiles.cxx, MpegVideoInfo.cs, PatchFile.cxx, PublicDict.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.c ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ScanDirectory.cs, SimpleScanner.cxx, SortImage.cxx, StreamImageReaderTest.cxx, TraverseModules.cxx, VolumeSorter.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.314.2 Constructor & Destructor Documentation

12.314.2.1 Tag() [1/3]

```
gdcm::Tag::Tag (
            uint16_t group,
            uint16_t element)  [inline]
```

Constructor with 2∗uint16_t.

Referenced by gdcm::PrivateTag::PrivateTag(), gdcm::PrivateTag::PrivateTag(), Tag(), GetPrivateCreator(), IsGroupXX(), gdcm::PrivateTag::operator!=(), operator!=(), operator<(), operator<<, operator<=(), operator=(), gdcm::PrivateTag::operator==(), operator==(), operator>>, and SetPrivateCreator().

12.314.2.2 Tag() [2/3]

```
gdcm::Tag::Tag (
            uint32_t tag = 0)  [inline]
```

Constructor with 1∗uint32_t Prefer the cstor that takes two uint16_t.

References SetElementTag(), and tag.

12.314.2.3 Tag() [3/3]

```
gdcm::Tag::Tag (
            const Tag & _val)  [inline]
```

References Tag(), and tag.

12.314.3 Member Function Documentation

12.314.3.1 GetElement()

```
uint16_t gdcm::Tag::GetElement () const  [inline]
```

Returns the 'Element number' of the given Tag.

Examples

DuplicatePCDE.cxx, and PublicDict.cxx.

Referenced by gdcm::PrivateTag::PrivateTag(), gdcm::DataSet::ComputeGroupLength(), GetPrivateCreator(), IsGroupLength(), IsGroupXX(), IsIllegal(), IsPrivateCreator(), gdcm::PrivateDict::PrintXML(), gdcm::SequenceOfFragments::ReadValue(), and SetPrivateCreator().

12.314.3.2 GetElementTag()

```
uint32_t gdcm::Tag::GetElementTag () const  [inline]
```

Returns the full tag value of the given Tag.

Referenced by gdcm::PrivateTag::operator!=(), gdcm::PrivateTag::operator!=(), gdcm::PrivateTag::operator=(), gdcm::PrivateTag::operator==(), and gdcm::PrivateTag::operator==().

12.314.3.3 GetGroup()

```
uint16_t gdcm::Tag::GetGroup () const  [inline]
```

Returns the 'Group number' of the given Tag.

Examples

DuplicatePCDE.cxx, and GenAllVR.cxx.

Referenced by gdcm::DataSet::ComputeGroupLength(), gdcm::CommandDataSet::Insert(), gdcm::DataSet::Insert(), gdcm::FileMetaInformation::Insert(), IsGroupXX(), IsIllegal(), gdcm::PrivateDict::PrintXML(), gdcm::SequenceOfFragments::ReadValue(), and SetPrivateCreator().

12.314.3.4 GetLength()

```
uint32_t gdcm::Tag::GetLength () const  [inline]
```

return the length of tag (read: size on disk)

12.314.3.5 GetPrivateCreator()

```
Tag gdcm::Tag::GetPrivateCreator () const  [inline]
```

Return the Private Creator Data Element tag of a private data element.

References Tag(), GetElement(), IsPrivate(), IsPrivateCreator(), and SetElement().

12.314.3.6 IsGroupLength()

```
bool gdcm::Tag::IsGroupLength () const  [inline]
```

return whether the tag correspond to a group length tag:

References GetElement().

12.314.3.7 IsGroupXX()

```
bool gdcm::Tag::IsGroupXX (
            const Tag & t) const  [inline]
```

e.g 6002,3000 belong to groupXX: 6000,3000

References Tag(), GetElement(), GetGroup(), and IsPrivate().

12.314.3.8 IsIllegal()

```
bool gdcm::Tag::IsIllegal () const  [inline]
```

return if the tag is considered to be an illegal tag

References GetElement(), GetGroup(), and IsPrivate().

12.314.3.9 IsPrivate()

```
bool gdcm::Tag::IsPrivate () const  [inline]
```

PRIVATE DATA ELEMENT: Additional Data Element, defined by an implementor, to communicate information that is not contained in Standard Data Elements. Private Data elements have odd Group Numbers.

Examples

DuplicatePCDE.cxx.

References IsPublic().

Referenced by GetPrivateCreator(), IsGroupXX(), IsIllegal(), IsPrivateCreator(), and SetPrivateCreator().

12.314.3.10 IsPrivateCreator()

```
bool gdcm::Tag::IsPrivateCreator () const  [inline]
```

Returns if tag is a Private Creator (xxxx,00yy), where xxxx is odd number and yy in [0x10,0xFF]

Examples

DuplicatePCDE.cxx.

References GetElement(), and IsPrivate().

Referenced by GetPrivateCreator().

12.314.3.11 IsPublic()

```
bool gdcm::Tag::IsPublic () const  [inline]
```

STANDARD DATA ELEMENT: A Data Element defined in the DICOM Standard, and therefore listed in the DICOM Data Element Dictionary in PS 3.6. Is the Tag from the Public dict...well the implementation is buggy it does not prove the element is indeed in the dict...

Referenced by IsPrivate().

12.314.3.12 operator"!=()

```
bool gdcm::Tag::operator!= (
            const Tag & _val) const  [inline]
```

References Tag(), and tag.

12.314.3.13 operator<()

```
bool gdcm::Tag::operator< (
            const Tag & _val) const  [inline]
```

DICOM Standard expects the Data Element to be sorted by Tags All other comparison can be constructed from this one and operator ==

References Tag(), tag, and tags.

12.314.3.14 operator<=()

```
bool gdcm::Tag::operator<= (
            const Tag & t2) const  [inline]
```

References Tag().

12.314.3.15 operator=()

```
Tag & gdcm::Tag::operator= (
            const Tag & _val)  [inline]
```

References Tag(), and tag.

12.314.3.16 operator==()

```
bool gdcm::Tag::operator== (
            const Tag & _val) const  [inline]
```

References Tag(), and tag.

12.314.3.17 operator[]() [1/2]

```
uint16_t & gdcm::Tag::operator[] (
            const unsigned int & _id)  [inline]
```

Returns the Group or Element of the given Tag, depending on id (0/1).

12.314.3.18 operator[]() [2/2]

```
const uint16_t & gdcm::Tag::operator[] (
            const unsigned int & _id) const  [inline]
```

Returns the Group or Element of the given Tag, depending on id (0/1).

12.314.3.19 PrintAsContinuousString()

```
std::string gdcm::Tag::PrintAsContinuousString () const
```

Print tag value with no separating comma: eg. tag = "12345678" It comes in useful when reading tag values from XML file(in NativeDICOMModel)

12.314.3.20 PrintAsContinuousUpperCaseString()

```
std::string gdcm::Tag::PrintAsContinuousUpperCaseString () const
```

Same as PrintAsContinuousString, but hexadecimal [a-f] are printed using upper case.

12.314.3.21 PrintAsPipeSeparatedString()

```
std::string gdcm::Tag::PrintAsPipeSeparatedString () const
```

Print as a pipe separated string (GDCM 1.x compat only). Do not use in newer code

See also

ReadFromPipeSeparatedString

12.314.3.22 Read()

```
template<typename TSwap>
std::istream & gdcm::Tag::Read (
            std::istream & is)  [inline]
```

Read a tag from binary representation.

12.314.3.23 ReadFromCommaSeparatedString()

```
bool gdcm::Tag::ReadFromCommaSeparatedString (
            const char * str)
```

Read from a comma separated string. This is a highly user oriented function, the string should be formatted as↩ : 1234,5678 to specify the tag (0x1234,0x5678) The notation comes from the DICOM standard, and is handy to use from a command line program

12.314.3.24 ReadFromContinuousString()

```
bool gdcm::Tag::ReadFromContinuousString (
            const char * str)
```

Read From XML formatted tag value eg. tag = "12345678" It comes in useful when reading tag values from XML file(in NativeDICOMModel)

12.314.3.25 ReadFromPipeSeparatedString()

```
bool gdcm::Tag::ReadFromPipeSeparatedString (
            const char * str)
```

Read from a pipe separated string (GDCM 1.x compat only). Do not use in newer code

See also

ReadFromCommaSeparatedString

12.314.3.26 SetElement()

```
void gdcm::Tag::SetElement (
            uint16_t element)  [inline]
```

Sets the 'Element number' of the given Tag.

Examples

DuplicatePCDE.cxx, and PublicDict.cxx.

Referenced by gdcm::PrivateTag::PrivateTag(), gdcm::PrivateTag::PrivateTag(), GetPrivateCreator(), operator>>, and SetPrivateCreator().

12.314.3.27 SetElementTag() [1/2]

```
void gdcm::Tag::SetElementTag (
            uint16_t group,
            uint16_t element)  [inline]
```

Sets the 'Group number' & 'Element number' of the given Tag.

Referenced by Tag(), and gdcm::PrivateTag::operator=().

12.314.3.28 SetElementTag() [2/2]

```
void gdcm::Tag::SetElementTag (
            uint32_t tag)  [inline]
```

Sets the full tag value of the given Tag.

References tag.

12.314.3.29 SetGroup()

```
void gdcm::Tag::SetGroup (
            uint16_t group)  [inline]
```

Sets the 'Group number' of the given Tag.

Referenced by operator>>, and SetPrivateCreator().

12.314.3.30 SetPrivateCreator()

```
void gdcm::Tag::SetPrivateCreator (
            Tag const & t)  [inline]
```

Set private creator:

Examples

DuplicatePCDE.cxx.

References Tag(), GetElement(), GetGroup(), IsPrivate(), SetElement(), and SetGroup().

12.314.3.31 Write()

```
template<typename TSwap>
const std::ostream & gdcm::Tag::Write (
            std::ostream & os) const  [inline]
```

Write a tag in binary rep.

Referenced by gdcm::Item::Write(), gdcm::SequenceOfFragments::Write(), and gdcm::SequenceOfItems::Write().

12.314.4 Friends And Related Symbol Documentation

12.314.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Tag & _val)  [friend]
```

References Tag().

12.314.4.2 operator>>

```
std::istream & operator>> (
            std::istream & _is,
            Tag & _val)  [friend]
```

References Tag(), SetElement(), and SetGroup().

12.314.5 Member Data Documentation

12.314.5.1 bytes

```
char gdcm::Tag::bytes[4]
```

12.314.5.2 tag

```
uint32_t gdcm::Tag::tag
```

Referenced by Tag(), Tag(), operator!=(), operator<(), operator=(), operator==(), and SetElementTag().

12.314.5.3 tags

```
uint16_t gdcm::Tag::tags[2]
```

Referenced by operator<().

The documentation for this class was generated from the following file:

- gdcmTag.h

12.315 gdcm::TagPath Class Reference

class to handle a path of tag.

`#include <gdcmTagPath.h>`

Public Member Functions

- TagPath ()
- ~TagPath ()
- bool ConstructFromString (const char *path)
- bool ConstructFromTagList (Tag const *l, unsigned int n)

  Construct from a list of tags.
- void Print (std::ostream &) const
- bool Push (Tag const &t)
- bool Push (unsigned int itemnum)

Static Public Member Functions

- static bool IsValid (const char *path)

  Return if path is valid or not.

12.315.1 Detailed Description

class to handle a path of tag.

Any Resemblance to Existing XPath is Purely Coincidental `ftp://medical.nema.org/medical/dicom/supps/sup118_pc.pdf`

12.315.2 Constructor & Destructor Documentation

12.315.2.1 TagPath()

`gdcm::TagPath::TagPath ()`

12.315.2.2 ~TagPath()

`gdcm::TagPath::~TagPath ()`

12.315.3 Member Function Documentation

12.315.3.1 ConstructFromString()

```
bool gdcm::TagPath::ConstructFromString (
            const char * path)
```

"/0018,0018/"... No space allowed, comma is use to separate tag group from tag element and slash is used to separate tag return false if invalid

12.315.3.2 ConstructFromTagList()

```
bool gdcm::TagPath::ConstructFromTagList (
            Tag const * l,
            unsigned int n)
```

Construct from a list of tags.

12.315.3.3 IsValid()

```
bool gdcm::TagPath::IsValid (
            const char * path)  [static]
```

Return if path is valid or not.

12.315.3.4 Print()

```
void gdcm::TagPath::Print (
            std::ostream & ) const
```

12.315.3.5 Push() [1/2]

```
bool gdcm::TagPath::Push (
            Tag const & t)
```

12.315.3.6 Push() [2/2]

```
bool gdcm::TagPath::Push (
            unsigned int itemnum)
```

The documentation for this class was generated from the following file:

- gdcmTagPath.h

12.316 gdcm::Testing Class Reference

class for testing

`#include <gdcmTesting.h>`

Public Types

- typedef const char *const (* MD5DataImagesType)[2]
- typedef const char *const (* MediaStorageDataFilesType)[2]

  return the table that map the media storage (as string) of a filename (gdcmData)

Public Member Functions

- Testing ()=default
- ~Testing ()=default
- void Print (std::ostream &os=std::cout)

  Print.

Static Public Member Functions

- static bool ComputeFileMD5 (const char *filename, char digest_str[33])
- static bool ComputeMD5 (const char *buffer, size_t buf_len, char digest_str[33])
- static const char * GetDataExtraRoot ()

  Return the GDCM DATA EXTRA ROOT.
- static const char * GetDataRoot ()

  Return the GDCM DATA ROOT.
- static const char * GetFileName (unsigned int file)
- static const char *const * GetFileNames ()

  return the table of fullpath to gdcmData DICOM files:
- static int GetLossyFlagFromFile (const char *filepath)
- static const char *const * GetMD5DataImage (unsigned int file)
- static MD5DataImagesType GetMD5DataImages ()
- static const char * GetMD5FromBrokenFile (const char *filepath)
- static const char * GetMD5FromFile (const char *filepath)
- static const char *const * GetMediaStorageDataFile (unsigned int file)
- static MediaStorageDataFilesType GetMediaStorageDataFiles ()
- static const char * GetMediaStorageFromFile (const char *filepath)
- static unsigned int GetNumberOfFileNames ()
- static unsigned int GetNumberOfMD5DataImages ()
- static unsigned int GetNumberOfMediaStorageDataFiles ()
- static const char * GetPixelSpacingDataRoot ()

  Return the GDCM PIXEL SPACING DATA ROOT (See David Clunie website for dataset).
- static std::streamoff GetSelectedPrivateGroupOffsetFromFile (const char *filepath)
- static std::streamoff GetSelectedTagsOffsetFromFile (const char *filepath)
- static const char * GetSourceDirectory ()
- static std::streamoff GetStreamOffsetFromFile (const char *filepath)

- static const char * GetTempDirectory (const char *subdir=nullptr)
- static const wchar_t * GetTempDirectoryW (const wchar_t *subdir=nullptr)

  NOT THREAD SAFE.
- static const char * GetTempFilename (const char *filename, const char *subdir=nullptr)

  NOT THREAD SAFE.
- static const wchar_t * GetTempFilenameW (const wchar_t *filename, const wchar_t *subdir=nullptr)

  NOT THREAD SAFE.

12.316.1 Detailed Description

class for testing

this class is used for the nightly regression system for GDCM It makes heavily use of md5 computation

See also

gdcm::MD5 class for md5 computation

12.316.2 Member Typedef Documentation

12.316.2.1 MD5DataImagesType

```
typedef const char* const(* gdcm::Testing::MD5DataImagesType)[2]
```

return the table that map the md5 (as in md5sum) of the Pixel Data associated to a filename

12.316.2.2 MediaStorageDataFilesType

```
typedef const char* const(* gdcm::Testing::MediaStorageDataFilesType)[2]
```

return the table that map the media storage (as string) of a filename (gdcmData)

12.316.3 Constructor & Destructor Documentation

12.316.3.1 Testing()

```
gdcm::Testing::Testing ()  [default]
```

12.316.3.2 ~Testing()

```
gdcm::Testing::~Testing ()  [default]
```

12.316.4 Member Function Documentation

12.316.4.1 ComputeFileMD5()

```
bool gdcm::Testing::ComputeFileMD5 (
            const char * filename,
            char digest_str[33])  [static]
```

Examples

MetaImageMD5Activiz.cs.

12.316.4.2 ComputeMD5()

```
bool gdcm::Testing::ComputeMD5 (
            const char * buffer,
            size_t buf_len,
            char digest_str[33])  [static]
```

MD5 stuff digest_str needs to be at least : strlen = [2∗16+1]; string will be \0 padded. (md5 are 32 bytes long) Testing is not meant to be shipped with an installed GDCM release, always prefer the gdcm::MD5 API when doing md5 computation.

12.316.4.3 GetDataExtraRoot()

```
const char * gdcm::Testing::GetDataExtraRoot ()  [static]
```

Return the GDCM DATA EXTRA ROOT.

Examples

DiscriminateVolume.cxx, VolumeSorter.cxx, and reslicesphere.cxx.

12.316.4.4 GetDataRoot()

```
const char * gdcm::Testing::GetDataRoot ()  [static]
```

Return the GDCM DATA ROOT.

Examples

Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, and MagnifyFile.cxx.

12.316.4.5 GetFileName()

```
const char * gdcm::Testing::GetFileName (
            unsigned int file)  [static]
```

Examples

MetaImageMD5Activiz.cs.

12.316.4.6 GetFileNames()

```
const char *const * gdcm::Testing::GetFileNames ()  [static]
```

return the table of fullpath to gdcmData DICOM files:

Examples

TestReader.cxx.

12.316.4.7 GetLossyFlagFromFile()

```
int gdcm::Testing::GetLossyFlagFromFile (
            const char * filepath)  [static]
```

Return the lossy flag of the given filename -1 -> Error 0 -> Lossless 1 -> Lossy

12.316.4.8 GetMD5DataImage()

```
const char *const * gdcm::Testing::GetMD5DataImage (
            unsigned int file)  [static]
```

12.316.4.9 GetMD5DataImages()

```
MD5DataImagesType gdcm::Testing::GetMD5DataImages ()  [static]
```

12.316.4.10 GetMD5FromBrokenFile()

```
const char * gdcm::Testing::GetMD5FromBrokenFile (
            const char * filepath)  [static]
```

Return what should have been the md5 of file 'filepath' This is based on current GDCM implementation to decipher a broken DICOM file.

12.316.4.11 GetMD5FromFile()

```
const char * gdcm::Testing::GetMD5FromFile (
            const char * filepath)  [static]
```

12.316.4.12 GetMediaStorageDataFile()

```
const char *const * gdcm::Testing::GetMediaStorageDataFile (
            unsigned int file)  [static]
```

12.316.4.13 GetMediaStorageDataFiles()

```
MediaStorageDataFilesType gdcm::Testing::GetMediaStorageDataFiles ()  [static]
```

12.316.4.14 GetMediaStorageFromFile()

```
const char * gdcm::Testing::GetMediaStorageFromFile (
            const char * filepath)  [static]
```

Examples

MetaImageMD5Activiz.cs, and TestReader.cxx.

12.316.4.15 GetNumberOfFileNames()

```
unsigned int gdcm::Testing::GetNumberOfFileNames ()  [static]
```

Examples

MetaImageMD5Activiz.cs.

12.316.4.16 GetNumberOfMD5DataImages()

```
unsigned int gdcm::Testing::GetNumberOfMD5DataImages ()  [static]
```

12.316.4.17 GetNumberOfMediaStorageDataFiles()

```
unsigned int gdcm::Testing::GetNumberOfMediaStorageDataFiles ()  [static]
```

12.316.4.18 GetPixelSpacingDataRoot()

```
const char * gdcm::Testing::GetPixelSpacingDataRoot ()  [static]
```

Return the GDCM PIXEL SPACING DATA ROOT (See David Clunie website for dataset).

12.316.4.19 GetSelectedPrivateGroupOffsetFromFile()

```
std::streamoff gdcm::Testing::GetSelectedPrivateGroupOffsetFromFile (
            const char * filepath)  [static]
```

Return the offset just after private attribute (0009,0010,"GEMS_IDEN_01") if found. Otherwise the offset of the next attribute -1 if not found

12.316.4.20 GetSelectedTagsOffsetFromFile()

```
std::streamoff gdcm::Testing::GetSelectedTagsOffsetFromFile (
            const char * filepath)  [static]
```

Return the offset just after Pixel Data Length (7fe0,0000) if found. Otherwise the offset of the very first pixel cell in Pixel Data -1 if not found

12.316.4.21 GetSourceDirectory()

```
const char * gdcm::Testing::GetSourceDirectory ()  [static]
```

12.316.4.22 GetStreamOffsetFromFile()

```
std::streamoff gdcm::Testing::GetStreamOffsetFromFile (
            const char * filepath)  [static]
```

Return the offset of the very first pixel cell in the PixelData -1 if not found

12.316.4.23 GetTempDirectory()

```
const char * gdcm::Testing::GetTempDirectory (
            const char * subdir = nullptr)  [static]
```

NOT THREAD SAFE Returns the temp directory as used in testing needing to output data:

Examples

MetaImageMD5Activiz.cs.

12.316.4.24 GetTempDirectoryW()

```
const wchar_t * gdcm::Testing::GetTempDirectoryW (
            const wchar_t * subdir = nullptr)  [static]
```

NOT THREAD SAFE.

12.316.4.25 GetTempFilename()

```
const char * gdcm::Testing::GetTempFilename (
            const char * filename,
            const char * subdir = nullptr)  [static]
```

NOT THREAD SAFE.

Examples

MetaImageMD5Activiz.cs.

12.316.4.26 GetTempFilenameW()

```
const wchar_t * gdcm::Testing::GetTempFilenameW (
            const wchar_t * filename,
            const wchar_t * subdir = nullptr)  [static]
```

NOT THREAD SAFE.

12.316.4.27 Print()

```
void gdcm::Testing::Print (
            std::ostream & os = std::cout)
```

Print.

The documentation for this class was generated from the following file:

- gdcmTesting.h

12.317 gdcm::Trace Class Reference

Trace.

```
#include <gdcmTrace.h>
```

Public Member Functions

- Trace ()
- ~Trace ()

Static Public Member Functions

- static void DebugOff ()
- static void DebugOn ()
- static void ErrorOff ()
- static void ErrorOn ()
- static bool GetDebugFlag ()
- static std::ostream & GetDebugStream ()
- static bool GetErrorFlag ()
- static std::ostream & GetErrorStream ()
- static std::ostream & GetStream ()
- static bool GetWarningFlag ()
- static std::ostream & GetWarningStream ()
- static void SetDebug (bool debug)

  Turn debug messages on (default: false).
- static void SetDebugStream (std::ostream &os)

  Explicitly set the stream which receive Debug messages:
- static void SetError (bool debug)

  Turn error messages on (default: true).
- static void SetErrorStream (std::ostream &os)

  Explicitly set the stream which receive Error messages:
- static void SetStream (std::ostream &os)
- static void SetStreamToFile (const char *filename)
- static void SetWarning (bool debug)

  Turn warning messages on (default: true).
- static void SetWarningStream (std::ostream &os)

  Explicitly set the stream which receive Warning messages:
- static void WarningOff ()
- static void WarningOn ()

12.317.1 Detailed Description

Trace.

Debug / Warning and Error are encapsulated in this class by default the Trace class will redirect any debug/warning/error to std::cerr. Unless SetStream was specified with another (open) stream or SetStreamToFile was specified to a writable file on the system.

Warning

All string messages are removed during compilation time when compiled with CMAKE_BUILD_TYPE being set to either:

- Release
- MinSizeRel It is recommended to compile with RelWithDebInfo and/or Debug during prototyping of applications.

Examples

DecompressJPEGFile.cs.

12.317.2 Constructor & Destructor Documentation

12.317.2.1 Trace()

```
gdcm::Trace::Trace ()
```

12.317.2.2 ~Trace()

```
gdcm::Trace::~Trace ()
```

12.317.3 Member Function Documentation

12.317.3.1 DebugOff()

```
void gdcm::Trace::DebugOff ()  [static]
```

Examples

MetaImageMD5Activiz.cs, and TestReader.cxx.

12.317.3.2 DebugOn()

```
void gdcm::Trace::DebugOn ()  [static]
```

Examples

CreateFakePET.cxx, DecompressJPEGFile.cs, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.317.3.3 ErrorOff()

```
void gdcm::Trace::ErrorOff ()  [static]
```

Examples

MetaImageMD5Activiz.cs.

12.317.3.4 ErrorOn()

```
void gdcm::Trace::ErrorOn ()  [static]
```

12.317.3.5 GetDebugFlag()

```
bool gdcm::Trace::GetDebugFlag ()  [static]
```

12.317.3.6 GetDebugStream()

```
std::ostream & gdcm::Trace::GetDebugStream ()  [static]
```

12.317.3.7 GetErrorFlag()

```
bool gdcm::Trace::GetErrorFlag ()  [static]
```

12.317.3.8 GetErrorStream()

```
std::ostream & gdcm::Trace::GetErrorStream ()  [static]
```

12.317.3.9 GetStream()

```
std::ostream & gdcm::Trace::GetStream ()  [static]
```

12.317.3.10 GetWarningFlag()

```
bool gdcm::Trace::GetWarningFlag ()  [static]
```

12.317.3.11 GetWarningStream()

```
std::ostream & gdcm::Trace::GetWarningStream ()  [static]
```

12.317.3.12 SetDebug()

```
void gdcm::Trace::SetDebug (
            bool debug)  [static]
```

Turn debug messages on (default: false).

Examples

DumpToSQLITE3.cxx.

12.317.3.13 SetDebugStream()

```
void gdcm::Trace::SetDebugStream (
            std::ostream & os)  [static]
```

Explicitly set the stream which receive Debug messages:

12.317.3.14 SetError()

```
void gdcm::Trace::SetError (
            bool debug)  [static]
```

Turn error messages on (default: true).

12.317.3.15 SetErrorStream()

```
void gdcm::Trace::SetErrorStream (
            std::ostream & os)  [static]
```

Explicitly set the stream which receive Error messages:

Examples

CStoreQtProgress.cxx.

12.317.3.16 SetStream()

```
void gdcm::Trace::SetStream (
            std::ostream & os)  [static]
```

Explicitly set the ostream for gdcm::Trace to report to This will set the DebugStream, WarningStream and ErrorStream at once:

12.317.3.17 SetStreamToFile()

```
void gdcm::Trace::SetStreamToFile (
            const char * filename)  [static]
```

Explicitly set the filename for gdcm::Trace to report to The file will be created (it will not append to existing file)

12.317.3.18 SetWarning()

```
void gdcm::Trace::SetWarning (
            bool debug)  [static]
```

Turn warning messages on (default: true).

Examples

DumpToSQLITE3.cxx.

12.317.3.19 SetWarningStream()

```
void gdcm::Trace::SetWarningStream (
            std::ostream & os)  [static]
```

Explicitly set the stream which receive Warning messages:

12.317.3.20 WarningOff()

```
void gdcm::Trace::WarningOff ()  [static]
```

Examples

MetaImageMD5Activiz.cs, and TestReader.cxx.

12.317.3.21 WarningOn()

```
void gdcm::Trace::WarningOn ()  [static]
```

Examples

Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

The documentation for this class was generated from the following file:

- gdcmTrace.h

12.318 gdcm::TransferSyntax Class Reference

Class to manipulate Transfer Syntax.

```
#include <gdcmTransferSyntax.h>
```

Public Types

- enum NegociatedType {
  Unknown = 0 ,
  Explicit ,
  Implicit }
- enum TSType {
  ImplicitVRLittleEndian = 0 ,
  ImplicitVRBigEndianPrivateGE ,
  ExplicitVRLittleEndian ,
  DeflatedExplicitVRLittleEndian ,
  ExplicitVRBigEndian ,
  JPEGBaselineProcess1 ,
  JPEGExtendedProcess2_4 ,
  JPEGExtendedProcess3_5 ,
  JPEGSpectralSelectionProcess6_8 ,
  JPEGFullProgressionProcess10_12 ,
  JPEGLosslessProcess14 ,
  JPEGLosslessProcess14_1 ,
  JPEGLSLossless ,
  JPEGLSNearLossless ,
  JPEG2000Lossless ,
  JPEG2000 ,
  JPEG2000Part2Lossless ,
  JPEG2000Part2 ,
  RLELossless ,
  MPEG2MainProfile ,
  ImplicitVRBigEndianACRNEMA ,
  WeirdPapryus ,
  CT_private_ELE ,
  JPIPReferenced ,
  MPEG2MainProfileHighLevel ,
  MPEG4AVCH264HighProfileLevel4_1 ,
  MPEG4AVCH264BDcompatibleHighProfileLevel4_1 ,
  TS_END }

Public Member Functions

- TransferSyntax (TSType type=ImplicitVRLittleEndian)
- bool CanStoreLossy () const
- NegociatedType GetNegociatedType () const
- const char * GetString () const
- SwapCode GetSwapCode () const
- bool IsEncapsulated () const
- bool IsEncoded () const
- bool IsExplicit () const
- bool IsImplicit () const
- bool IsLossless () const
- bool IsLossy () const
- bool IsValid () const
- operator TSType () const

Static Public Member Functions

- static const char * GetTSString (TSType ts)
- static TSType GetTSType (const char *str)

Friends

- std::ostream & operator<< (std::ostream &os, const TransferSyntax &ts)

12.318.1 Detailed Description

Class to manipulate Transfer Syntax.

Note

TRANSFER SYNTAX (Standard and Private): A set of encoding rules that allow Application Entities to unambiguously negotiate the encoding techniques (e.g., Data Element structure, byte ordering, compression) they are able to support, thereby allowing these Application Entities to communicate.

Todo : The implementation is completely retarded -> see gdcm::UIDs for a replacement We need: IsSupported We need preprocess of raw/xml file We need GetFullName()

Need a notion of Private Syntax. As defined in PS 3.5. Section 9.2

See also

UIDs

Examples

BasicImageAnonymizer.cs, CompressLossyJPEG.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, GetJPEGSamplePrecision.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, MpegVideoInfo.cs, and StandardizeFiles.cs.

12.318.2 Member Enumeration Documentation

12.318.2.1 NegociatedType

```
enum gdcm::TransferSyntax::NegociatedType
```

Enumerator

Unknown	

Explicit	
Implicit	

12.318.2.2 TSType

enum gdcm::TransferSyntax::TSType

Enumerator

ImplicitVRLittleEndian	
ImplicitVRBigEndianPrivateGE	
ExplicitVRLittleEndian	
DeflatedExplicitVRLittleEndian	
ExplicitVRBigEndian	
JPEGBaselineProcess1	
JPEGExtendedProcess2_4	
JPEGExtendedProcess3_5	
JPEGSpectralSelectionProcess6_8	
JPEGFullProgressionProcess10_12	
JPEGLosslessProcess14	
JPEGLosslessProcess14_1	
JPEGLSLossless	
JPEGLSNearLossless	
JPEG2000Lossless	
JPEG2000	
JPEG2000Part2Lossless	
JPEG2000Part2	
RLELossless	
MPEG2MainProfile	
ImplicitVRBigEndianACRNEMA	
WeirdPapryus	
CT_private_ELE	
JPIPReferenced	
MPEG2MainProfileHighLevel	
MPEG4AVCH264HighProfileLevel4_1	

MPEG4AVCH264BDcompatibleHighProfileLevel4↩ _1	
TS_END	

Examples

BasicImageAnonymizer.cs, CompressLossyJPEG.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, MpegVideoInfo.cs, and StandardizeFiles.cs.

12.318.3 Constructor & Destructor Documentation

12.318.3.1 TransferSyntax()

```
gdcm::TransferSyntax::TransferSyntax (
            TSType type = ImplicitVRLittleEndian)  [inline]
```

References ImplicitVRLittleEndian.

Referenced by operator<<.

12.318.4 Member Function Documentation

12.318.4.1 CanStoreLossy()

```
bool gdcm::TransferSyntax::CanStoreLossy () const
```

return true if TransFer Syntax Allow storing of Lossy Pixel Data

12.318.4.2 GetNegociatedType()

```
NegociatedType gdcm::TransferSyntax::GetNegociatedType () const
```

12.318.4.3 GetString()

```
const char * gdcm::TransferSyntax::GetString () const  [inline]
```

References GetTSString().

12.318.4.4 GetSwapCode()

```
SwapCode gdcm::TransferSyntax::GetSwapCode () const
```

Deprecated Return the SwapCode associated with the Transfer Syntax. Be careful with the special GE private syntax the DataSet is written in little endian but the Pixel Data is in Big Endian.

12.318.4.5 GetTSString()

```
const char * gdcm::TransferSyntax::GetTSString (
            TSType ts)  [static]
```

Examples

LargeVRDSExplicit.cxx.

Referenced by GetString(), and operator<<.

12.318.4.6 GetTSType()

```
TSType gdcm::TransferSyntax::GetTSType (
            const char * str)  [static]
```

12.318.4.7 IsEncapsulated()

```
bool gdcm::TransferSyntax::IsEncapsulated () const
```

Examples

ExtractIconFromFile.cxx.

12.318.4.8 IsEncoded()

```
bool gdcm::TransferSyntax::IsEncoded () const
```

12.318.4.9 IsExplicit()

```
bool gdcm::TransferSyntax::IsExplicit () const
```

12.318.4.10 IsImplicit()

```
bool gdcm::TransferSyntax::IsImplicit () const
```

12.318.4.11 IsLossless()

```
bool gdcm::TransferSyntax::IsLossless () const
```

Return true if the transfer syntax algorithm is a lossless algorithm

12.318.4.12 IsLossy()

```
bool gdcm::TransferSyntax::IsLossy () const
```

Return true if the transfer syntax algorithm is a lossy algorithm

12.318.4.13 IsValid()

```
bool gdcm::TransferSyntax::IsValid () const  [inline]
```

References TS_END.

12.318.4.14 operator TSType()

```
gdcm::TransferSyntax::operator TSType () const  [inline]
```

12.318.5 Friends And Related Symbol Documentation

12.318.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const TransferSyntax & ts)  [friend]
```

References TransferSyntax(), and GetTSString().

The documentation for this class was generated from the following file:

- gdcmTransferSyntax.h

12.319 gdcm::network::TransferSyntaxSub Class Reference

TransferSyntaxSub.

```
#include <gdcmTransferSyntaxSub.h>
```

Public Member Functions

- TransferSyntaxSub ()
- const char * GetName () const
- bool operator== (const TransferSyntaxSub &ts) const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetName (const char *name)
- void SetNameFromUID (UIDs::TSName tsname)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.319.1 Detailed Description

TransferSyntaxSub.

Table 9-15 TRANSFER SYNTAX SUB-ITEM FIELDS

TODO what is the goal of :

Table 9-19 TRANSFER SYNTAX SUB-ITEM FIELDS

12.319.2 Constructor & Destructor Documentation

12.319.2.1 TransferSyntaxSub()

```
gdcm::network::TransferSyntaxSub::TransferSyntaxSub ()
```

Referenced by operator==().

12.319.3 Member Function Documentation

12.319.3.1 GetName()

```
const char * gdcm::network::TransferSyntaxSub::GetName () const  [inline]
```

12.319.3.2 operator==()

```
bool gdcm::network::TransferSyntaxSub::operator== (
            const TransferSyntaxSub & ts) const  [inline]
```

References TransferSyntaxSub().

12.319.3.3 Print()

```
void gdcm::network::TransferSyntaxSub::Print (
            std::ostream & os) const
```

12.319.3.4 Read()

```
std::istream & gdcm::network::TransferSyntaxSub::Read (
            std::istream & is)
```

12.319.3.5 SetName()

```
void gdcm::network::TransferSyntaxSub::SetName (
            const char * name)
```

12.319.3.6 SetNameFromUID()

```
void gdcm::network::TransferSyntaxSub::SetNameFromUID (
            UIDs::TSName tsname)
```

12.319.3.7 Size()

```
size_t gdcm::network::TransferSyntaxSub::Size () const
```

12.319.3.8 Write()

```
const std::ostream & gdcm::network::TransferSyntaxSub::Write (
            std::ostream & os) const
```

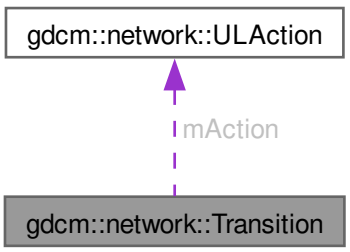
The documentation for this class was generated from the following file:

- gdcmTransferSyntaxSub.h

12.320 gdcm::network::Transition Struct Reference

```
#include <gdcmULTransitionTable.h>
```

Collaboration diagram for gdcm::network::Transition:



Public Member Functions

- Transition ()
- Transition (int inEndState, ULAction ∗inAction)
- ∼Transition ()

Static Public Member Functions

- static Transition ∗ MakeNew (int inEndState, ULAction ∗inAction)

Public Attributes

- ULAction ∗ mAction
- int mEnd

12.320.1 Constructor & Destructor Documentation

12.320.1.1 Transition() [1/2]

```
gdcm::network::Transition::Transition ()  [inline]
```

References gdcm::network::eStaDoesNotExist, mAction, and mEnd.

Referenced by MakeNew().

12.320.1.2 ∼Transition()

```
gdcm::network::Transition::~Transition ()  [inline]
```

References mAction.

12.320.1.3 Transition() [2/2]

```
gdcm::network::Transition::Transition (
            int inEndState,
            ULAction * inAction)  [inline]
```

References mAction, and mEnd.

12.320.2 Member Function Documentation

12.320.2.1 MakeNew()

```
Transition * gdcm::network::Transition::MakeNew (
            int inEndState,
            ULAction * inAction)  [inline], [static]
```

References Transition().

12.320.3 Member Data Documentation

12.320.3.1 mAction

```
ULAction* gdcm::network::Transition::mAction
```

Referenced by Transition(), Transition(), and ~Transition().

12.320.3.2 mEnd

```
int gdcm::network::Transition::mEnd
```

Referenced by Transition(), and Transition().

The documentation for this struct was generated from the following file:

- gdcmULTransitionTable.h

12.321 gdcm::Type Class Reference

Type.

```
#include <gdcmType.h>
```

Public Types

- enum TypeType {
  T1 = 0 ,
  T1C ,
  T2 ,
  T2C ,
  T3 ,
  UNKNOWN }

Public Member Functions

- Type (TypeType type=UNKNOWN)
- operator TypeType () const

Static Public Member Functions

- static const char * GetTypeString (TypeType type)
- static TypeType GetTypeType (const char *type)

Friends

- std::ostream & operator<< (std::ostream &os, const Type &vr)

12.321.1 Detailed Description

Type.

Note

PS 3.5 7.4 DATA ELEMENT TYPE 7.4.1 TYPE 1 REQUIRED DATA ELEMENTS 7.4.2 TYPE 1C CONDITIONAL DATA ELEMENTS 7.4.3 TYPE 2 REQUIRED DATA ELEMENTS 7.4.4 TYPE 2C CONDITIONAL DATA ELEMENTS 7.4.5 TYPE 3 OPTIONAL DATA ELEMENTS

The intent of Type 2 Data Elements is to allow a zero length to be conveyed when the operator or application does not know its value or has a specific reason for not specifying its value. It is the intent that the device should support these Data Elements.

Examples

TraverseModules.cxx.

12.321.2 Member Enumeration Documentation

12.321.2.1 TypeType

```
enum gdcm::Type::TypeType
```

Enumerator

T1	
T1C	
T2	

T2C	
T3	
UNKNOWN	

12.321.3 Constructor & Destructor Documentation

12.321.3.1 Type()

```
gdcm::Type::Type (
            TypeType type = UNKNOWN)  [inline]
```

References UNKNOWN.

Referenced by operator<<.

12.321.4 Member Function Documentation

12.321.4.1 GetTypeString()

```
const char * gdcm::Type::GetTypeString (
            TypeType type)  [static]
```

Referenced by operator<<.

12.321.4.2 GetTypeType()

```
TypeType gdcm::Type::GetTypeType (
            const char * type)  [static]
```

Referenced by gdcm::ModuleEntry::ModuleEntry().

12.321.4.3 operator TypeType()

```
gdcm::Type::operator TypeType () const  [inline]
```

12.321.5 Friends And Related Symbol Documentation

12.321.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const Type & vr)  [friend]
```

References Type(), and GetTypeString().

The documentation for this class was generated from the following file:

- gdcmType.h

12.322 gdcm::UI Struct Reference

`#include <gdcmVR.h>`

Public Attributes

- char Internal [64+1]

Friends

- std::ostream & operator<< (std::ostream &_os, const UI &_val)

12.322.1 Friends And Related Symbol Documentation

12.322.1.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const UI & _val)  [friend]
```

References Internal.

12.322.2 Member Data Documentation

12.322.2.1 Internal

```
char gdcm::UI::Internal[64+1]
```

Referenced by operator<<.

The documentation for this struct was generated from the following file:

- gdcmVR.h

12.323 gdcm::UIDGenerator Class Reference

Class for generating unique UID.

`#include <gdcmUIDGenerator.h>`

Public Member Functions

- UIDGenerator ()

  By default the root of a UID is a GDCM Root...
- const char * Generate ()

Static Public Member Functions

- static const char * GetGDCMUID ()

  Return the default (GDCM) root UID:
- static const char * GetRoot ()
- static bool IsValid (const char *uid)
- static void SetRoot (const char *root)

Static Protected Member Functions

- static bool GenerateUUID (unsigned char *uuid_data)

12.323.1 Detailed Description

Class for generating unique UID.

When constructing a Series or Study UID, user *has* to keep around the UID, otherwise the UID Generator will simply forget the value and create a new UID.

Examples

CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GetSubSequenceData.cxx, ManipulateFile.cs, MpegVideoInfo.cs, ReformatFile.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, and uid_unique.cxx.

12.323.2 Constructor & Destructor Documentation

12.323.2.1 UIDGenerator()

```
gdcm::UIDGenerator::UIDGenerator ()  [inline]
```

By default the root of a UID is a GDCM Root...

12.323.3 Member Function Documentation

12.323.3.1 Generate()

```
const char * gdcm::UIDGenerator::Generate ()
```

Internally uses a std::string, so two calls have the same pointer ! save into a std::string In summary do not write code like that: const char *uid1 = uid.Generate(); const char *uid2 = uid.Generate(); since uid1 == uid2

Examples

CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GetSubSequenceData.cxx, ManipulateFile.cs, ReformatFile.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, and uid_unique.cxx.

12.323.3.2 GenerateUUID()

```
bool gdcm::UIDGenerator::GenerateUUID (
            unsigned char * uuid_data)  [static], [protected]
```

12.323.3.3 GetGDCMUID()

```
const char * gdcm::UIDGenerator::GetGDCMUID ()  [static]
```

Return the default (GDCM) root UID:

12.323.3.4 GetRoot()

```
const char * gdcm::UIDGenerator::GetRoot ()  [static]
```

Examples

ReformatFile.cs, and StandardizeFiles.cs.

12.323.3.5 IsValid()

```
bool gdcm::UIDGenerator::IsValid (
            const char * uid)  [static]
```

Find out if the string is a valid UID or not

Todo : Move that in DataStructureAndEncoding (see FileMetaInformation::CheckFileMetaInformation)

12.323.3.6 SetRoot()

```
void gdcm::UIDGenerator::SetRoot (
            const char * root)  [static]
```

The current implementation in GDCM make use of the UUID implementation (RFC 4122) and has been successfully been tested for a root of size 26 bytes. Any longer root should work (the Generate() function will return a string), but will truncate the high bits of the 128bits UUID until the generated string fits on 64 bits. The authors disclaims any responsabitlity for guaranteeing uniqueness of UIDs when the root is longer than 26 bytes.

Examples

ReformatFile.cs, StandardizeFiles.cs, and uid_unique.cxx.

The documentation for this class was generated from the following file:

- gdcmUIDGenerator.h

12.324 gdcm::UIDs Class Reference

all known uids

```
#include <gdcmUIDs.h>
```

Public Types

- typedef const char *const (* TransferSyntaxStringsType)[2]
- enum TSName {
  VerificationSOPClass = 1 ,
  ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM = 2 ,
  ExplicitVRLittleEndian = 3 ,
  DeflatedExplicitVRLittleEndian = 4 ,
  ExplicitVRBigEndian = 5 ,
  JPEGBaselineProcess1DefaultTransferSyntaxforLossyJPEG8BitImageCompression = 6 ,
  JPEGExtendedProcess24DefaultTransferSyntaxforLossyJPEG12BitImageCompressionProcess4only = 7 ,
  JPEGExtendedProcess35Retired = 8 ,
  JPEGSpectralSelectionNonHierarchicalProcess68Retired = 9 ,
  JPEGSpectralSelectionNonHierarchicalProcess79Retired = 10 ,
  JPEGFullProgressionNonHierarchicalProcess1012Retired = 11 ,
  JPEGFullProgressionNonHierarchicalProcess1113Retired = 12 ,
  JPEGLosslessNonHierarchicalProcess14 = 13 ,
  JPEGLosslessNonHierarchicalProcess15Retired = 14 ,
  JPEGExtendedHierarchicalProcess1618Retired = 15 ,
  JPEGExtendedHierarchicalProcess1719Retired = 16 ,
  JPEGSpectralSelectionHierarchicalProcess2022Retired = 17 ,
  JPEGSpectralSelectionHierarchicalProcess2123Retired = 18 ,
  JPEGFullProgressionHierarchicalProcess2426Retired = 19 ,
  JPEGFullProgressionHierarchicalProcess2527Retired = 20 ,
  JPEGLosslessHierarchicalProcess28Retired = 21 ,

JPEGLosslessHierarchicalProcess29Retired = 22 ,
JPEGLosslessNonHierarchicalFirstOrderPredictionProcess14SelectionValue1DefaultTransferSyntaxforLosslessJPEGImageCompr
= 23 ,
JPEGLSLosslessImageCompression = 24 ,
JPEGLSLossyNearLosslessImageCompression = 25 ,
JPEG2000ImageCompressionLosslessOnly = 26 ,
JPEG2000ImageCompression = 27 ,
JPEG2000Part2MulticomponentImageCompressionLosslessOnly = 28 ,
JPEG2000Part2MulticomponentImageCompression = 29 ,
JPIPReferenced = 30 ,
JPIPReferencedDeflate = 31 ,
MPEG2MainProfileMainLevel = 32 ,
RLELossless = 33 ,
RFC2557MIMEencapsulation = 34 ,
XMLEncoding = 35 ,
MediaStorageDirectoryStorage = 36 ,
TalairachBrainAtlasFrameofReference = 37 ,
SPM2T1FrameofReference = 38 ,
SPM2T2FrameofReference = 39 ,
SPM2PDFrameofReference = 40 ,
SPM2EPIFrameofReference = 41 ,
SPM2FILT1FrameofReference = 42 ,
SPM2PETFrameofReference = 43 ,
SPM2TRANSMFrameofReference = 44 ,
SPM2SPECTFrameofReference = 45 ,
SPM2GRAYFrameofReference = 46 ,
SPM2WHITEFrameofReference = 47 ,
SPM2CSFFrameofReference = 48 ,
SPM2BRAINMASKFrameofReference = 49 ,
SPM2AVG305T1FrameofReference = 50 ,
SPM2AVG152T1FrameofReference = 51 ,
SPM2AVG152T2FrameofReference = 52 ,
SPM2AVG152PDFrameofReference = 53 ,
SPM2SINGLESUBJT1FrameofReference = 54 ,
ICBM452T1FrameofReference = 55 ,
ICBMSingleSubjectMRIFrameofReference = 56 ,
BasicStudyContentNotificationSOPClassRetired = 57 ,
StorageCommitmentPushModelSOPClass = 58 ,
StorageCommitmentPushModelSOPInstance = 59 ,
StorageCommitmentPullModelSOPClassRetired = 60 ,
StorageCommitmentPullModelSOPInstanceRetired = 61 ,
ProceduralEventLoggingSOPClass = 62 ,
ProceduralEventLoggingSOPInstance = 63 ,
SubstanceAdministrationLoggingSOPClass = 64 ,
SubstanceAdministrationLoggingSOPInstance = 65 ,
DICOMUIDRegistry = 66 ,
DICOMControlledTerminology = 67 ,
DICOMApplicationContextName = 68 ,
DetachedPatientManagementSOPClassRetired = 69 ,
DetachedPatientManagementMetaSOPClassRetired = 70 ,
DetachedVisitManagementSOPClassRetired = 71 ,
DetachedStudyManagementSOPClassRetired = 72 ,
StudyComponentManagementSOPClassRetired = 73 ,
ModalityPerformedProcedureStepSOPClass = 74 ,

ModalityPerformedProcedureStepRetrieveSOPClass = 75 ,
ModalityPerformedProcedureStepNotificationSOPClass = 76 ,
DetachedResultsManagementSOPClassRetired = 77 ,
DetachedResultsManagementMetaSOPClassRetired = 78 ,
DetachedStudyManagementMetaSOPClassRetired = 79 ,
DetachedInterpretationManagementSOPClassRetired = 80 ,
StorageServiceClass = 81 ,
BasicFilmSessionSOPClass = 82 ,
BasicFilmBoxSOPClass = 83 ,
BasicGrayscaleImageBoxSOPClass = 84 ,
BasicColorImageBoxSOPClass = 85 ,
ReferencedImageBoxSOPClassRetired = 86 ,
BasicGrayscalePrintManagementMetaSOPClass = 87 ,
ReferencedGrayscalePrintManagementMetaSOPClassRetired = 88 ,
PrintJobSOPClass = 89 ,
BasicAnnotationBoxSOPClass = 90 ,
PrinterSOPClass = 91 ,
PrinterConfigurationRetrievalSOPClass = 92 ,
PrinterSOPInstance = 93 ,
PrinterConfigurationRetrievalSOPInstance = 94 ,
BasicColorPrintManagementMetaSOPClass = 95 ,
ReferencedColorPrintManagementMetaSOPClassRetired = 96 ,
VOILUTBoxSOPClass = 97 ,
PresentationLUTSOPClass = 98 ,
ImageOverlayBoxSOPClassRetired = 99 ,
BasicPrintImageOverlayBoxSOPClassRetired = 100 ,
PrintQueueSOPInstanceRetired = 101 ,
PrintQueueManagementSOPClassRetired = 102 ,
StoredPrintStorageSOPClassRetired = 103 ,
HardcopyGrayscaleImageStorageSOPClassRetired = 104 ,
HardcopyColorImageStorageSOPClassRetired = 105 ,
PullPrintRequestSOPClassRetired = 106 ,
PullStoredPrintManagementMetaSOPClassRetired = 107 ,
MediaCreationManagementSOPClassUID = 108 ,
ComputedRadiographyImageStorage = 109 ,
DigitalXRayImageStorageForPresentation = 110 ,
DigitalXRayImageStorageForProcessing = 111 ,
DigitalMammographyXRayImageStorageForPresentation = 112 ,
DigitalMammographyXRayImageStorageForProcessing = 113 ,
DigitalIntraoralXRayImageStorageForPresentation = 114 ,
DigitalIntraoralXRayImageStorageForProcessing = 115 ,
CTImageStorage = 116 ,
EnhancedCTImageStorage = 117 ,
UltrasoundMultiframeImageStorageRetired = 118 ,
UltrasoundMultiframeImageStorage = 119 ,
MRImageStorage = 120 ,
EnhancedMRImageStorage = 121 ,
MRSpectroscopyStorage = 122 ,
NuclearMedicineImageStorageRetired = 123 ,
UltrasoundImageStorageRetired = 124 ,
UltrasoundImageStorage = 125 ,
SecondaryCaptureImageStorage = 126 ,
MultiframeSingleBitSecondaryCaptureImageStorage = 127 ,
MultiframeGrayscaleByteSecondaryCaptureImageStorage = 128 ,

MultiframeGrayscaleWordSecondaryCaptureImageStorage = 129 ,
MultiframeTrueColorSecondaryCaptureImageStorage = 130 ,
StandaloneOverlayStorageRetired = 131 ,
StandaloneCurveStorageRetired = 132 ,
WaveformStorageTrialRetired = 133 ,
ECG12leadWaveformStorage = 134 ,
GeneralECGWaveformStorage = 135 ,
AmbulatoryECGWaveformStorage = 136 ,
HemodynamicWaveformStorage = 137 ,
CardiacElectrophysiologyWaveformStorage = 138 ,
BasicVoiceAudioWaveformStorage = 139 ,
StandaloneModalityLUTStorageRetired = 140 ,
StandaloneVOILUTStorageRetired = 141 ,
GrayscaleSoftcopyPresentationStateStorageSOPClass = 142 ,
ColorSoftcopyPresentationStateStorageSOPClass = 143 ,
PseudoColorSoftcopyPresentationStateStorageSOPClass = 144 ,
BlendingSoftcopyPresentationStateStorageSOPClass = 145 ,
XRayAngiographicImageStorage = 146 ,
EnhancedXAImageStorage = 147 ,
XRayRadiofluoroscopicImageStorage = 148 ,
EnhancedXRFImageStorage = 149 ,
XRay3DAngiographicImageStorage = 150 ,
XRay3DCraniofacialImageStorage = 151 ,
XRayAngiographicBiPlaneImageStorageRetired = 152 ,
NuclearMedicineImageStorage = 153 ,
RawDataStorage = 154 ,
SpatialRegistrationStorage = 155 ,
SpatialFiducialsStorage = 156 ,
DeformableSpatialRegistrationStorage = 157 ,
SegmentationStorage = 158 ,
RealWorldValueMappingStorage = 159 ,
VLImageStorageTrialRetired = 160 ,
VLMultiframeImageStorageTrialRetired = 161 ,
VLEndoscopicImageStorage = 162 ,
VideoEndoscopicImageStorage = 163 ,
VLMicroscopicImageStorage = 164 ,
VideoMicroscopicImageStorage = 165 ,
VLSlideCoordinatesMicroscopicImageStorage = 166 ,
VLPhotographicImageStorage = 167 ,
VideoPhotographicImageStorage = 168 ,
OphthalmicPhotography8BitImageStorage = 169 ,
OphthalmicPhotography16BitImageStorage = 170 ,
StereometricRelationshipStorage = 171 ,
OphthalmicTomographyImageStorage = 172 ,
TextSRStorageTrialRetired = 173 ,
AudioSRStorageTrialRetired = 174 ,
DetailSRStorageTrialRetired = 175 ,
ComprehensiveSRStorageTrialRetired = 176 ,
BasicTextSRStorage = 177 ,
EnhancedSRStorage = 178 ,
ComprehensiveSRStorage = 179 ,
ProcedureLogStorage = 180 ,
MammographyCADSRStorage = 181 ,
KeyObjectSelectionDocumentStorage = 182 ,

ChestCADSRStorage = 183 ,
XRayRadiationDoseSRStorage = 184 ,
EncapsulatedPDFStorage = 185 ,
EncapsulatedCDAStorage = 186 ,
PositronEmissionTomographyImageStorage = 187 ,
StandalonePETCurveStorageRetired = 188 ,
RTImageStorage = 189 ,
RTDoseStorage = 190 ,
RTStructureSetStorage = 191 ,
RTBeamsTreatmentRecordStorage = 192 ,
RTPlanStorage = 193 ,
RTBrachyTreatmentRecordStorage = 194 ,
RTTreatmentSummaryRecordStorage = 195 ,
RTIonPlanStorage = 196 ,
RTIonBeamsTreatmentRecordStorage = 197 ,
PatientRootQueryRetrieveInformationModelFIND = 198 ,
PatientRootQueryRetrieveInformationModelMOVE = 199 ,
PatientRootQueryRetrieveInformationModelGET = 200 ,
StudyRootQueryRetrieveInformationModelFIND = 201 ,
StudyRootQueryRetrieveInformationModelMOVE = 202 ,
StudyRootQueryRetrieveInformationModelGET = 203 ,
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PatientStudyOnlyQueryRetrieveInformationModelMOVERetired = 205 ,
PatientStudyOnlyQueryRetrieveInformationModelGETRetired = 206 ,
ModalityWorklistInformationModelFIND = 207 ,
GeneralPurposeWorklistInformationModelFIND = 208 ,
GeneralPurposeScheduledProcedureStepSOPClass = 209 ,
GeneralPurposePerformedProcedureStepSOPClass = 210 ,
GeneralPurposeWorklistManagementMetaSOPClass = 211 ,
InstanceAvailabilityNotificationSOPClass = 212 ,
RTBeamsDeliveryInstructionStorageSupplement74FrozenDraft = 213 ,
RTConventionalMachineVerificationSupplement74FrozenDraft = 214 ,
RTIonMachineVerificationSupplement74FrozenDraft = 215 ,
UnifiedWorklistandProcedureStepServiceClass = 216 ,
UnifiedProcedureStepPushSOPClass = 217 ,
UnifiedProcedureStepWatchSOPClass = 218 ,
UnifiedProcedureStepPullSOPClass = 219 ,
UnifiedProcedureStepEventSOPClass = 220 ,
UnifiedWorklistandProcedureStepSOPInstance = 221 ,
GeneralRelevantPatientInformationQuery = 222 ,
BreastImagingRelevantPatientInformationQuery = 223 ,
CardiacRelevantPatientInformationQuery = 224 ,
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HangingProtocolInformationModelFIND = 226 ,
HangingProtocolInformationModelMOVE = 227 ,
ProductCharacteristicsQuerySOPClass = 228 ,
SubstanceApprovalQuerySOPClass = 229 ,
dicomDeviceName = 230 ,
dicomDescription = 231 ,
dicomManufacturer = 232 ,
dicomManufacturerModelName = 233 ,
dicomSoftwareVersion = 234 ,
dicomVendorData = 235 ,
dicomAETitle = 236 ,

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uid_1_2_840_10008_15_0_3_2 = 231 ,
uid_1_2_840_10008_15_0_3_3 = 232 ,
uid_1_2_840_10008_15_0_3_4 = 233 ,
uid_1_2_840_10008_15_0_3_5 = 234 ,
uid_1_2_840_10008_15_0_3_6 = 235 ,
uid_1_2_840_10008_15_0_3_7 = 236 ,
uid_1_2_840_10008_15_0_3_8 = 237 ,
uid_1_2_840_10008_15_0_3_9 = 238 ,
uid_1_2_840_10008_15_0_3_10 = 239 ,
uid_1_2_840_10008_15_0_3_11 = 240 ,
uid_1_2_840_10008_15_0_3_12 = 241 ,
uid_1_2_840_10008_15_0_3_13 = 242 ,
uid_1_2_840_10008_15_0_3_14 = 243 ,
uid_1_2_840_10008_15_0_3_15 = 244 ,
uid_1_2_840_10008_15_0_3_16 = 245 ,
uid_1_2_840_10008_15_0_3_17 = 246 ,
uid_1_2_840_10008_15_0_3_18 = 247 ,
uid_1_2_840_10008_15_0_3_19 = 248 ,
uid_1_2_840_10008_15_0_3_20 = 249 ,
uid_1_2_840_10008_15_0_3_21 = 250 ,
uid_1_2_840_10008_15_0_3_22 = 251 ,
uid_1_2_840_10008_15_0_3_23 = 252 ,
uid_1_2_840_10008_15_0_3_24 = 253 ,
uid_1_2_840_10008_15_0_3_25 = 254 ,
uid_1_2_840_10008_15_0_3_26 = 255 ,
uid_1_2_840_10008_15_0_3_27 = 256 ,
uid_1_2_840_10008_15_0_3_28 = 257 ,
uid_1_2_840_10008_15_0_3_29 = 258 ,

uid_1_2_840_10008_15_0_3_30 = 259 ,
uid_1_2_840_10008_15_0_3_31 = 260 ,
uid_1_2_840_10008_15_0_4_1 = 261 ,
uid_1_2_840_10008_15_0_4_2 = 262 ,
uid_1_2_840_10008_15_0_4_3 = 263 ,
uid_1_2_840_10008_15_0_4_4 = 264 ,
uid_1_2_840_10008_15_0_4_5 = 265 ,
uid_1_2_840_10008_15_0_4_6 = 266 ,
uid_1_2_840_10008_15_0_4_7 = 267 ,
uid_1_2_840_10008_15_0_4_8 = 268 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_6 = 269 ,
uid_1_2_840_10008_5_1_4_1_1_6_2 = 270 ,
uid_1_2_840_10008_5_1_4_1_1_66_5 = 271 ,
uid_1_2_840_10008_5_1_4_1_1_13_1_3 = 272 ,
uid_1_2_840_10008_5_1_4_1_1_2_2 = 273 ,
uid_1_2_840_10008_5_1_4_1_1_4_4 = 274 ,
uid_1_2_840_10008_5_1_4_1_1_128_1 = 275 ,
uid_1_2_840_10008_1_2_4_101 = 276 ,
uid_1_2_840_10008_1_2_4_102 = 277 ,
uid_1_2_840_10008_1_2_4_103 = 278 ,
uid_1_2_840_10008_1_5_2 = 279 ,
uid_1_2_840_10008_1_5_3 = 280 ,
uid_1_2_840_10008_1_5_4 = 281 ,
uid_1_2_840_10008_1_5_5 = 282 ,
uid_1_2_840_10008_1_5_6 = 283 ,
uid_1_2_840_10008_1_5_7 = 284 ,
uid_1_2_840_10008_1_5_8 = 285 ,
uid_1_2_840_10008_1_20 = 286 ,
uid_1_2_840_10008_2_16_5 = 287 ,
uid_1_2_840_10008_2_16_6 = 288 ,
uid_1_2_840_10008_2_16_7 = 289 ,
uid_1_2_840_10008_2_16_8 = 290 ,
uid_1_2_840_10008_2_16_9 = 291 ,
uid_1_2_840_10008_2_16_10 = 292 ,
uid_1_2_840_10008_2_16_11 = 293 ,
uid_1_2_840_10008_2_16_12 = 294 ,
uid_1_2_840_10008_2_16_13 = 295 ,
uid_1_2_840_10008_2_16_14 = 296 ,
uid_1_2_840_10008_5_1_1_40 = 297 ,
uid_1_2_840_10008_5_1_1_40_1 = 298 ,
uid_1_2_840_10008_5_1_4_1_1_9_4_2 = 299 ,
uid_1_2_840_10008_5_1_4_1_1_9_5_1 = 300 ,
uid_1_2_840_10008_5_1_4_1_1_9_6_1 = 301 ,
uid_1_2_840_10008_5_1_4_1_1_11_5 = 302 ,
uid_1_2_840_10008_5_1_4_1_1_11_6 = 303 ,
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uid_1_2_840_10008_5_1_4_1_1_11_7 = 310 ,
uid_1_2_840_10008_5_1_4_1_1_11_8 = 311 ,
uid_1_2_840_10008_5_1_4_1_1_11_9 = 312 ,

uid_1_2_840_10008_5_1_4_1_1_11_10 = 313 ,
uid_1_2_840_10008_5_1_4_1_1_11_11 = 314 ,
uid_1_2_840_10008_5_1_4_1_1_12_77 = 315 ,
uid_1_2_840_10008_5_1_4_1_1_13_1_4 = 316 ,
uid_1_2_840_10008_5_1_4_1_1_13_1_5 = 317 ,
uid_1_2_840_10008_5_1_4_1_1_14_1 = 318 ,
uid_1_2_840_10008_5_1_4_1_1_14_2 = 319 ,
uid_1_2_840_10008_5_1_4_1_1_30 = 320 ,
uid_1_2_840_10008_5_1_4_1_1_40 = 321 ,
uid_1_2_840_10008_5_1_4_1_1_66_6 = 322 ,
uid_1_2_840_10008_5_1_4_1_1_68_1 = 323 ,
uid_1_2_840_10008_5_1_4_1_1_68_2 = 324 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_5 = 325 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_6 = 326 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_7 = 327 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_8 = 328 ,
uid_1_2_840_10008_5_1_4_1_1_78_1 = 329 ,
uid_1_2_840_10008_5_1_4_1_1_78_2 = 330 ,
uid_1_2_840_10008_5_1_4_1_1_78_3 = 331 ,
uid_1_2_840_10008_5_1_4_1_1_78_4 = 332 ,
uid_1_2_840_10008_5_1_4_1_1_78_5 = 333 ,
uid_1_2_840_10008_5_1_4_1_1_78_6 = 334 ,
uid_1_2_840_10008_5_1_4_1_1_78_7 = 335 ,
uid_1_2_840_10008_5_1_4_1_1_78_8 = 336 ,
uid_1_2_840_10008_5_1_4_1_1_79_1 = 337 ,
uid_1_2_840_10008_5_1_4_1_1_80_1 = 338 ,
uid_1_2_840_10008_5_1_4_1_1_81_1 = 339 ,
uid_1_2_840_10008_5_1_4_1_1_82_1 = 340 ,
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uid_1_2_840_10008_5_1_4_1_1_88_35 = 342 ,
uid_1_2_840_10008_5_1_4_1_1_88_68 = 343 ,
uid_1_2_840_10008_5_1_4_1_1_88_69 = 344 ,
uid_1_2_840_10008_5_1_4_1_1_88_70 = 345 ,
uid_1_2_840_10008_5_1_4_1_1_88_71 = 346 ,
uid_1_2_840_10008_5_1_4_1_1_88_72 = 347 ,
uid_1_2_840_10008_5_1_4_1_1_88_73 = 348 ,
uid_1_2_840_10008_5_1_4_1_1_88_74 = 349 ,
uid_1_2_840_10008_5_1_4_1_1_88_75 = 350 ,
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uid_1_2_840_10008_5_1_4_1_1_200_1 = 355 ,
uid_1_2_840_10008_5_1_4_1_1_200_2 = 356 ,
uid_1_2_840_10008_5_1_4_1_1_200_3 = 357 ,
uid_1_2_840_10008_5_1_4_1_1_200_4 = 358 ,
uid_1_2_840_10008_5_1_4_1_1_200_5 = 359 ,
uid_1_2_840_10008_5_1_4_1_1_200_6 = 360 ,
uid_1_2_840_10008_5_1_4_1_1_481_10 = 361 ,
uid_1_2_840_10008_5_1_4_1_1_481_11 = 362 ,
uid_1_2_840_10008_5_1_4_1_1_501_1 = 363 ,
uid_1_2_840_10008_5_1_4_1_1_501_2_1 = 364 ,
uid_1_2_840_10008_5_1_4_1_1_501_2_2 = 365 ,
uid_1_2_840_10008_5_1_4_1_1_501_3 = 366 ,

uid_1_2_840_10008_5_1_4_1_1_501_4 = 367 ,
uid_1_2_840_10008_5_1_4_1_1_501_5 = 368 ,
uid_1_2_840_10008_5_1_4_1_1_501_6 = 369 ,
uid_1_2_840_10008_5_1_4_1_1_601_1 = 370 ,
uid_1_2_840_10008_5_1_4_1_1_601_2 = 371 ,
uid_1_2_840_10008_5_1_4_1_2_4_2 = 372 ,
uid_1_2_840_10008_5_1_4_1_2_4_3 = 373 ,
uid_1_2_840_10008_5_1_4_1_2_5_3 = 374 ,
uid_1_2_840_10008_5_1_4_20_1 = 375 ,
uid_1_2_840_10008_5_1_4_20_2 = 376 ,
uid_1_2_840_10008_5_1_4_20_3 = 377 ,
uid_1_2_840_10008_5_1_4_34_5_1 = 378 ,
uid_1_2_840_10008_5_1_4_34_6 = 379 ,
uid_1_2_840_10008_5_1_4_34_6_1 = 380 ,
uid_1_2_840_10008_5_1_4_34_6_2 = 381 ,
uid_1_2_840_10008_5_1_4_34_6_3 = 382 ,
uid_1_2_840_10008_5_1_4_34_6_4 = 383 ,
uid_1_2_840_10008_5_1_4_34_7 = 384 ,
uid_1_2_840_10008_5_1_4_34_8 = 385 ,
uid_1_2_840_10008_5_1_4_34_9 = 386 ,
uid_1_2_840_10008_5_1_4_34_10 = 387 ,
uid_1_2_840_10008_5_1_4_38_4 = 388 ,
uid_1_2_840_10008_5_1_4_39_1 = 389 ,
uid_1_2_840_10008_5_1_4_39_2 = 390 ,
uid_1_2_840_10008_5_1_4_39_3 = 391 ,
uid_1_2_840_10008_5_1_4_39_4 = 392 ,
uid_1_2_840_10008_5_1_4_43_1 = 393 ,
uid_1_2_840_10008_5_1_4_43_2 = 394 ,
uid_1_2_840_10008_5_1_4_43_3 = 395 ,
uid_1_2_840_10008_5_1_4_43_4 = 396 ,
uid_1_2_840_10008_5_1_4_44_1 = 397 ,
uid_1_2_840_10008_5_1_4_44_2 = 398 ,
uid_1_2_840_10008_5_1_4_44_3 = 399 ,
uid_1_2_840_10008_5_1_4_44_4 = 400 ,
uid_1_2_840_10008_5_1_4_45_1 = 401 ,
uid_1_2_840_10008_5_1_4_45_2 = 402 ,
uid_1_2_840_10008_5_1_4_45_3 = 403 ,
uid_1_2_840_10008_5_1_4_45_4 = 404 ,
uid_1_2_840_10008_7_1_1 = 405 ,
uid_1_2_840_10008_7_1_2 = 406 ,
uid_1_2_840_10008_8_1_1 = 407 ,
uid_1_2_840_10008_5_1_4_1_1_4_3 = 408 ,
uid_1_2_840_10008_15_1_1 = 409 }

Public Member Functions

- const char * GetName () const
- const char * GetString () const
- operator TSType () const
- bool SetFromUID (const char *str)

Static Public Member Functions

- static unsigned int GetNumberOfTransferSyntaxStrings ()
- static const char *const * GetTransferSyntaxString (unsigned int ts)
- static TransferSyntaxStringsType GetTransferSyntaxStrings ()
- static const char * GetUIDName (unsigned int ts)
- static const char * GetUIDString (unsigned int ts)

12.324.1 Detailed Description

all known uids

Examples

GenerateStandardSOPClasses.cxx.

12.324.2 Member Typedef Documentation

12.324.2.1 TransferSyntaxStringsType

```
typedef const char* const(* gdcm::UIDs::TransferSyntaxStringsType)[2]
```

12.324.3 Member Enumeration Documentation

12.324.3.1 TSName

```
enum gdcm::UIDs::TSName
```

12.324.3.2 TSType

```
enum gdcm::UIDs::TSType
```

12.324.4 Member Function Documentation

12.324.4.1 GetName()

```
const char * gdcm::UIDs::GetName () const
```

When object is Initialize function return the well known name associated with uid return NULL when not initialized

Examples

GenerateStandardSOPClasses.cxx.

Referenced by gdcm::operator<<().

12.324.4.2 GetNumberOfTransferSyntaxStrings()

```
unsigned int gdcm::UIDs::GetNumberOfTransferSyntaxStrings ()  [static]
```

12.324.4.3 GetString()

```
const char * gdcm::UIDs::GetString () const
```

When object is Initialize function return the uid return NULL when not initialized

Examples

GenerateStandardSOPClasses.cxx.

Referenced by gdcm::operator<<().

12.324.4.4 GetTransferSyntaxString()

```
const char *const * gdcm::UIDs::GetTransferSyntaxString (
            unsigned int ts)  [static]
```

12.324.4.5 GetTransferSyntaxStrings()

```
TransferSyntaxStringsType gdcm::UIDs::GetTransferSyntaxStrings ()  [static]
```

12.324.4.6 GetUIDName()

```
const char * gdcm::UIDs::GetUIDName (
            unsigned int ts)  [static]
```

12.324.4.7 GetUIDString()

```
const char * gdcm::UIDs::GetUIDString (
            unsigned int ts)  [static]
```

12.324.4.8 operator TSType()

```
gdcm::UIDs::operator TSType () const  [inline]
```

12.324.4.9 SetFromUID()

```
bool gdcm::UIDs::SetFromUID (
            const char * str)
```

Initialize object from a string (a uid number) return false on error, and internal state is set to 0

Examples

GenerateStandardSOPClasses.cxx.

The documentation for this class was generated from the following file:

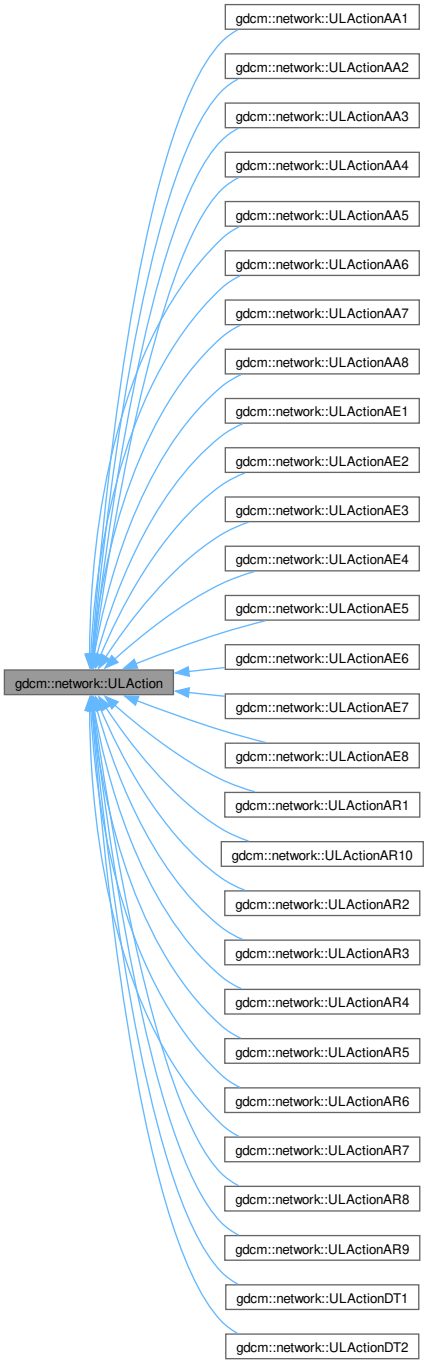
- gdcmUIDs.h

12.325 gdcm::network::ULAction Class Reference

ULAction.

```
#include <gdcmULAction.h>
```

Inheritance diagram for gdcm::network::ULAction:



Public Member Functions

- ULAction ()=default

- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete
- virtual EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaiting↩ ForEvent, EEventID &outRaisedEvent)=0

12.325.1 Detailed Description

ULAction.

A ULConnection in a given ULState can perform certain ULActions. This base class provides the interface for running those ULActions on a given ULConnection.

Essentially, the ULConnectionManager will take this object, determined from the current ULState of the ULConnection, and pass the ULConnection object to the ULAction. The ULAction will then invoke whatever necessary commands are required by a given action.

The result of a ULAction is a ULEvent (ie, what happened as a result of the action).

This ULEvent is passed to the ULState, so that the transition to the next state can occur.

Actions are associated with Payloads – be those filestreams, AETitles to establish connections, whatever. The actual parameters that the user will pass via an action will come through a Payload object, which should, in itself, be some gdcm-based object (but not all objects can be payloads; sending a single dataelement as a payload isn't meaningful). As such, each action has its own particular payload.

For the sake of keeping files together, both the particular payload class and the action class will be defined in the same header file. Payloads should JUST be data (or streams), NO METHODS.

Some actions perform changes that should raise events on the local system, and some actions perform changes that will require waiting for events from the remote system.

Therefore, this base action has been modified so that those events are set by each action. When the event loop runs an action, it will then test to see if a local event was raised by the action, and if so, perform the appropriate subsequent action. If the action requires waiting for a response from the remote system, then the event loop will sit there (presumably with the ARTIM timer running) and wait for a response from the remote system. Once a response is obtained, then the the rest of the state transitions can happen.

12.325.2 Constructor & Destructor Documentation

12.325.2.1 ULAction() [1/2]

```
gdcm::network::ULAction::ULAction ()  [default]
```

Referenced by ULAction(), and operator=().

12.325.2.2 ~ULAction()

```
virtual gdcm::network::ULAction::~ULAction ()  [virtual], [default]
```

12.325.2.3 ULAction() [2/2]

```
gdcm::network::ULAction::ULAction (
            const ULAction & inAction)  [delete]
```

References ULAction().

12.325.3 Member Function Documentation

12.325.3.1 operator=()

```
void gdcm::network::ULAction::operator= (
            const ULAction & )  [delete]
```

References ULAction().

12.325.3.2 PerformAction()

```
virtual EStateID gdcm::network::ULAction::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [pure virtual]
```

Implemented in gdcm::network::ULActionAA1, gdcm::network::ULActionAA2, gdcm::network::ULActionAA3, gdcm::network::ULActionAA4, gdcm::network::ULActionAA5, gdcm::network::ULActionAA6, gdcm::network::ULActionAA7, gdcm::network::ULActionAA8, gdcm::network::ULActionAE1, gdcm::network::ULActionAE2, gdcm::network::ULActionAE3, gdcm::network::ULActionAE4, gdcm::network::ULActionAE5, gdcm::network::ULActionAE6, gdcm::network::ULActionAE7, gdcm::network::ULActionAE8, gdcm::network::ULActionAR10, gdcm::network::ULActionAR1, gdcm::network::ULActionAR2, gdcm::network::ULActionAR3, gdcm::network::ULActionAR4, gdcm::network::ULActionAR5, gdcm::network::ULActionAR6, gdcm::network::ULActionAR7, gdcm::network::ULActionAR8, gdcm::network::ULActionAR9, gdcm::network::ULActionDT1, and gdcm::network::ULActionDT2.

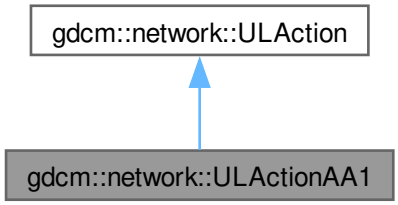
The documentation for this class was generated from the following file:

- gdcmULAction.h

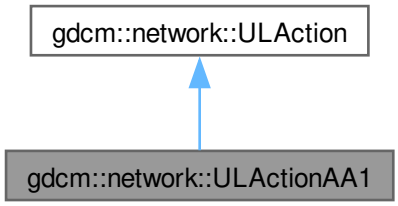
12.326 gdcm::network::ULActionAA1 Class Reference

`#include <gdcmULActionAA.h>`

Inheritance diagram for gdcm::network::ULActionAA1:



Collaboration diagram for gdcm::network::ULActionAA1:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.326.1 Member Function Documentation

12.326.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA1::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

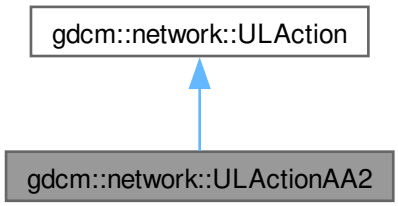
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

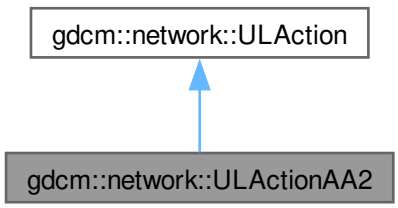
12.327 gdcm::network::ULActionAA2 Class Reference

```
#include <gdcmULActionAA.h>
```

Inheritance diagram for gdcm::network::ULActionAA2:



Collaboration diagram for gdcm::network::ULActionAA2:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.327.1 Member Function Documentation

12.327.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA2::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

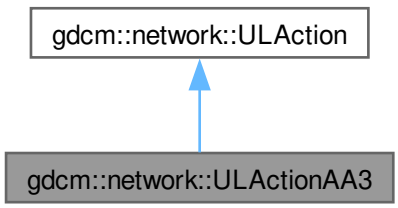
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

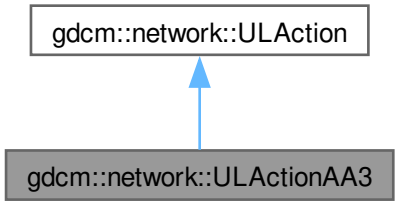
12.328 gdcm::network::ULActionAA3 Class Reference

`#include <gdcmULActionAA.h>`

Inheritance diagram for gdcm::network::ULActionAA3:



Collaboration diagram for gdcm::network::ULActionAA3:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.328.1 Member Function Documentation

12.328.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA3::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

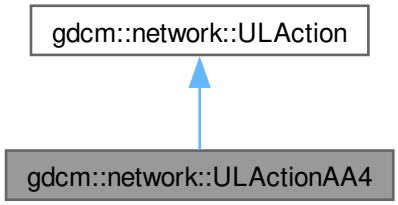
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

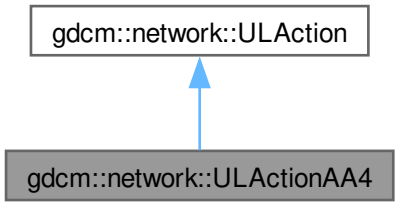
12.329 gdcm::network::ULActionAA4 Class Reference

`#include <gdcmULActionAA.h>`

Inheritance diagram for gdcm::network::ULActionAA4:



Collaboration diagram for gdcm::network::ULActionAA4:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.329.1 Member Function Documentation

12.329.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA4::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

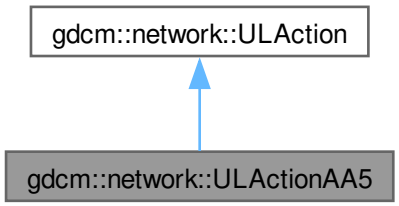
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

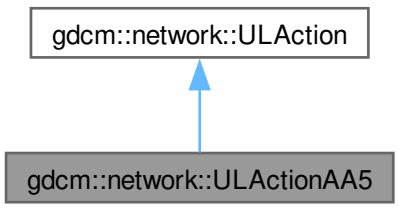
12.330 gdcm::network::ULActionAA5 Class Reference

```
#include <gdcmULActionAA.h>
```

Inheritance diagram for gdcm::network::ULActionAA5:



Collaboration diagram for gdcm::network::ULActionAA5:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.330.1 Member Function Documentation

12.330.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA5::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

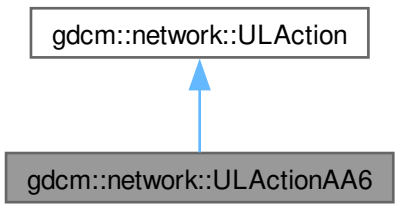
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

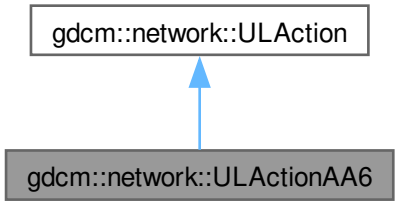
12.331 gdcm::network::ULActionAA6 Class Reference

`#include <gdcmULActionAA.h>`

Inheritance diagram for gdcm::network::ULActionAA6:



Collaboration diagram for gdcm::network::ULActionAA6:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.331.1 Member Function Documentation

12.331.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA6::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

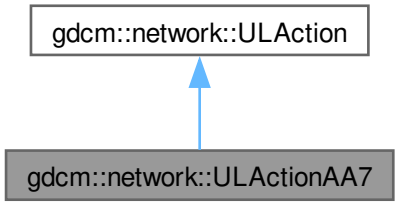
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

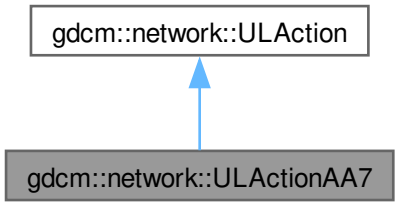
12.332 gdcm::network::ULActionAA7 Class Reference

`#include <gdcmULActionAA.h>`

Inheritance diagram for gdcm::network::ULActionAA7:



Collaboration diagram for gdcm::network::ULActionAA7:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.332.1 Member Function Documentation

12.332.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA7::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

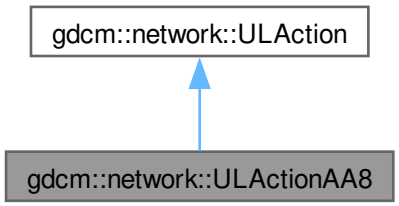
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

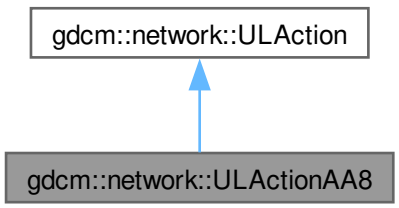
12.333 gdcm::network::ULActionAA8 Class Reference

```
#include <gdcmULActionAA.h>
```

Inheritance diagram for gdcm::network::ULActionAA8:



Collaboration diagram for gdcm::network::ULActionAA8:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.333.1 Member Function Documentation

12.333.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA8::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

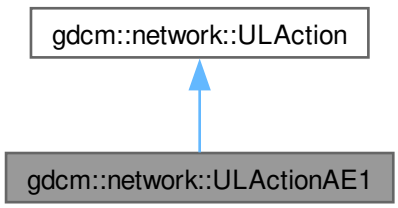
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

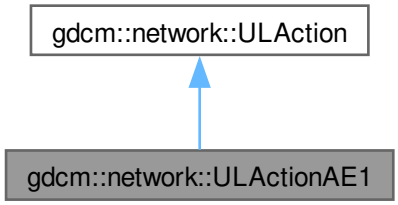
12.334 gdcm::network::ULActionAE1 Class Reference

`#include <gdcmULActionAE.h>`

Inheritance diagram for gdcm::network::ULActionAE1:



Collaboration diagram for gdcm::network::ULActionAE1:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.334.1 Member Function Documentation

12.334.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE1::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

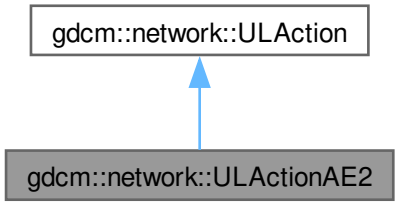
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

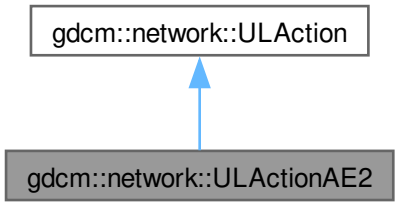
12.335 gdcm::network::ULActionAE2 Class Reference

`#include <gdcmULActionAE.h>`

Inheritance diagram for gdcm::network::ULActionAE2:



Collaboration diagram for gdcm::network::ULActionAE2:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.335.1 Member Function Documentation

12.335.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE2::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

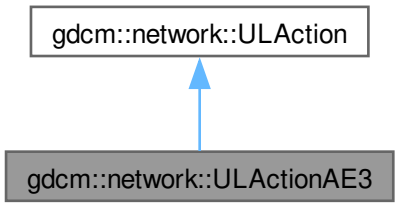
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

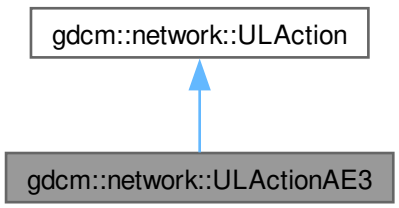
12.336 gdcm::network::ULActionAE3 Class Reference

`#include <gdcmULActionAE.h>`

Inheritance diagram for gdcm::network::ULActionAE3:



Collaboration diagram for gdcm::network::ULActionAE3:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.336.1 Member Function Documentation

12.336.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE3::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

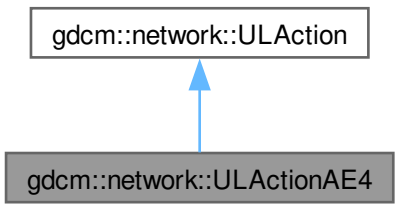
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

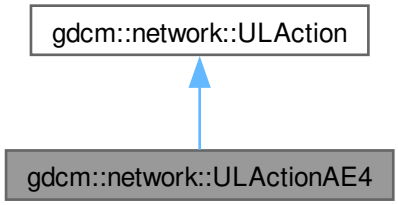
12.337 gdcm::network::ULActionAE4 Class Reference

```
#include <gdcmULActionAE.h>
```

Inheritance diagram for gdcm::network::ULActionAE4:



Collaboration diagram for gdcm::network::ULActionAE4:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.337.1 Member Function Documentation

12.337.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE4::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

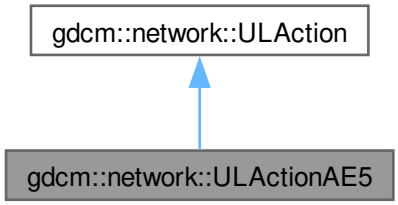
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

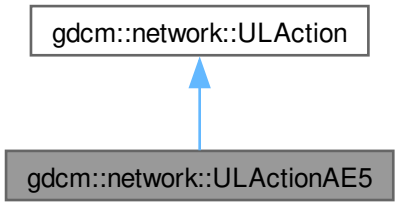
12.338 gdcm::network::ULActionAE5 Class Reference

`#include <gdcmULActionAE.h>`

Inheritance diagram for gdcm::network::ULActionAE5:



Collaboration diagram for gdcm::network::ULActionAE5:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.338.1 Member Function Documentation

12.338.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE5::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

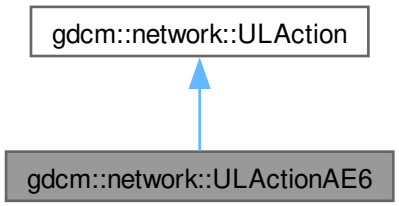
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

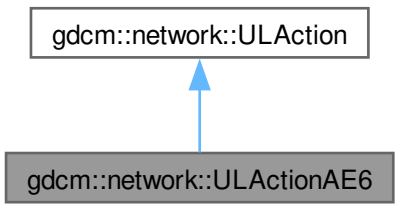
12.339 gdcm::network::ULActionAE6 Class Reference

```
#include <gdcmULActionAE.h>
```

Inheritance diagram for gdcm::network::ULActionAE6:



Collaboration diagram for gdcm::network::ULActionAE6:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.339.1 Member Function Documentation

12.339.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE6::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

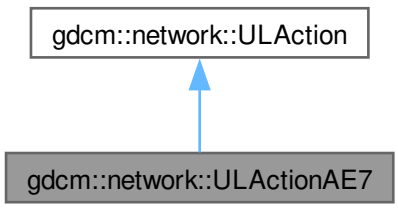
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

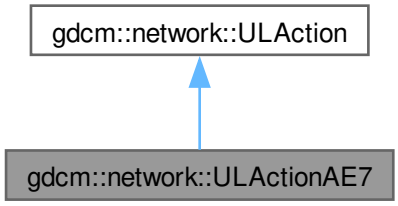
12.340 gdcm::network::ULActionAE7 Class Reference

```
#include <gdcmULActionAE.h>
```

Inheritance diagram for gdcm::network::ULActionAE7:



Collaboration diagram for gdcm::network::ULActionAE7:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.340.1 Member Function Documentation

12.340.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE7::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

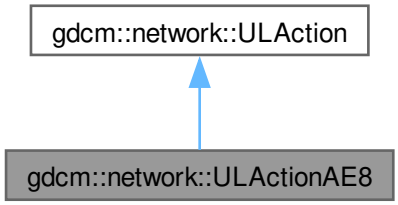
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

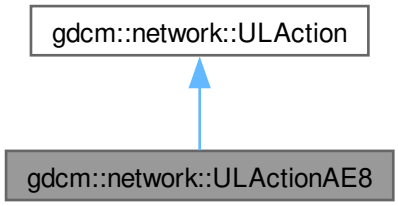
12.341 gdcm::network::ULActionAE8 Class Reference

`#include <gdcmULActionAE.h>`

Inheritance diagram for gdcm::network::ULActionAE8:



Collaboration diagram for gdcm::network::ULActionAE8:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.341.1 Member Function Documentation

12.341.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE8::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

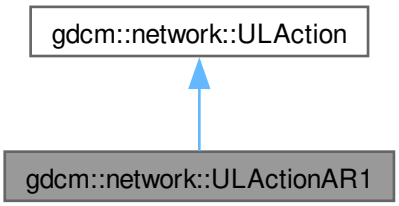
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

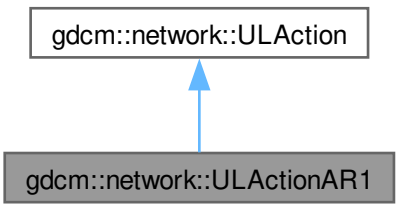
12.342 gdcm::network::ULActionAR1 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR1:



Collaboration diagram for gdcm::network::ULActionAR1:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.342.1 Member Function Documentation

12.342.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR1::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

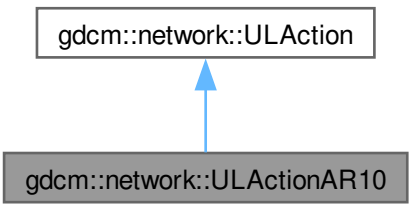
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

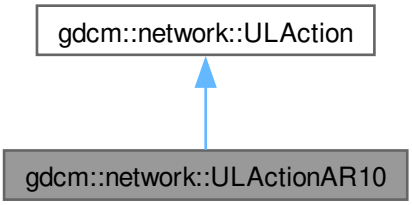
12.343 gdcm::network::ULActionAR10 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR10:



Collaboration diagram for gdcm::network::ULActionAR10:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.343.1 Member Function Documentation

12.343.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR10::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

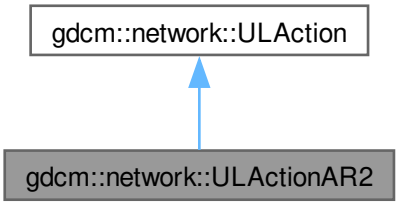
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

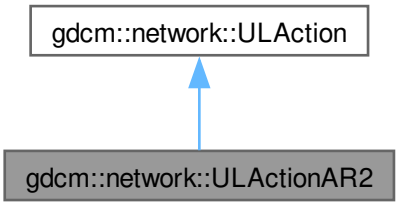
12.344 gdcm::network::ULActionAR2 Class Reference

`#include <gdcmULActionAR.h>`

Inheritance diagram for gdcm::network::ULActionAR2:



Collaboration diagram for gdcm::network::ULActionAR2:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.344.1 Member Function Documentation

12.344.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR2::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

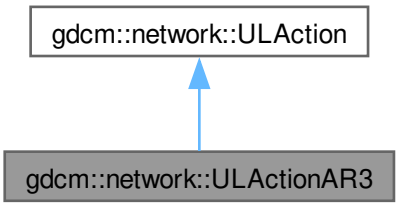
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

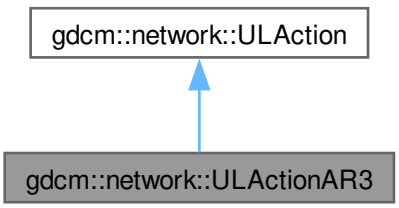
12.345 gdcm::network::ULActionAR3 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR3:



Collaboration diagram for gdcm::network::ULActionAR3:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.345.1 Member Function Documentation

12.345.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR3::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

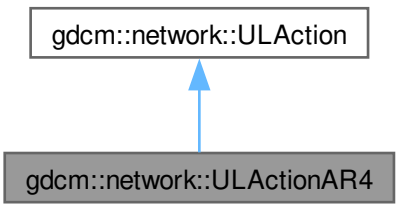
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

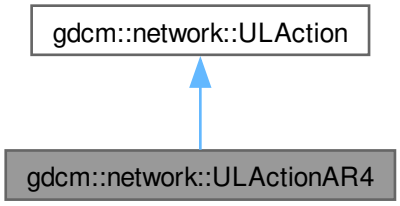
12.346 gdcm::network::ULActionAR4 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR4:



Collaboration diagram for gdcm::network::ULActionAR4:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.346.1 Member Function Documentation

12.346.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR4::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

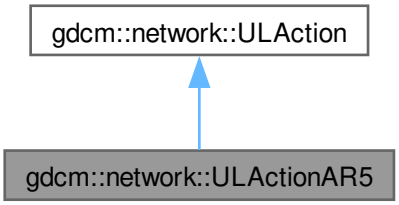
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

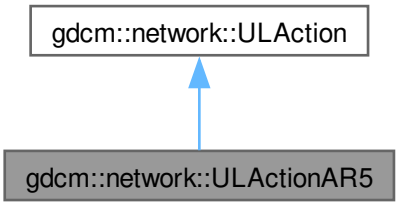
12.347 gdcm::network::ULActionAR5 Class Reference

`#include <gdcmULActionAR.h>`

Inheritance diagram for gdcm::network::ULActionAR5:



Collaboration diagram for gdcm::network::ULActionAR5:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.347.1 Member Function Documentation

12.347.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR5::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

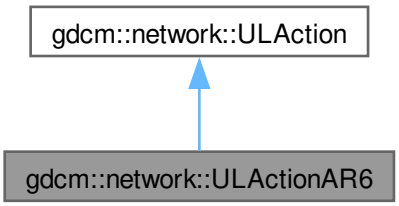
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

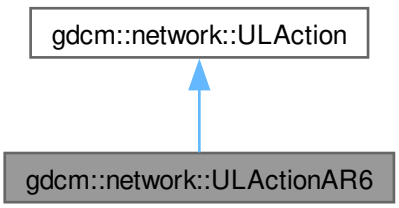
12.348 gdcm::network::ULActionAR6 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR6:



Collaboration diagram for gdcm::network::ULActionAR6:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.348.1 Member Function Documentation

12.348.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR6::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

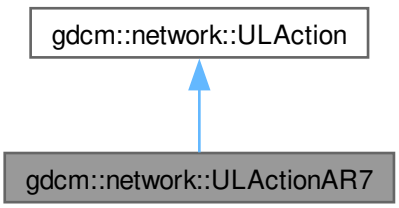
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

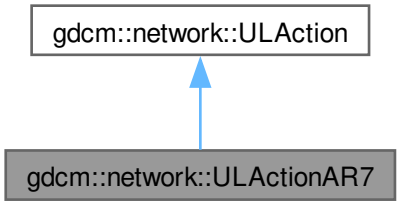
12.349 gdcm::network::ULActionAR7 Class Reference

`#include <gdcmULActionAR.h>`

Inheritance diagram for gdcm::network::ULActionAR7:



Collaboration diagram for gdcm::network::ULActionAR7:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.349.1 Member Function Documentation

12.349.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR7::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

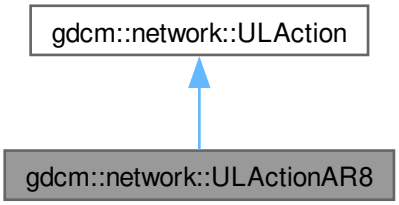
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

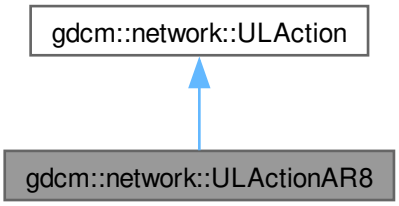
12.350 gdcm::network::ULActionAR8 Class Reference

`#include <gdcmULActionAR.h>`

Inheritance diagram for gdcm::network::ULActionAR8:



Collaboration diagram for gdcm::network::ULActionAR8:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.350.1 Member Function Documentation

12.350.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR8::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

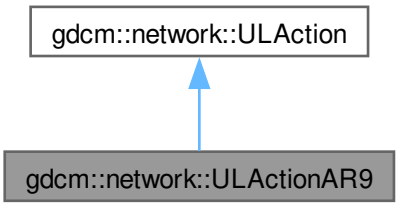
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

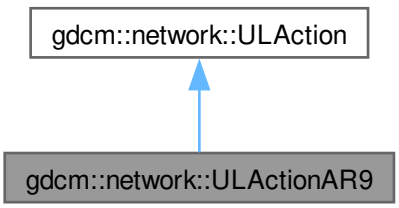
12.351 gdcm::network::ULActionAR9 Class Reference

`#include <gdcmULActionAR.h>`

Inheritance diagram for gdcm::network::ULActionAR9:



Collaboration diagram for gdcm::network::ULActionAR9:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.351.1 Member Function Documentation

12.351.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR9::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

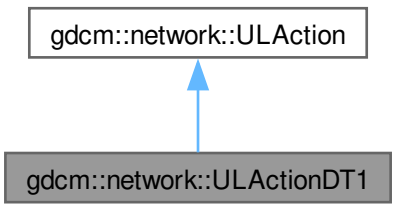
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

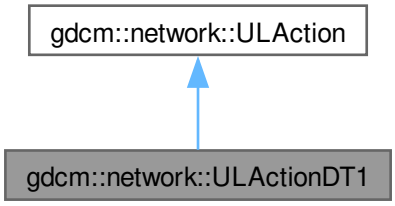
12.352 gdcm::network::ULActionDT1 Class Reference

```
#include <gdcmULActionDT.h>
```

Inheritance diagram for gdcm::network::ULActionDT1:



Collaboration diagram for gdcm::network::ULActionDT1:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.352.1 Member Function Documentation

12.352.1.1 PerformAction()

```
EStateID gdcm::network::ULActionDT1::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

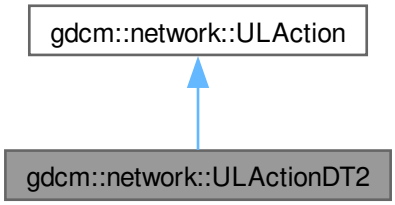
The documentation for this class was generated from the following file:

- gdcmULActionDT.h

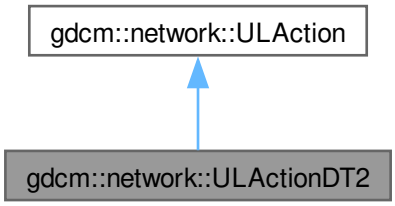
12.353 gdcm::network::ULActionDT2 Class Reference

`#include <gdcmULActionDT.h>`

Inheritance diagram for gdcm::network::ULActionDT2:



Collaboration diagram for gdcm::network::ULActionDT2:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.353.1 Member Function Documentation

12.353.1.1 PerformAction()

```
EStateID gdcm::network::ULActionDT2::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

The documentation for this class was generated from the following file:

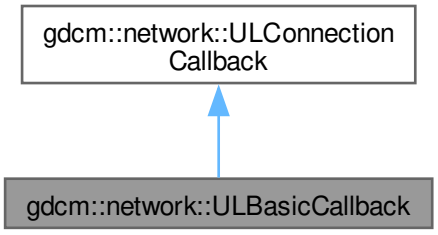
- gdcmULActionDT.h

12.354 gdcm::network::ULBasicCallback Class Reference

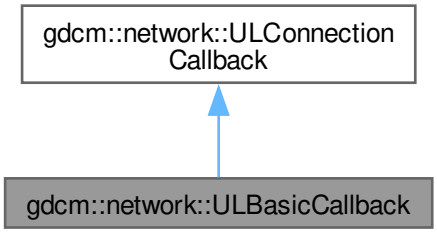
ULBasicCallback.

```
#include <gdcmULBasicCallback.h>
```

Inheritance diagram for gdcm::network::ULBasicCallback:



Collaboration diagram for gdcm::network::ULBasicCallback:



Public Member Functions

- ULBasicCallback ()=default
- ~ULBasicCallback () override=default
- std::vector< DataSet > const & GetDataSets () const
- std::vector< DataSet > const & GetResponses () const
- void HandleDataSet (const DataSet &inDataSet) override
- void HandleResponse (const DataSet &inDataSet) override

Public Member Functions inherited from gdcm::network::ULConnectionCallback

- ULConnectionCallback ()
- virtual ~ULConnectionCallback ()=default
- bool DataSetHandles () const
- void ResetHandledDataSet ()
- void SetImplicitFlag (const bool imp)

Additional Inherited Members

Protected Member Functions inherited from gdcm::network::ULConnectionCallback

- void DataSetHandled ()

Protected Attributes inherited from gdcm::network::ULConnectionCallback

- bool mImplicit

12.354.1 Detailed Description

ULBasicCallback.

This is the most basic of callbacks for how the ULConnectionManager handles incoming datasets. DataSets are just concatenated to the mDataSets vector, and the result can be pulled out of the vector by later code. Alternatives to this method include progress updates, saving to disk, etc. This class is NOT THREAD SAFE. Access the dataset vector after the entire set of datasets has been returned by the ULConnectionManager.

12.354.2 Constructor & Destructor Documentation

12.354.2.1 ULBasicCallback()

```
gdcm::network::ULBasicCallback::ULBasicCallback ()  [default]
```

12.354.2.2 ~ULBasicCallback()

```
gdcm::network::ULBasicCallback::~ULBasicCallback ()  [override], [default]
```

12.354.3 Member Function Documentation

12.354.3.1 GetDataSets()

```
std::vector< DataSet > const & gdcm::network::ULBasicCallback::GetDataSets () const
```

12.354.3.2 GetResponses()

```
std::vector< DataSet > const & gdcm::network::ULBasicCallback::GetResponses () const
```

12.354.3.3 HandleDataSet()

```
void gdcm::network::ULBasicCallback::HandleDataSet (
            const DataSet & inDataSet)  [override], [virtual]
```

Implements gdcm::network::ULConnectionCallback.

12.354.3.4 HandleResponse()

```
void gdcm::network::ULBasicCallback::HandleResponse (
            const DataSet & inDataSet)  [override], [virtual]
```

Implements gdcm::network::ULConnectionCallback.

The documentation for this class was generated from the following file:

- gdcmULBasicCallback.h

12.355 gdcm::network::ULConnection Class Reference

ULConnection.

```
#include <gdcmULConnection.h>
```

Public Member Functions

- ULConnection (const ULConnection &)=delete
- ULConnection (const ULConnectionInfo &inUserInformation)
- virtual ~ULConnection ()
- void AddAcceptedPresentationContext (const PresentationContextAC &inPC)
- PresentationContextRQ FindContext (const DataElement &de) const
- std::vector< PresentationContextAC > & GetAcceptedPresentationContexts ()
- std::vector< PresentationContextAC > const & GetAcceptedPresentationContexts () const
- const ULConnectionInfo & GetConnectionInfo () const
- uint32_t GetMaxPDUSize () const
- const PresentationContextAC * GetPresentationContextACByID (uint8_t id) const
- uint8_t GetPresentationContextIDFromPresentationContext (PresentationContextRQ const &pc) const

  return 0 upon error
- const PresentationContextRQ * GetPresentationContextRQByID (uint8_t id) const
- std::vector< PresentationContextRQ > const & GetPresentationContexts () const
- std::iostream * GetProtocol ()
- EStateID GetState () const
- ARTIMTimer & GetTimer ()
- bool InitializeConnection ()

  used to establish scu connections
- bool InitializeIncomingConnection ()

  used to establish scp connections
- void operator= (const ULConnection &)=delete
- void SetMaxPDUSize (uint32_t inSize)
- void SetPresentationContexts (const std::vector< PresentationContext > &inContexts)
- void SetPresentationContexts (const std::vector< PresentationContextRQ > &inContexts)
- void SetState (const EStateID &inState)
- void StopProtocol ()

Friends

- class ULActionAE6
- class ULConnectionManager

12.355.1 Detailed Description

ULConnection.

This is the class that contains the socket to another machine, and passes data through itself, as well as maintaining a sense of state.

The ULConnectionManager tells the ULConnection what data can actually be sent.

This class is done this way so that it can be eventually be replaced with a ULSecureConnection, if such a protocol is warranted, so that all data that passes through can be managed through a secure connection. For now, this class provides a simple pass-through mechanism to the socket itself.

So, for instance, a gdcm object will be passes to this object, and it will then get passed along the connection, if that connection is in the proper state to do so.

For right now, this class is not directly intended to be inherited from, but the potential for future ULSecureConnection warrants the addition, rather than having everything be managed from within the ULConnectionManager (or this class) without a wrapper.

12.355.2 Constructor & Destructor Documentation

12.355.2.1 ULConnection() [1/2]

```
gdcm::network::ULConnection::ULConnection (
            const ULConnectionInfo & inUserInformation)
```

Referenced by ULConnection(), and operator=().

12.355.2.2 ~ULConnection()

```
virtual gdcm::network::ULConnection::~ULConnection ()  [virtual]
```

12.355.2.3 ULConnection() [2/2]

```
gdcm::network::ULConnection::ULConnection (
            const ULConnection & )  [delete]
```

References ULConnection().

12.355.3 Member Function Documentation

12.355.3.1 AddAcceptedPresentationContext()

```
void gdcm::network::ULConnection::AddAcceptedPresentationContext (
            const PresentationContextAC & inPC)
```

12.355.3.2 FindContext()

```
PresentationContextRQ gdcm::network::ULConnection::FindContext (
            const DataElement & de) const
```

12.355.3.3 GetAcceptedPresentationContexts() [1/2]

```
std::vector< PresentationContextAC > & gdcm::network::ULConnection::GetAcceptedPresentation↩
Contexts ()
```

12.355.3.4 GetAcceptedPresentationContexts() [2/2]

```
std::vector< PresentationContextAC > const & gdcm::network::ULConnection::GetAcceptedPresentation↩
Contexts () const
```

12.355.3.5 GetConnectionInfo()

```
const ULConnectionInfo & gdcm::network::ULConnection::GetConnectionInfo () const
```

12.355.3.6 GetMaxPDUSize()

```
uint32_t gdcm::network::ULConnection::GetMaxPDUSize () const
```

12.355.3.7 GetPresentationContextACByID()

```
const PresentationContextAC * gdcm::network::ULConnection::GetPresentationContextACByID (
            uint8_t id) const
```

12.355.3.8 GetPresentationContextIDFromPresentationContext()

```
uint8_t gdcm::network::ULConnection::GetPresentationContextIDFromPresentationContext (
            PresentationContextRQ const & pc) const
```

return 0 upon error

12.355.3.9 GetPresentationContextRQByID()

```
const PresentationContextRQ * gdcm::network::ULConnection::GetPresentationContextRQByID (
            uint8_t id) const
```

12.355.3.10 GetPresentationContexts()

```
std::vector< PresentationContextRQ > const & gdcm::network::ULConnection::GetPresentationContexts
() const
```

12.355.3.11 GetProtocol()

```
std::iostream * gdcm::network::ULConnection::GetProtocol ()
```

12.355.3.12 GetState()

```
EStateID gdcm::network::ULConnection::GetState () const
```

12.355.3.13 GetTimer()

```
ARTIMTimer & gdcm::network::ULConnection::GetTimer ()
```

12.355.3.14 InitializeConnection()

```
bool gdcm::network::ULConnection::InitializeConnection ()
```

used to establish scu connections

12.355.3.15 InitializeIncomingConnection()

```
bool gdcm::network::ULConnection::InitializeIncomingConnection ()
```

used to establish scp connections

12.355.3.16 operator=()

```
void gdcm::network::ULConnection::operator= (
            const ULConnection & )  [delete]
```

References ULConnection().

12.355.3.17 SetMaxPDUSize()

```
void gdcm::network::ULConnection::SetMaxPDUSize (
            uint32_t inSize)
```

12.355.3.18 SetPresentationContexts() [1/2]

```
void gdcm::network::ULConnection::SetPresentationContexts (
            const std::vector< PresentationContext > & inContexts)
```

12.355.3.19 SetPresentationContexts() [2/2]

```
void gdcm::network::ULConnection::SetPresentationContexts (
            const std::vector< PresentationContextRQ > & inContexts)
```

12.355.3.20 SetState()

```
void gdcm::network::ULConnection::SetState (
            const EStateID & inState)
```

12.355.3.21 StopProtocol()

```
void gdcm::network::ULConnection::StopProtocol ()
```

12.355.4 Friends And Related Symbol Documentation

12.355.4.1 ULActionAE6

```
friend class ULActionAE6  [friend]
```

References ULActionAE6.

Referenced by ULActionAE6.

12.355.4.2 ULConnectionManager

```
friend class ULConnectionManager  [friend]
```

References ULConnectionManager.

Referenced by ULConnectionManager.

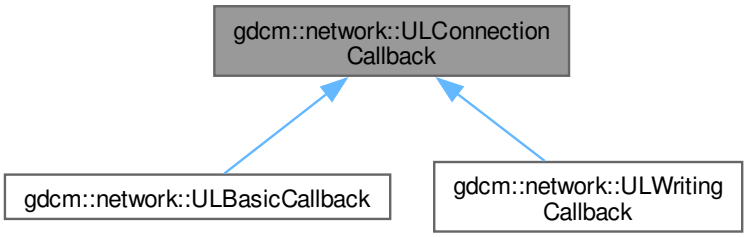
The documentation for this class was generated from the following file:

- gdcmULConnection.h

12.356 gdcm::network::ULConnectionCallback Class Reference

`#include <gdcmULConnectionCallback.h>`

Inheritance diagram for gdcm::network::ULConnectionCallback:



Public Member Functions

- ULConnectionCallback ()
- virtual ~ULConnectionCallback ()=default
- bool DataSetHandles () const
- virtual void HandleDataSet (const DataSet &inDataSet)=0
- virtual void HandleResponse (const DataSet &inDataSet)=0
- void ResetHandledDataSet ()
- void SetImplicitFlag (const bool imp)

Protected Member Functions

- void DataSetHandled ()

Protected Attributes

- bool mImplicit

12.356.1 Detailed Description

When a dataset comes back from a query/move/etc, the result can either be stored entirely in memory, or could be stored on disk. This class provides a mechanism to indicate what the ULConnectionManager should do with datasets that are produced through query results. The ULConnectionManager will call the HandleDataSet function during the course of receiving datasets. Particular implementations should fill in what that function does, including updating progress, etc. NOTE: since cmove requires that multiple event loops be employed, the callback function MUST set mHandledData↩ Set to true. otherwise, the cmove event loop handler will not know data was received, and proceed to end the loop prematurely.

12.356.2 Constructor & Destructor Documentation

12.356.2.1 ULConnectionCallback()

```
gdcm::network::ULConnectionCallback::ULConnectionCallback ()  [inline]
```

References mImplicit.

12.356.2.2 ~ULConnectionCallback()

```
virtual gdcm::network::ULConnectionCallback::~ULConnectionCallback ()  [virtual], [default]
```

12.356.3 Member Function Documentation

12.356.3.1 DataSetHandled()

```
void gdcm::network::ULConnectionCallback::DataSetHandled ()  [inline], [protected]
```

12.356.3.2 DataSetHandles()

```
bool gdcm::network::ULConnectionCallback::DataSetHandles () const  [inline]
```

12.356.3.3 HandleDataSet()

```
virtual void gdcm::network::ULConnectionCallback::HandleDataSet (
            const DataSet & inDataSet)  [pure virtual]
```

Implemented in gdcm::network::ULBasicCallback, and gdcm::network::ULWritingCallback.

12.356.3.4 HandleResponse()

```
virtual void gdcm::network::ULConnectionCallback::HandleResponse (
            const DataSet & inDataSet)  [pure virtual]
```

Implemented in gdcm::network::ULBasicCallback, and gdcm::network::ULWritingCallback.

12.356.3.5 ResetHandledDataSet()

```
void gdcm::network::ULConnectionCallback::ResetHandledDataSet ()  [inline]
```

12.356.3.6 SetImplicitFlag()

```
void gdcm::network::ULConnectionCallback::SetImplicitFlag (
            const bool imp)  [inline]
```

References mImplicit.

12.356.4 Member Data Documentation

12.356.4.1 mImplicit

```
bool gdcm::network::ULConnectionCallback::mImplicit  [protected]
```

Referenced by ULConnectionCallback(), and SetImplicitFlag().

The documentation for this class was generated from the following file:

- gdcmULConnectionCallback.h

12.357 gdcm::network::ULConnectionInfo Class Reference

ULConnectionInfo.

```
#include <gdcmULConnectionInfo.h>
```

Public Member Functions

- ULConnectionInfo ()
- const char * GetCalledAETitle () const
- std::string GetCalledComputerName () const
- unsigned long GetCalledIPAddress () const
- int GetCalledIPPort () const
- const char * GetCallingAETitle () const
- unsigned long GetMaxPDULength () const
- bool Initialize (UserInformation const &inUserInformation, const char *inCalledAETitle, const char *inCalling↩ AETitle, unsigned long inCalledIPAddress, int inCalledIPPort, std::string inCalledComputerName)
- void SetMaxPDULength (unsigned long inMaxPDULength)

12.357.1 Detailed Description

ULConnectionInfo.

this class contains all the information about a particular connection as established by the user. That is, it's: User Information Calling AE Title Called AE Title IP address/computer name IP Port A connection must be established with this information, that's subsequently placed into various primitives for actual communication.

12.357.2 Constructor & Destructor Documentation

12.357.2.1 ULConnectionInfo()

```
gdcm::network::ULConnectionInfo::ULConnectionInfo ()
```

12.357.3 Member Function Documentation

12.357.3.1 GetCalledAETitle()

```
const char * gdcm::network::ULConnectionInfo::GetCalledAETitle () const
```

12.357.3.2 GetCalledComputerName()

```
std::string gdcm::network::ULConnectionInfo::GetCalledComputerName () const
```

12.357.3.3 GetCalledIPAddress()

```
unsigned long gdcm::network::ULConnectionInfo::GetCalledIPAddress () const
```

12.357.3.4 GetCalledIPPort()

```
int gdcm::network::ULConnectionInfo::GetCalledIPPort () const
```

12.357.3.5 GetCallingAETitle()

```
const char * gdcm::network::ULConnectionInfo::GetCallingAETitle () const
```

12.357.3.6 GetMaxPDULength()

```
unsigned long gdcm::network::ULConnectionInfo::GetMaxPDULength () const
```

12.357.3.7 Initialize()

```
bool gdcm::network::ULConnectionInfo::Initialize (
            UserInformation const & inUserInformation,
            const char * inCalledAETitle,
            const char * inCallingAETitle,
            unsigned long inCalledIPAddress,
            int inCalledIPPort,
            std::string inCalledComputerName)
```

12.357.3.8 SetMaxPDULength()

```
void gdcm::network::ULConnectionInfo::SetMaxPDULength (
            unsigned long inMaxPDULength)
```

The documentation for this class was generated from the following file:

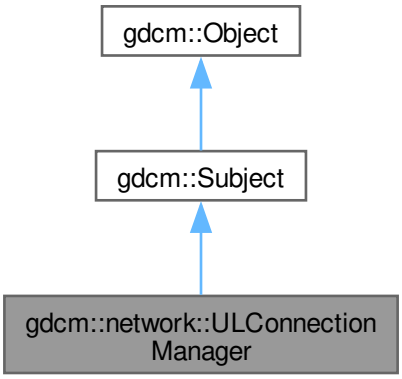
- gdcmULConnectionInfo.h

12.358 gdcm::network::ULConnectionManager Class Reference

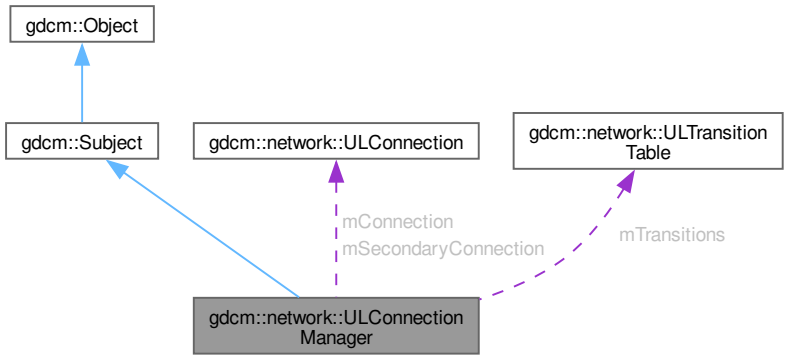
ULConnectionManager.

```
#include <gdcmULConnectionManager.h>
```

Inheritance diagram for gdcm::network::ULConnectionManager:



Collaboration diagram for gdcm::network::ULConnectionManager:



Public Member Functions

- ULConnectionManager ()
- ~ULConnectionManager () override
- bool BreakConnection (const double &inTimeout)
- void BreakConnectionNow ()
- bool EstablishConnection (const std::string &inAETitle, const std::string &inConnectAETitle, const std::string &inComputerName, long inIPAddress, uint16_t inConnectPort, double inTimeout, std::vector< PresentationContext > const &pcVector)
- bool EstablishConnectionMove (const std::string &inAETitle, const std::string &inConnectAETitle, const std::string &inComputerName, long inIPAddress, uint16_t inConnectPort, double inTimeout, uint16_t inReturnPort, std::vector< PresentationContext > const &pcVector)
- std::vector< PresentationDataValue > SendEcho ()
- std::vector< DataSet > SendFind (const BaseRootQuery *inRootQuery)
- void SendFind (const BaseRootQuery *inRootQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendMove (const BaseRootQuery *inRootQuery)
- bool SendMove (const BaseRootQuery *inRootQuery, ULConnectionCallback *inCallback)

  return false upon error
- std::vector< DataSet > SendNAction (const BaseQuery *inQuery)
- void SendNAction (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendNCreate (const BaseQuery *inQuery)
- void SendNCreate (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendNDelete (const BaseQuery *inQuery)
- void SendNDelete (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendNEventReport (const BaseQuery *inQuery)
- void SendNEventReport (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendNGet (const BaseQuery *inQuery)
- void SendNGet (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendNSet (const BaseQuery *inQuery)
- void SendNSet (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendStore (const File &file, std::istream *pStream=nullptr, std::streampos dataSetOffset=0)

- void SendStore (const File &file, ULConnectionCallback *inCallback, std::istream *pStream=nullptr, std::streampos dataSetOffset=0)

  callback based API

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Protected Member Functions

- ULConnectionManager (const ULConnectionManager &inCM)
- EStateID RunEventLoop (ULEvent &inEvent, ULConnection *inWhichConnection, ULConnectionCallback *inCallback, const bool &startWaiting)
- EStateID RunMoveEventLoop (ULEvent &inEvent, ULConnectionCallback *inCallback)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- ULConnection * mConnection
- ULConnection * mSecondaryConnection
- ULTransitionTable mTransitions

12.358.1 Detailed Description

ULConnectionManager.

The ULConnectionManager performs actions on the ULConnection given inputs from the user and from the state of what's going on around the connection (ie, timeouts of the ARTIM timer, responses from the peer across the connection, etc).

Its inputs are ULEvents, and it performs ULActions.

12.358.2 Constructor & Destructor Documentation

12.358.2.1 ULConnectionManager() [1/2]

```
gdcm::network::ULConnectionManager::ULConnectionManager (
            const ULConnectionManager & inCM)  [protected]
```

References ULConnectionManager().

Referenced by ULConnectionManager().

12.358.2.2 ULConnectionManager() [2/2]

```
gdcm::network::ULConnectionManager::ULConnectionManager ()
```

12.358.2.3 ~ULConnectionManager()

```
gdcm::network::ULConnectionManager::~ULConnectionManager ()  [override]
```

12.358.3 Member Function Documentation

12.358.3.1 BreakConnection()

```
bool gdcm::network::ULConnectionManager::BreakConnection (
            const double & inTimeout)
```

12.358.3.2 BreakConnectionNow()

```
void gdcm::network::ULConnectionManager::BreakConnectionNow ()
```

12.358.3.3 EstablishConnection()

```
bool gdcm::network::ULConnectionManager::EstablishConnection (
            const std::string & inAETitle,
            const std::string & inConnectAETitle,
            const std::string & inComputerName,
            long inIPAddress,
            uint16_t inConnectPort,
            double inTimeout,
            std::vector< PresentationContext > const & pcVector)
```

returns true if a connection of the given AETitle (ie, 'this' program) is able to connect to the given AETitle and Port in a certain amount of time providing the connection type will establish the proper exchange syntax with a server; if a different functionality is required, a different connection should be established. returns false if the connection type is 'move'– have to give a return port for move to work as specified.

12.358.3.4 EstablishConnectionMove()

```
bool gdcm::network::ULConnectionManager::EstablishConnectionMove (
            const std::string & inAETitle,
            const std::string & inConnectAETitle,
            const std::string & inComputerName,
            long inIPAddress,
            uint16_t inConnectPort,
            double inTimeout,
            uint16_t inReturnPort,
            std::vector< PresentationContext > const & pcVector)
```

returns true for above reasons, but contains the special 'move' port

12.358.3.5 RunEventLoop()

```
EStateID gdcm::network::ULConnectionManager::RunEventLoop (
            ULEvent & inEvent,
            ULConnection * inWhichConnection,
            ULConnectionCallback * inCallback,
            const bool & startWaiting)  [protected]
```

12.358.3.6 RunMoveEventLoop()

```
EStateID gdcm::network::ULConnectionManager::RunMoveEventLoop (
            ULEvent & inEvent,
            ULConnectionCallback * inCallback)  [protected]
```

12.358.3.7 SendEcho()

```
std::vector< PresentationDataValue > gdcm::network::ULConnectionManager::SendEcho ()
```

12.358.3.8 SendFind() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendFind (
            const BaseRootQuery * inRootQuery)
```

12.358.3.9 SendFind() [2/2]

```
void gdcm::network::ULConnectionManager::SendFind (
            const BaseRootQuery * inRootQuery,
            ULConnectionCallback * inCallback)
```

12.358.3.10 SendMove() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendMove (
            const BaseRootQuery * inRootQuery)
```

12.358.3.11 SendMove() [2/2]

```
bool gdcm::network::ULConnectionManager::SendMove (
            const BaseRootQuery * inRootQuery,
            ULConnectionCallback * inCallback)
```

return false upon error

12.358.3.12 SendNAction() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNAction (
            const BaseQuery * inQuery)
```

12.358.3.13 SendNAction() [2/2]

```
void gdcm::network::ULConnectionManager::SendNAction (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback)
```

12.358.3.14 SendNCreate() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNCreate (
            const BaseQuery * inQuery)
```

12.358.3.15 SendNCreate() [2/2]

```
void gdcm::network::ULConnectionManager::SendNCreate (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback)
```

12.358.3.16 SendNDelete() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNDelete (
            const BaseQuery * inQuery)
```

12.358.3.17 SendNDelete() [2/2]

```
void gdcm::network::ULConnectionManager::SendNDelete (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback)
```

12.358.3.18 SendNEventReport() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNEventReport (
            const BaseQuery * inQuery)
```

12.358.3.19 SendNEventReport() [2/2]

```
void gdcm::network::ULConnectionManager::SendNEventReport (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback)
```

12.358.3.20 SendNGet() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNGet (
            const BaseQuery * inQuery)
```

12.358.3.21 SendNGet() [2/2]

```
void gdcm::network::ULConnectionManager::SendNGet (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback)
```

12.358.3.22 SendNSet() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNSet (
            const BaseQuery * inQuery)
```

12.358.3.23 SendNSet() [2/2]

```
void gdcm::network::ULConnectionManager::SendNSet (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback)
```

12.358.3.24 SendStore() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendStore (
            const File & file,
            std::istream * pStream = nullptr,
            std::streampos dataSetOffset = 0)
```

12.358.3.25 SendStore() [2/2]

```
void gdcm::network::ULConnectionManager::SendStore (
            const File & file,
            ULConnectionCallback * inCallback,
            std::istream * pStream = nullptr,
            std::streampos dataSetOffset = 0)
```

callback based API

12.358.4 Member Data Documentation

12.358.4.1 mConnection

```
ULConnection* gdcm::network::ULConnectionManager::mConnection  [protected]
```

12.358.4.2 mSecondaryConnection

```
ULConnection* gdcm::network::ULConnectionManager::mSecondaryConnection  [protected]
```

12.358.4.3 mTransitions

```
ULTransitionTable gdcm::network::ULConnectionManager::mTransitions  [protected]
```

The documentation for this class was generated from the following file:

- gdcmULConnectionManager.h

12.359 gdcm::network::ULEvent Class Reference

ULEvent.

`#include <gdcmULEvent.h>`

Public Member Functions

- ULEvent (const EEventID &inEventID, BasePDU *inBasePDU, std::istream *iStream=nullptr, std::streampos posDataSet=0)
- ULEvent (const EEventID &inEventID, std::vector< BasePDU * > inBasePDU, std::istream *iStream=nullptr, std::streampos posDataSet=0)
- ~ULEvent ()
- std::streampos GetDataSetPos () const
- EEventID GetEvent () const
- std::istream * GetIStream () const
- std::vector< BasePDU * > const & GetPDUs () const
- void SetEvent (const EEventID &inEvent)
- void SetPDU (std::vector< BasePDU * > const &inPDU)

12.359.1 Detailed Description

ULEvent.

base class for network events.

An event consists of the event ID and the data associated with that event.

Note that once a PDU is created, it is now the responsibility of the associated event to destroy it!

12.359.2 Constructor & Destructor Documentation

12.359.2.1 ULEvent() [1/2]

```
gdcm::network::ULEvent::ULEvent (
            const EEventID & inEventID,
            std::vector< BasePDU * > inBasePDU,
            std::istream * iStream = nullptr,
            std::streampos posDataSet = 0)  [inline]
```

12.359.2.2 ULEvent() [2/2]

```
gdcm::network::ULEvent::ULEvent (
            const EEventID & inEventID,
            BasePDU * inBasePDU,
            std::istream * iStream = nullptr,
            std::streampos posDataSet = 0)  [inline]
```

12.359.2.3 ~ULEvent()

```
gdcm::network::ULEvent::~ULEvent ()  [inline]
```

12.359.3 Member Function Documentation

12.359.3.1 GetDataSetPos()

```
std::streampos gdcm::network::ULEvent::GetDataSetPos () const  [inline]
```

12.359.3.2 GetEvent()

```
EEventID gdcm::network::ULEvent::GetEvent () const  [inline]
```

12.359.3.3 GetIStream()

```
std::istream * gdcm::network::ULEvent::GetIStream () const  [inline]
```

12.359.3.4 GetPDUs()

```
std::vector< BasePDU * > const & gdcm::network::ULEvent::GetPDUs () const  [inline]
```

12.359.3.5 SetEvent()

```
void gdcm::network::ULEvent::SetEvent (
            const EEventID & inEvent)  [inline]
```

12.359.3.6 SetPDU()

```
void gdcm::network::ULEvent::SetPDU (
            std::vector< BasePDU * > const & inPDU)  [inline]
```

The documentation for this class was generated from the following file:

- gdcmULEvent.h

12.360 gdcm::network::ULTransitionTable Class Reference

ULTransitionTable The transition table of all the ULEvents, new ULActions, and ULStates.

```
#include <gdcmULTransitionTable.h>
```

Public Member Functions

- ULTransitionTable ()
- void HandleEvent (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) const
- void PrintTable () const

12.360.1 Detailed Description

ULTransitionTable The transition table of all the ULEvents, new ULActions, and ULStates.

Based roughly on the solutions in player2.cpp in the boost examples and this so question: `http://stackoverflow.com/questions/1647631/c-state-machine-design`

The transition table is constructed of TableRows. Each row is based on an event, and an event handler in the TransitionTable object takes a given event, and then finds the given row.

Then, given the current state of the connection, determines the appropriate action to take and then the state to transition to next.

12.360.2 Constructor & Destructor Documentation

12.360.2.1 ULTransitionTable()

```
gdcm::network::ULTransitionTable::ULTransitionTable ()
```

12.360.3 Member Function Documentation

12.360.3.1 HandleEvent()

```
void gdcm::network::ULTransitionTable::HandleEvent (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent) const
```

12.360.3.2 PrintTable()

```
void gdcm::network::ULTransitionTable::PrintTable () const
```

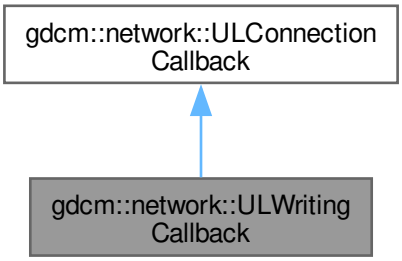
The documentation for this class was generated from the following file:

- gdcmULTransitionTable.h

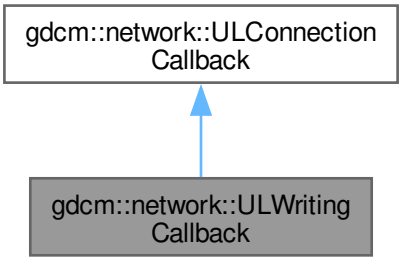
12.361 gdcm::network::ULWritingCallback Class Reference

`#include <gdcmULWritingCallback.h>`

Inheritance diagram for gdcm::network::ULWritingCallback:



Collaboration diagram for gdcm::network::ULWritingCallback:



Public Member Functions

- ULWritingCallback ()=default
- ~ULWritingCallback () override=default
- void HandleDataSet (const DataSet &inDataSet) override
- void HandleResponse (const DataSet &inDataSet) override
- void SetDirectory (const std::string &inDirectoryName)

  provide the directory into which all files are written.

Public Member Functions inherited from gdcm::network::ULConnectionCallback

- ULConnectionCallback ()
- virtual ~ULConnectionCallback ()=default
- bool DataSetHandles () const
- void ResetHandledDataSet ()
- void SetImplicitFlag (const bool imp)

Additional Inherited Members

Protected Member Functions inherited from gdcm::network::ULConnectionCallback

- void DataSetHandled ()

Protected Attributes inherited from gdcm::network::ULConnectionCallback

- bool mImplicit

12.361.1 Constructor & Destructor Documentation

12.361.1.1 ULWritingCallback()

```
gdcm::network::ULWritingCallback::ULWritingCallback ()  [default]
```

12.361.1.2 ~ULWritingCallback()

```
gdcm::network::ULWritingCallback::~ULWritingCallback ()  [override], [default]
```

12.361.2 Member Function Documentation

12.361.2.1 HandleDataSet()

```
void gdcm::network::ULWritingCallback::HandleDataSet (
            const DataSet & inDataSet)  [override], [virtual]
```

Implements gdcm::network::ULConnectionCallback.

12.361.2.2 HandleResponse()

```
void gdcm::network::ULWritingCallback::HandleResponse (
            const DataSet & inDataSet)  [override], [virtual]
```

Implements gdcm::network::ULConnectionCallback.

12.361.2.3 SetDirectory()

```
void gdcm::network::ULWritingCallback::SetDirectory (
            const std::string & inDirectoryName)  [inline]
```

provide the directory into which all files are written.

The documentation for this class was generated from the following file:

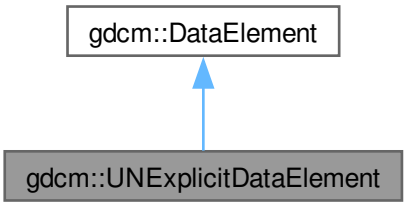
- gdcmULWritingCallback.h

12.362 gdcm::UNExplicitDataElement Class Reference

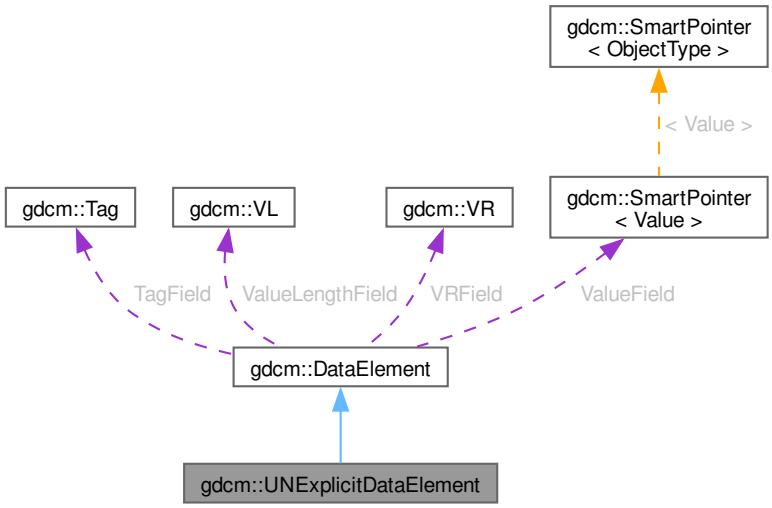
Class to read/write a DataElement as UNExplicit Data Element.

```
#include <gdcmUNExplicitDataElement.h>
```

Inheritance diagram for gdcm::UNExplicitDataElement:



Collaboration diagram for gdcm::UNExplicitDataElement:



Public Member Functions

- VL GetLength () const
- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const

- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.362.1 Detailed Description

Class to read/write a DataElement as UNExplicit Data Element.

Note

bla

12.362.2 Member Function Documentation

12.362.2.1 GetLength()

```
VL gdcm::UNExplicitDataElement::GetLength () const
```

12.362.2.2 Read()

```
template<typename TSwap>
std::istream & gdcm::UNExplicitDataElement::Read (
             std::istream & is)
```

12.362.2.3 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::UNExplicitDataElement::ReadPreValue (
             std::istream & is)
```

12.362.2.4 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::UNExplicitDataElement::ReadValue (
             std::istream & is,
             bool readvalues = true)
```

12.362.2.5 ReadWithLength()

```
template<typename TSwap>
std::istream & gdcm::UNExplicitDataElement::ReadWithLength (
              std::istream & is,
              VL & length)
```

The documentation for this class was generated from the following file:

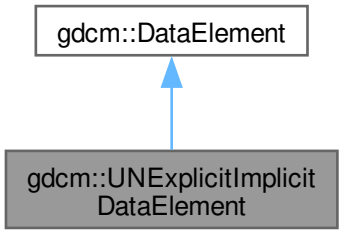
- gdcmUNExplicitDataElement.h

12.363 gdcm::UNExplicitImplicitDataElement Class Reference

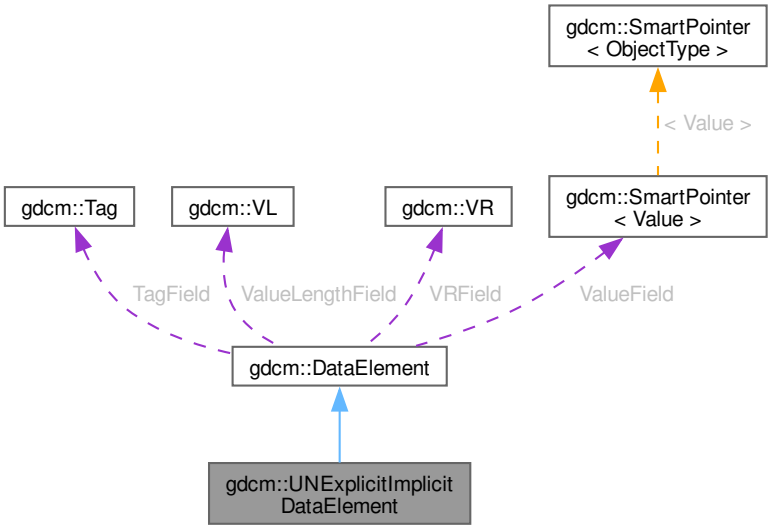
Class to read/write a DataElement as ExplicitImplicit Data Element.

`#include <gdcmUNExplicitImplicitDataElement.h>`

Inheritance diagram for gdcm::UNExplicitImplicitDataElement:



Collaboration diagram for gdcm::UNExplicitImplicitDataElement:



Public Member Functions

- VL GetLength () const
- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is)

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

Get Tag.

- Value & GetValue ()
- Value const & GetValue () const

Set/Get Value (bytes array, SQ of items, SQ of fragments):

- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

Get VL.

- VR const & GetVR () const
- bool IsEmpty () const

Check if Data Element is empty.

- bool IsUndefinedLength () const

return if Value Length if of undefined length

- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.363.1 Detailed Description

Class to read/write a DataElement as ExplicitImplicit Data Element.

This class gather two known bugs:

1. GDCM 1.2.0 would rewrite VR=UN Value Length on 2 bytes instead of 4 bytes
2. GDCM 1.2.0 would also rewrite DataElement as Implicit when the VR would not be known this would only happen in some very rare cases. gdcm 2.X design could handle bug #1 or #2 exclusively, this class can now handle file which have both issues. See: gdcmData/TheralysGDCM120Bug.dcm

12.363.2 Member Function Documentation

12.363.2.1 GetLength()

```
VL gdcm::UNExplicitImplicitDataElement::GetLength () const
```

12.363.2.2 Read()

```
template<typename TSwap>
std::istream & gdcm::UNExplicitImplicitDataElement::Read (
             std::istream & is)
```

12.363.2.3 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::UNExplicitImplicitDataElement::ReadPreValue (
             std::istream & is)
```

12.363.2.4 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::UNExplicitImplicitDataElement::ReadValue (
             std::istream & is)
```

The documentation for this class was generated from the following file:

- gdcmUNExplicitImplicitDataElement.h

12.364 gdcm::Unpacker12Bits Class Reference

Pack/Unpack 12 bits pixel into 16bits.

`#include <gdcmUnpacker12Bits.h>`

Static Public Member Functions

- static bool Pack (char *out, const char *in, size_t n)
- static bool Unpack (char *out, const char *in, size_t n)

12.364.1 Detailed Description

Pack/Unpack 12 bits pixel into 16bits.

- You can only pack an even number of 16bits, which means a multiple of 4 (expressed in bytes)
- You can only unpack a multiple of 3 bytes

This class has no purpose in general purpose DICOM implementation. However to be able to cope with some early ACR-NEMA file generated by a well-known private vendor, one would need to unpack 12bits Stored Pixel Value into a more standard 16bits Stored Pixel Value.

See also

Rescaler

12.364.2 Member Function Documentation

12.364.2.1 Pack()

```
bool gdcm::Unpacker12Bits::Pack (
            char * out,
            const char * in,
            size_t n)  [static]
```

Pack an array of 16bits where all values are 12bits into a pack form. n is the length in bytes of array in, out will be a fake 8bits array of size (n / 2) * 3

12.364.2.2 Unpack()

```
bool gdcm::Unpacker12Bits::Unpack (
            char * out,
            const char * in,
            size_t n)  [static]
```

Unpack an array of 'packed' 12bits data into a more conventional 16bits array. n is the length in bytes of array in, out will be a 16bits array of size (n / 3) * 2

The documentation for this class was generated from the following file:

- gdcmUnpacker12Bits.h

12.365 gdcm::Usage Class Reference

Usage.

```
#include <gdcmUsage.h>
```

Public Types

- enum UsageType {
  Mandatory ,
  Conditional ,
  UserOption ,
  Invalid }

Public Member Functions

- Usage (UsageType type=Invalid)
- operator UsageType () const

Static Public Member Functions

- static const char * GetUsageString (UsageType type)
- static UsageType GetUsageType (const char *type)

Friends

- std::ostream & operator<< (std::ostream &os, const Usage &vr)

12.365.1 Detailed Description

Usage.

Note

A.1.3 IOD Module Table and Functional Group Macro Table This Section of each IOD defines in a tabular form the Modules comprising the IOD. The following information must be specified for each Module in the table:

- The name of the Module or Functional Group
- A reference to the Section in Annex C which defines the Module or Functional Group
- The usage of the Module or Functional Group; whether it is:
- Mandatory (see A.1.3.1) , abbreviated M
- Conditional (see A.1.3.2) , abbreviated C
- User Option (see A.1.3.3) , abbreviated U The Modules referenced are defined in Annex C. A.1.3.1 MANDATORY MODULES For each IOD, Mandatory Modules shall be supported per the definitions, semantics and requirements defined in Annex C.

A.1.3.2 CONDITIONAL MODULES Conditional Modules are Mandatory Modules if specific conditions are met. If the specified conditions are not met, this Module shall not be supported; that is, no information defined in that Module shall be sent. A.1.3.3 USER OPTION MODULES User Option Modules may or may not be supported. If an optional Module is supported, the Attribute Types specified in the Modules in Annex C shall be supported.

12.365.2 Member Enumeration Documentation

12.365.2.1 UsageType

```
enum gdcm::Usage::UsageType
```

Enumerator

Mandatory	
Conditional	
UserOption	
Invalid	

12.365.3 Constructor & Destructor Documentation

12.365.3.1 Usage()

```
gdcm::Usage::Usage (
            UsageType type = Invalid)  [inline]
```

References Invalid.

Referenced by operator<<.

12.365.4 Member Function Documentation

12.365.4.1 GetUsageString()

```
const char * gdcm::Usage::GetUsageString (
            UsageType type)  [static]
```

Referenced by operator<<.

12.365.4.2 GetUsageType()

```
UsageType gdcm::Usage::GetUsageType (
            const char * type)  [static]
```

12.365.4.3 operator UsageType()

```
gdcm::Usage::operator UsageType () const  [inline]
```

12.365.5 Friends And Related Symbol Documentation

12.365.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const Usage & vr)  [friend]
```

References Usage(), and GetUsageString().

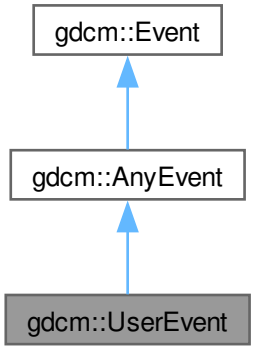
The documentation for this class was generated from the following file:

- gdcmUsage.h

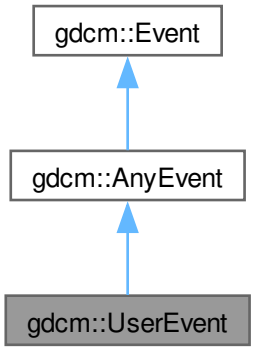
12.366 gdcm::UserEvent Class Reference

`#include <gdcmEvent.h>`

Inheritance diagram for gdcm::UserEvent:



Collaboration diagram for gdcm::UserEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()

- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

12.367 gdcm::network::UserInformation Class Reference

UserInformation.

`#include <gdcmUserInformation.h>`

Public Member Functions

- UserInformation ()
- UserInformation (const UserInformation &)=delete
- ~UserInformation ()
- void AddRoleSelectionSub (RoleSelectionSub const &r)
- void AddSOPClassExtendedNegociationSub (SOPClassExtendedNegociationSub const &s)
- MaximumLengthSub & GetMaximumLengthSub ()
- const MaximumLengthSub & GetMaximumLengthSub () const
- UserInformation & operator= (const UserInformation &)
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.367.1 Detailed Description

UserInformation.

Table 9-16 USER INFORMATION ITEM FIELDS

TODO what is the goal of :

Table 9-20 USER INFORMATION ITEM FIELDS

12.367.2 Constructor & Destructor Documentation

12.367.2.1 UserInformation() [1/2]

```
gdcm::network::UserInformation::UserInformation ()
```

Referenced by UserInformation(), and operator=().

12.367.2.2 ~UserInformation()

```
gdcm::network::UserInformation::~UserInformation ()
```

12.367.2.3 UserInformation() [2/2]

```
gdcm::network::UserInformation::UserInformation (
            const UserInformation & )  [delete]
```

References UserInformation().

12.367.3 Member Function Documentation

12.367.3.1 AddRoleSelectionSub()

```
void gdcm::network::UserInformation::AddRoleSelectionSub (
            RoleSelectionSub const & r)
```

12.367.3.2 AddSOPClassExtendedNegociationSub()

```
void gdcm::network::UserInformation::AddSOPClassExtendedNegociationSub (
            SOPClassExtendedNegociationSub const & s)
```

12.367.3.3 GetMaximumLengthSub() [1/2]

```
MaximumLengthSub & gdcm::network::UserInformation::GetMaximumLengthSub ()  [inline]
```

12.367.3.4 GetMaximumLengthSub() [2/2]

```
const MaximumLengthSub & gdcm::network::UserInformation::GetMaximumLengthSub () const  [inline]
```

12.367.3.5 operator=()

```
UserInformation & gdcm::network::UserInformation::operator= (
            const UserInformation & )
```

References UserInformation().

12.367.3.6 Print()

```
void gdcm::network::UserInformation::Print (
            std::ostream & os) const
```

12.367.3.7 Read()

```
std::istream & gdcm::network::UserInformation::Read (
            std::istream & is)
```

12.367.3.8 Size()

```
size_t gdcm::network::UserInformation::Size () const
```

12.367.3.9 Write()

```
const std::ostream & gdcm::network::UserInformation::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

- gdcmUserInformation.h

12.368 gdcm::UUIDGenerator Class Reference

Class for generating unique UUID.

`#include <gdcmUUIDGenerator.h>`

Public Member Functions

- const char * Generate ()

Static Public Member Functions

- static bool IsValid (const char *uid)

  Find out if the string is a valid UUID or not.

12.368.1 Detailed Description

Class for generating unique UUID.

generate DCE 1.1 uid

12.368.2 Member Function Documentation

12.368.2.1 Generate()

```
const char * gdcm::UUIDGenerator::Generate ()
```

Return the generated uuid NOT THREAD SAFE

12.368.2.2 IsValid()

```
bool gdcm::UUIDGenerator::IsValid (
            const char * uid)  [static]
```

Find out if the string is a valid UUID or not.

The documentation for this class was generated from the following file:

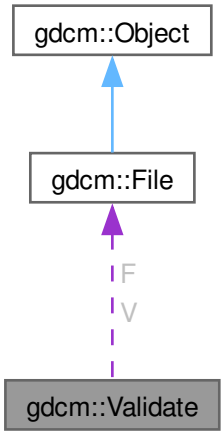
- gdcmUUIDGenerator.h

12.369 gdcm::Validate Class Reference

Validate class.

```
#include <gdcmValidate.h>
```

Collaboration diagram for gdcm::Validate:



Public Member Functions

- Validate ()
- ~Validate ()
- const File & GetValidatedFile ()
- void SetFile (File const &f)
- void Validation ()

Protected Attributes

- const File * F
- File V

12.369.1 Detailed Description

Validate class.

12.369.2 Constructor & Destructor Documentation

12.369.2.1 Validate()

```
gdcm::Validate::Validate ()
```

12.369.2.2 ~Validate()

```
gdcm::Validate::~Validate ()
```

12.369.3 Member Function Documentation

12.369.3.1 GetValidatedFile()

```
const File & gdcm::Validate::GetValidatedFile ()  [inline]
```

References V.

12.369.3.2 SetFile()

```
void gdcm::Validate::SetFile (
            File const & f)  [inline]
```

References F.

12.369.3.3 Validation()

```
void gdcm::Validate::Validation ()
```

12.369.4 Member Data Documentation

12.369.4.1 F

```
const File* gdcm::Validate::F  [protected]
```

Referenced by SetFile().

12.369.4.2 V

```
File gdcm::Validate::V  [protected]
```

Referenced by GetValidatedFile().

The documentation for this class was generated from the following file:

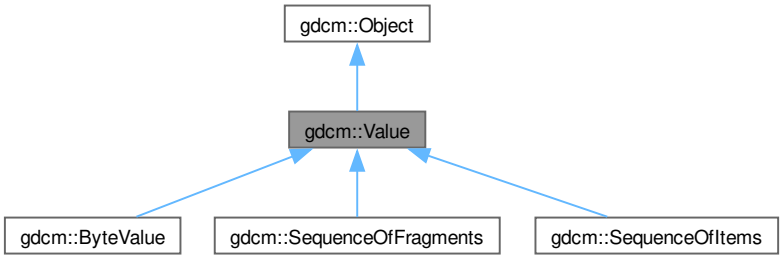
- gdcmValidate.h

12.370 gdcm::Value Class Reference

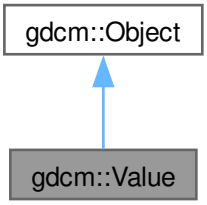
Class to represent the value of a Data Element.

`#include <gdcmValue.h>`

Inheritance diagram for gdcm::Value:



Collaboration diagram for gdcm::Value:



Public Member Functions

- Value ()=default
- ~Value () override=default
- virtual void Clear ()=0
- virtual VL GetLength () const =0
- virtual bool operator== (const Value &val) const =0
- virtual void SetLength (VL l)=0

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Protected Member Functions

- virtual void SetLengthOnly (VL l)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- class DataElement

12.370.1 Detailed Description

Class to represent the value of a Data Element.

Note

VALUE: A component of a Value Field. A Value Field may consist of one or more of these components.

12.370.2 Constructor & Destructor Documentation

12.370.2.1 Value()

```
gdcm::Value::Value ()  [default]
```

Referenced by gdcm::ByteValue::operator==(), gdcm::SequenceOfFragments::operator==(), gdcm::SequenceOfItems::operator==(), and operator==().

12.370.2.2 ~Value()

```
gdcm::Value::~Value ()  [override], [default]
```

12.370.3 Member Function Documentation

12.370.3.1 Clear()

```
virtual void gdcm::Value::Clear ()  [pure virtual]
```

Implemented in gdcm::ByteValue, gdcm::SequenceOfFragments, and gdcm::SequenceOfItems.

12.370.3.2 GetLength()

```
virtual VL gdcm::Value::GetLength () const  [pure virtual]
```

Implemented in gdcm::ByteValue, gdcm::SequenceOfFragments, and gdcm::SequenceOfItems.

Referenced by gdcm::DataSet::InsertDataElement(), and gdcm::DataElement::SetValue().

12.370.3.3 operator==()

```
virtual bool gdcm::Value::operator== (
            const Value & val) const  [pure virtual]
```

Implemented in gdcm::ByteValue, gdcm::SequenceOfFragments, and gdcm::SequenceOfItems.

References Value().

12.370.3.4 SetLength()

```
virtual void gdcm::Value::SetLength (
            VL l)  [pure virtual]
```

Implemented in gdcm::ByteValue, gdcm::SequenceOfFragments, and gdcm::SequenceOfItems.

12.370.3.5 SetLengthOnly()

```
virtual void gdcm::Value::SetLengthOnly (
            VL l)  [protected], [virtual]
```

Reimplemented in gdcm::ByteValue.

12.370.4 Friends And Related Symbol Documentation

12.370.4.1 DataElement

```
friend class DataElement  [friend]
```

References DataElement.

Referenced by DataElement.

The documentation for this class was generated from the following file:

- gdcmValue.h

12.371 gdcm::ValueIO< TDE, TSwap, TType > Class Template Reference

Class to dispatch template calls.

```
#include <gdcmValueIO.h>
```

Static Public Member Functions

- static std::istream & Read (std::istream &is, Value &v, bool readvalues)
- static const std::ostream & Write (std::ostream &os, const Value &v)

12.371.1 Detailed Description

template<typename TDE, typename TSwap, typename TType = uint8_t>
class gdcm::ValueIO< TDE, TSwap, TType >

Class to dispatch template calls.

12.371.2 Member Function Documentation

12.371.2.1 Read()

```
template<typename TDE, typename TSwap, typename TType = uint8_t>
std::istream & gdcm::ValueIO< TDE, TSwap, TType >::Read (
            std::istream & is,
            Value & v,
            bool readvalues)  [static]
```

12.371.2.2 Write()

```
template<typename TDE, typename TSwap, typename TType = uint8_t>
const std::ostream & gdcm::ValueIO< TDE, TSwap, TType >::Write (
             std::ostream & os,
             const Value & v)  [static]
```

The documentation for this class was generated from the following file:

- gdcmValueIO.h

12.372 gdcm::MrProtocol::Vector3 Struct Reference

```
#include <gdcmMrProtocol.h>
```

Public Attributes

- double dCor
- double dSag
- double dTra

12.372.1 Member Data Documentation

12.372.1.1 dCor

```
double gdcm::MrProtocol::Vector3::dCor
```

12.372.1.2 dSag

```
double gdcm::MrProtocol::Vector3::dSag
```

12.372.1.3 dTra

```
double gdcm::MrProtocol::Vector3::dTra
```

The documentation for this struct was generated from the following file:

- gdcmMrProtocol.h

12.373 gdcm::Version Class Reference

major/minor and build version

`#include <gdcmVersion.h>`

Public Member Functions

- Version ()=default
- ~Version ()=default
- void Print (std::ostream &os=std::cout) const

Static Public Member Functions

- static int GetBuildVersion ()
- static int GetMajorVersion ()
- static int GetMinorVersion ()
- static const char * GetVersion ()

Friends

- std::ostream & operator<< (std::ostream &_os, const Version &v)

12.373.1 Detailed Description

major/minor and build version

12.373.2 Constructor & Destructor Documentation

12.373.2.1 Version()

`gdcm::Version::Version () [default]`

Referenced by operator<<.

12.373.2.2 ~Version()

`gdcm::Version::~Version () [default]`

12.373.3 Member Function Documentation

12.373.3.1 GetBuildVersion()

```
int gdcm::Version::GetBuildVersion ()  [static]
```

12.373.3.2 GetMajorVersion()

```
int gdcm::Version::GetMajorVersion ()  [static]
```

12.373.3.3 GetMinorVersion()

```
int gdcm::Version::GetMinorVersion ()  [static]
```

12.373.3.4 GetVersion()

```
const char * gdcm::Version::GetVersion ()  [static]
```

12.373.3.5 Print()

```
void gdcm::Version::Print (
            std::ostream & os = std::cout) const
```

Referenced by operator<<.

12.373.4 Friends And Related Symbol Documentation

12.373.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Version & v)  [friend]
```

References Version(), and Print().

The documentation for this class was generated from the following file:

- gdcmVersion.h

12.374 gdcm::VL Class Reference

Value Length.

`#include <gdcmVL.h>`

Public Types

- typedef uint32_t Type

Public Member Functions

- VL (uint32_t vl=0)
- VL GetLength () const
- bool IsOdd () const

  Return whether or not the VL is odd or not.
- bool IsUndefined () const
- operator uint32_t () const
- VL & operator++ ()
- VL operator++ (int)
- VL & operator+= (VL const &vl)

  += operator
- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & Read16 (std::istream &is)
- void SetToUndefined ()
- template<typename TSwap>
  const std::ostream & Write (std::ostream &os) const
- template<typename TSwap>
  const std::ostream & Write16 (std::ostream &os) const

Static Public Member Functions

- static uint16_t GetVL16Max ()
- static uint32_t GetVL32Max ()

Friends

- std::ostream & operator<< (std::ostream &os, const VL &vl)

12.374.1 Detailed Description

Value Length.

Warning

this is a 4bytes value ! Do not try to use it for 2bytes value length

Examples

BasicImageAnonymizer.cs, DecompressImage.cs, ReadAndDumpDICOMDIR2.cxx, and rle2img.cxx.

12.374.2 Member Typedef Documentation

12.374.2.1 Type

```
typedef uint32_t gdcm::VL::Type
```

12.374.3 Constructor & Destructor Documentation

12.374.3.1 VL()

```
gdcm::VL::VL (
            uint32_t vl = 0)  [inline]
```

Referenced by GetLength(), operator++(), operator++(), operator+=(), and operator<<.

12.374.4 Member Function Documentation

12.374.4.1 GetLength()

```
VL gdcm::VL::GetLength () const  [inline]
```

Examples

ReadAndDumpDICOMDIR2.cxx.

References VL().

Referenced by gdcm::FileMetaInformation::GetFullLength(), and gdcm::Item::Write().

12.374.4.2 GetVL16Max()

```
uint16_t gdcm::VL::GetVL16Max ()  [inline], [static]
```

12.374.4.3 GetVL32Max()

```
uint32_t gdcm::VL::GetVL32Max ()  [inline], [static]
```

12.374.4.4 IsOdd()

```
bool gdcm::VL::IsOdd () const  [inline]
```

Return whether or not the VL is odd or not.

References IsUndefined().

Referenced by Write(), and Write16().

12.374.4.5 IsUndefined()

```
bool gdcm::VL::IsUndefined () const  [inline]
```

Referenced by IsOdd().

12.374.4.6 operator uint32_t()

```
gdcm::VL::operator uint32_t () const  [inline]
```

12.374.4.7 operator++() [1/2]

```
VL & gdcm::VL::operator++ ()  [inline]
```

References VL().

12.374.4.8 operator++() [2/2]

```
VL gdcm::VL::operator++ (
            int )  [inline]
```

References VL().

12.374.4.9 operator+=()

```
VL & gdcm::VL::operator+= (
             VL const & vl)  [inline]
```

+= operator

References VL().

12.374.4.10 Read()

```
template<typename TSwap>
std::istream & gdcm::VL::Read (
             std::istream & is)  [inline]
```

12.374.4.11 Read16()

```
template<typename TSwap>
std::istream & gdcm::VL::Read16 (
             std::istream & is)  [inline]
```

12.374.4.12 SetToUndefined()

```
void gdcm::VL::SetToUndefined ()  [inline]
```

12.374.4.13 Write()

```
template<typename TSwap>
const std::ostream & gdcm::VL::Write (
             std::ostream & os) const  [inline]
```

References IsOdd().

Referenced by gdcm::Fragment::Write(), gdcm::Item::Write(), gdcm::SequenceOfFragments::Write(), and gdcm::SequenceOfItems::Write(

12.374.4.14 Write16()

```
template<typename TSwap>
const std::ostream & gdcm::VL::Write16 (
             std::ostream & os) const  [inline]
```

References IsOdd().

12.374.5 Friends And Related Symbol Documentation

12.374.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const VL & vl)  [friend]
```

References VL().

The documentation for this class was generated from the following file:

- gdcmVL.h

12.375 gdcm::VM Class Reference

Value Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n.

```
#include <gdcmVM.h>
```

Public Types

- enum VMType {
  VM0 = 0 ,
  VM1 = 1 ,
  VM2 = 2 ,
  VM3 = 4 ,
  VM4 = 8 ,
  VM5 = 16 ,
  VM6 = 32 ,
  VM8 = 64 ,
  VM9 = 128 ,
  VM10 = 256 ,
  VM12 = 512 ,
  VM16 = 1024 ,
  VM18 = 2048 ,
  VM24 = 4096 ,
  VM28 = 8192 ,
  VM32 = 16384 ,
  VM35 = 32768 ,
  VM99 = 65536 ,
  VM256 = 131072 ,
  VM1_2 = VM1 | VM2 ,
  VM1_3 = VM1 | VM2 | VM3 ,
  VM1_4 = VM1 | VM2 | VM3 | VM4 ,
  VM1_5 = VM1 | VM2 | VM3 | VM4 | VM5 ,
  VM1_8 = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 ,
  VM1_32 = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 ,

VM1_99 = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 ,
VM1_n = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256 ,
VM2_2n = VM2 | VM4 | VM6 | VM8 | VM16 | VM24 | VM32 | VM256 ,
VM2_n = VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256 ,
VM3_4 = VM3 | VM4 ,
VM3_3n = VM3 | VM6 | VM9 | VM24 | VM99 | VM256 ,
VM3_n = VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256 ,
VM4_4n = VM4 | VM16 | VM24 | VM32 | VM256 ,
VM6_6n = VM6 | VM12 | VM18 | VM24 ,
VM6_n = VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256 ,
VM7_7n ,
VM30_30n ,
VM47_47n ,
VM_END = VM1_n + 1 }

Public Member Functions

- VM (VMType type=VM0)
- bool Compatible (VM const &vm) const
- unsigned int GetLength () const
- operator VMType () const

Static Public Member Functions

- static size_t GetNumberOfElementsFromArray (const char *array, size_t length)
- static const char * GetVMString (VMType vm)
- static VMType GetVMType (const char *vm)
- static VMType GetVMTypeFromLength (size_t length, unsigned int size)
- static bool IsValid (int vm1, VMType vm2)

Static Protected Member Functions

- static unsigned int GetIndex (VMType vm)

Friends

- std::ostream & operator<< (std::ostream &os, const VM &vm)

12.375.1 Detailed Description

Value Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n.

Some private dict define some more: 4-4n 1-4 1-5 256 9 3-4

even more:

7-7n 10 18 12 35 47_47n 30_30n 28

6-6n

12.375.2 Member Enumeration Documentation

12.375.2.1 VMType

enum gdcm::VM::VMType

Enumerator

VM0	
VM1	
VM2	
VM3	
VM4	
VM5	
VM6	
VM8	
VM9	
VM10	
VM12	
VM16	
VM18	
VM24	
VM28	
VM32	
VM35	
VM99	
VM256	
VM1_2	
VM1_3	
VM1_4	
VM1_5	
VM1_8	
VM1_32	
VM1_99	
VM1_n	
VM2_2n	
VM2_n	
VM3_4	
VM3_3n	
VM3_n	
VM4_4n	

VM6_6n	
VM6_n	
VM7_7n	
VM30_30n	
VM47_47n	
VM_END	

12.375.3 Constructor & Destructor Documentation

12.375.3.1 VM()

```
gdcm::VM::VM (
            VMType type = VM0)  [inline]
```

References VM0.

Referenced by Compatible(), GetLength(), and operator<<.

12.375.4 Member Function Documentation

12.375.4.1 Compatible()

```
bool gdcm::VM::Compatible (
            VM const & vm) const
```

WARNING: Implementation deficiency The Compatible function is poorly implemented, the reference vm should be coming from the dictionary, while the passed in value is the value guess from the file.

References VM().

12.375.4.2 GetIndex()

```
unsigned int gdcm::VM::GetIndex (
            VMType vm)  [static], [protected]
```

12.375.4.3 GetLength()

```
unsigned int gdcm::VM::GetLength () const
```

References VM(), and operator<<.

12.375.4.4 GetNumberOfElementsFromArray()

```
size_t gdcm::VM::GetNumberOfElementsFromArray (
             const char * array,
             size_t length)  [static]
```

12.375.4.5 GetVMString()

```
const char * gdcm::VM::GetVMString (
             VMType vm)  [static]
```

Return the string as written in the official DICOM dict from a custom enum type

Referenced by operator<<.

12.375.4.6 GetVMType()

```
VMType gdcm::VM::GetVMType (
             const char * vm)  [static]
```

12.375.4.7 GetVMTypeFromLength()

```
VMType gdcm::VM::GetVMTypeFromLength (
             size_t length,
             unsigned int size)  [static]
```

12.375.4.8 IsValid()

```
bool gdcm::VM::IsValid (
             int vm1,
             VMType vm2)  [static]
```

Check if vm1 is valid compare to vm2, i.e vm1 is element of vm2 vm1 is typically deduce from counting in a ValueField

12.375.4.9 operator VMType()

```
gdcm::VM::operator VMType () const  [inline]
```

12.375.5 Friends And Related Symbol Documentation

12.375.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const VM & vm)  [friend]
```

References VM(), and GetVMString().

Referenced by GetLength().

The documentation for this class was generated from the following file:

- gdcmVM.h

12.376 gdcm::VMToLength< T > Struct Template Reference

The documentation for this struct was generated from the following file:

- gdcmVM.h

12.377 gdcm::VR Class Reference

VR class.

```
#include <gdcmVR.h>
```

Public Types

- enum VRType : long long {
  INVALID = 0 ,
  AE = 1 ,
  AS = 2 ,
  AT = 4 ,
  CS = 8 ,
  DA = 16 ,
  DS = 32 ,
  DT = 64 ,
  FD = 128 ,
  FL = 256 ,
  IS = 512 ,
  LO = 1024 ,
  LT = 2048 ,
  OB = 4096 ,
  OD = 134217728 ,

OF = 8192 ,
OL = 268435456 ,
OV = 2147483648 ,
OW = 16384 ,
PN = 32768 ,
SH = 65536 ,
SL = 131072 ,
SQ = 262144 ,
SS = 524288 ,
ST = 1048576 ,
SV = 4294967296 ,
TM = 2097152 ,
UC = 536870912 ,
UI = 4194304 ,
UL = 8388608 ,
UN = 16777216 ,
UR = 1073741824 ,
US = 33554432 ,
UT = 67108864 ,
UV = 8589934592 ,
OB_OW = OB | OW ,
US_SS = US | SS ,
US_SS_OW = US | SS | OW ,
US_OW = US | OW ,
VL16 = AE | AS | AT | CS | DA | DS | DT | FD | FL | IS | LO | LT | PN | SH | SL | SS | ST | TM | UI | UL | US ,
VL32 = OB | OW | OD | OF | OL | OV | SQ | SV | UC | UN | UR | UT | UV ,
VRASCII = AE | AS | CS | DA | DS | DT | IS | LO | LT | PN | SH | ST | TM | UC | UI | UR | UT ,
VRBINARY = AT | FL | FD | OB | OD | OF | OL | OV | OW | SL | SQ | SS | SV | UL | UN | US | UV ,
VR_VM1 = AS | LT | ST | UT | SQ | OF | OL | OV | OD | OW | OB | UN ,
VRALL = VRASCII | VRBINARY ,
VR_END = UV+1 }

Public Member Functions

- VR (VRType vr=INVALID)
- bool Compatible (VR const &vr) const
- int GetLength () const
- unsigned int GetSize () const
- unsigned int GetSizeof () const
- bool IsDual () const
- bool IsVRFile () const
- operator VRType () const
- std::istream & Read (std::istream &is)
- const std::ostream & Write (std::ostream &os) const

Static Public Member Functions

- static bool CanDisplay (VRType vr)
- static uint32_t GetLength (VRType vr)
- static const char * GetVRString (VRType vr)
- static const char * GetVRStringFromFile (VRType vr)

- static VRType GetVRType (const char *vr)
- static VRType GetVRTypeFromFile (const char *vr)
- static bool IsASCII (VRType vr)
- static bool IsASCII2 (VRType vr)
- static bool IsBinary (VRType vr)
- static bool IsBinary2 (VRType vr)
- static bool IsSwap (const char *vr)
- static bool IsValid (const char *vr)
- static bool IsValid (const char *vr1, VRType vr2)

Friends

- std::ostream & operator<< (std::ostream &os, const VR &vr)

12.377.1 Detailed Description

VR class.

This is adapted from DICOM standard The biggest difference is the INVALID VR and the composite one that differ from standard (more like an addition) This allow us to represent all the possible case express in the DICOMV3 dict

Note

VALUE REPRESENTATION (VR) Specifies the data type and format of the Value(s) contained in the Value Field of a Data Element. VALUE REPRESENTATION FIELD: The field where the Value Representation of a Data Element is stored in the encoding of a Data Element structure with explicit VR.

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, and SimplePrint.cs.

12.377.2 Member Enumeration Documentation

12.377.2.1 VRType

```
enum gdcm::VR::VRType :  long long
```

Enumerator

INVALID	
AE	
AS	
AT	

CS	
DA	
DS	
DT	
FD	
FL	
IS	
LO	
LT	
OB	
OD	
OF	
OL	
OV	
OW	
PN	
SH	
SL	
SQ	
SS	
ST	
SV	
TM	
UC	
UI	
UL	
UN	
UR	
US	
UT	
UV	
OB_OW	
US_SS	
US_SS_OW	
US_OW	
VL16	
VL32	
VRASCII	
VRBINARY	

VR_VM1	
VRALL	
VR_END	

Examples

NewSequence.cs, and SimplePrint.cs.

12.377.3 Constructor & Destructor Documentation

12.377.3.1 VR()

```
gdcm::VR::VR (
            VRType vr = INVALID)  [inline]
```

References INVALID.

Referenced by Compatible(), and operator<<.

12.377.4 Member Function Documentation

12.377.4.1 CanDisplay()

```
bool gdcm::VR::CanDisplay (
            VRType vr)  [static]
```

12.377.4.2 Compatible()

```
bool gdcm::VR::Compatible (
            VR const & vr) const
```

Examples

SimplePrint.cs.

References VR().

12.377.4.3 GetLength() [1/2]

```
int gdcm::VR::GetLength () const  [inline]
```

References GetLength().

Referenced by GetLength().

12.377.4.4 GetLength() [2/2]

```
uint32_t gdcm::VR::GetLength (
            VRType vr)  [inline], [static]
```

References VL32.

12.377.4.5 GetSize()

```
unsigned int gdcm::VR::GetSize () const  [inline]
```

References AE, AS, AT, CS, DA, DS, DT, FD, FL, INVALID, IS, LO, LT, OB, OB_OW, OD, OF, OL, OV, OW, PN, SH, SL, SQ, SS, ST, SV, TM, UC, UI, UL, UN, UR, US, US_OW, US_SS, US_SS_OW, UT, UV, VL16, VL32, VR_END, VR_VM1, VRALL, VRASCII, VRBINARY, and VRTypeTemplateCase.

12.377.4.6 GetSizeof()

```
unsigned int gdcm::VR::GetSizeof () const
```

12.377.4.7 GetVRString()

```
const char * gdcm::VR::GetVRString (
            VRType vr)  [static]
```

Referenced by operator<<, and Write().

12.377.4.8 GetVRStringFromFile()

```
const char * gdcm::VR::GetVRStringFromFile (
            VRType vr)  [static]
```

12.377.4.9 GetVRType()

```
VRType gdcm::VR::GetVRType (
            const char * vr)  [static]
```

12.377.4.10 GetVRTypeFromFile()

```
VRType gdcm::VR::GetVRTypeFromFile (
            const char * vr)  [static]
```

Referenced by Read().

12.377.4.11 IsASCII()

```
bool gdcm::VR::IsASCII (
            VRType vr)  [static]
```

12.377.4.12 IsASCII2()

```
bool gdcm::VR::IsASCII2 (
            VRType vr)  [static]
```

12.377.4.13 IsBinary()

```
bool gdcm::VR::IsBinary (
            VRType vr)  [static]
```

12.377.4.14 IsBinary2()

```
bool gdcm::VR::IsBinary2 (
            VRType vr)  [static]
```

12.377.4.15 IsDual()

```
bool gdcm::VR::IsDual () const
```

Referenced by Write().

12.377.4.16 IsSwap()

```
bool gdcm::VR::IsSwap (
            const char * vr)  [static]
```

12.377.4.17 IsValid() [1/2]

```
bool gdcm::VR::IsValid (
            const char * vr)  [static]
```

12.377.4.18 IsValid() [2/2]

```
bool gdcm::VR::IsValid (
            const char * vr1,
            VRType vr2)  [static]
```

12.377.4.19 IsVRFile()

```
bool gdcm::VR::IsVRFile () const
```

Referenced by gdcm::DataElement::SetVR().

12.377.4.20 operator VRType()

```
gdcm::VR::operator VRType () const  [inline]
```

12.377.4.21 Read()

```
std::istream & gdcm::VR::Read (
            std::istream & is)  [inline]
```

References gdcmDebugMacro, GetVRTypeFromFile(), INVALID, VL32, and VR_END.

12.377.4.22 Write()

```
const std::ostream & gdcm::VR::Write (
            std::ostream & os) const  [inline]
```

References gdcmAssertAlwaysMacro, GetVRString(), INVALID, IsDual(), and VL32.

12.377.5 Friends And Related Symbol Documentation

12.377.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const VR & vr)  [friend]
```

References VR(), and GetVRString().

The documentation for this class was generated from the following file:

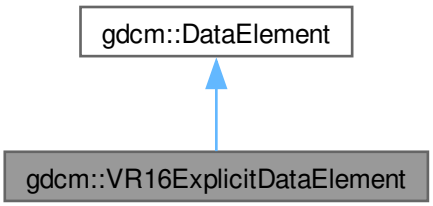
- gdcmVR.h

12.378 gdcm::VR16ExplicitDataElement Class Reference

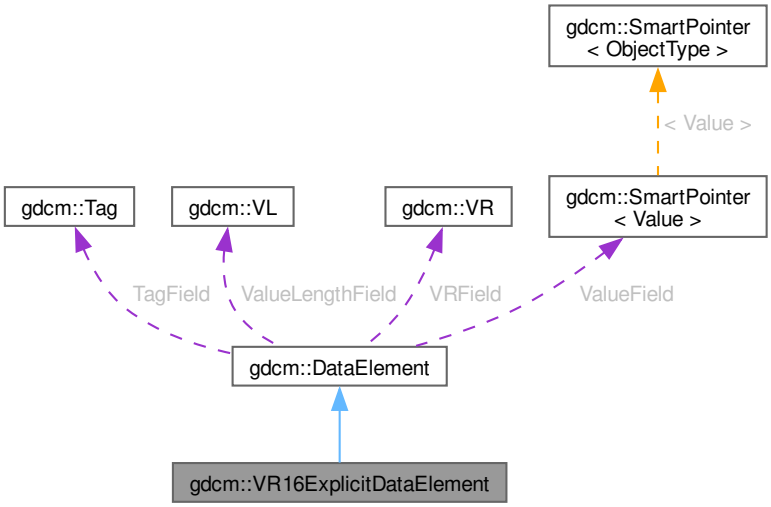
Class to read/write a DataElement as Explicit Data Element.

`#include <gdcmVR16ExplicitDataElement.h>`

Inheritance diagram for gdcm::VR16ExplicitDataElement:



Collaboration diagram for gdcm::VR16ExplicitDataElement:



Public Member Functions

- VL GetLength () const

- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag & VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)

- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.378.1 Detailed Description

Class to read/write a DataElement as Explicit Data Element.

Note

This class support 16 bits when finding an unknown VR: For instance: Siemens_CT_Sensation64_has_VR_RT.↩dcm

12.378.2 Member Function Documentation

12.378.2.1 GetLength()

```
VL gdcm::VR16ExplicitDataElement::GetLength () const
```

12.378.2.2 Read()

```
template<typename TSwap>
std::istream & gdcm::VR16ExplicitDataElement::Read (
             std::istream & is)
```

12.378.2.3 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::VR16ExplicitDataElement::ReadPreValue (
             std::istream & is)
```

12.378.2.4 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::VR16ExplicitDataElement::ReadValue (
             std::istream & is,
             bool readvalues = true)
```

12.378.2.5 ReadWithLength()

```
template<typename TSwap>
std::istream & gdcm::VR16ExplicitDataElement::ReadWithLength (
             std::istream & is,
             VL & length)
```

The documentation for this class was generated from the following file:

- gdcmVR16ExplicitDataElement.h

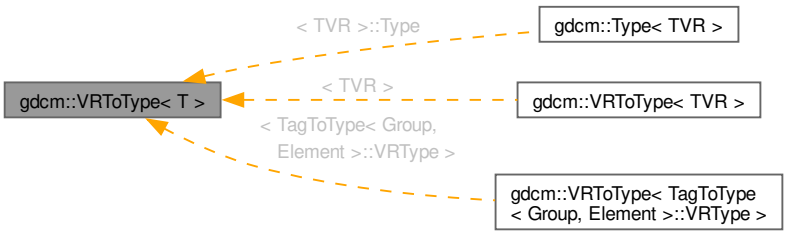
12.379 gdcm::VRToEncoding< T > Struct Template Reference

The documentation for this struct was generated from the following file:

- gdcmVR.h

12.380 gdcm::VRToType< T > Struct Template Reference

Inheritance diagram for gdcm::VRToType< T >:



12.380.1 Detailed Description

template<long long T>
struct gdcm::VRToType< T >

Examples

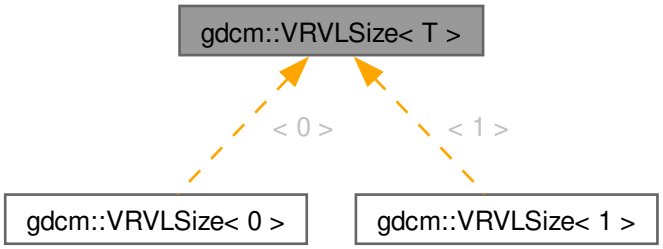
DumpGEMSMovieGroup.cxx.

The documentation for this struct was generated from the following file:

- gdcmVR.h

12.381 gdcm::VRVLSize< T > Class Template Reference

Inheritance diagram for gdcm::VRVLSize< T >:



The documentation for this class was generated from the following file:

- gdcmAttribute.h

12.382 gdcm::VRVLSize< 0 > Class Reference

`#include <gdcmAttribute.h>`

Inheritance diagram for gdcm::VRVLSize< 0 >:

Collaboration diagram for gdcm::VRVLSize< 0 >:

Static Public Member Functions

- static uint16_t Read (std::istream &_is)
- static void Write (std::ostream &os)

12.382.1 Member Function Documentation

12.382.1.1 Read()

```
uint16_t gdcm::VRVLSize< 0 >::Read (
            std::istream & _is)  [inline], [static]
```

12.382.1.2 Write()

```
void gdcm::VRVLSize< 0 >::Write (
            std::ostream & os)  [inline], [static]
```

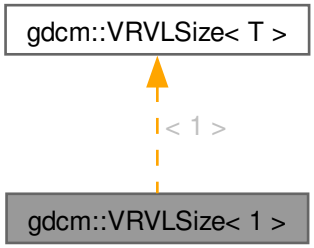
The documentation for this class was generated from the following file:

- gdcmAttribute.h

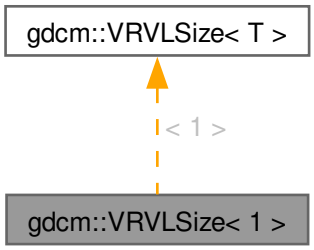
12.383 gdcm::VRVLSize< 1 > Class Reference

`#include <gdcmAttribute.h>`

Inheritance diagram for gdcm::VRVLSize< 1 >:



Collaboration diagram for gdcm::VRVLSize< 1 >:



Static Public Member Functions

- static uint32_t Read (std::istream &_is)
- static void Write (std::ostream &os)

12.383.1 Member Function Documentation

12.383.1.1 Read()

```
uint32_t gdcm::VRVLSize< 1 >::Read (
            std::istream & _is)  [inline], [static]
```

12.383.1.2 Write()

```
void gdcm::VRVLSize< 1 >::Write (
            std::ostream & os)  [inline], [static]
```

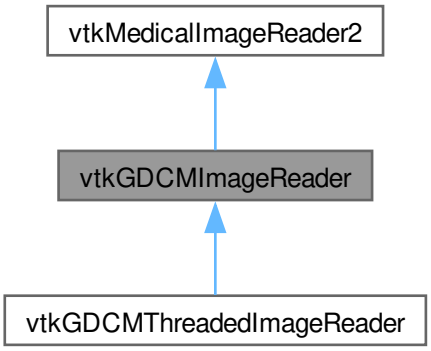
The documentation for this class was generated from the following file:

- gdcmAttribute.h

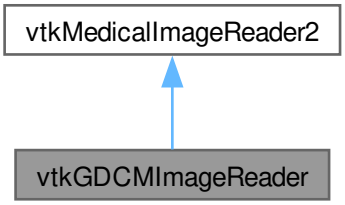
12.384 vtkGDCMImageReader Class Reference

```
#include <vtkGDCMImageReader.h>
```

Inheritance diagram for vtkGDCMImageReader:



Collaboration diagram for vtkGDCMImageReader:



Public Member Functions

- virtual int CanReadFile (const char *fname)
- virtual const char * GetDescriptiveName ()
- virtual const char * GetFileExtensions ()
- vtkImageData * GetIconImage ()
- vtkImageData * GetOverlay (int i)
- virtual void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetCurve (vtkPolyData *pd)
- virtual void SetFileNames (vtkStringArray *)
- virtual void SetMedicalImageProperties (vtkMedicalImageProperties *pd)
- vtkBooleanMacro (ApplyLookupTable, int)
- int vtkBooleanMacro (ApplyYBRToRGB, int)
- vtkBooleanMacro (LoadIconImage, int)
- vtkBooleanMacro (LoadOverlays, int)
- vtkBooleanMacro (LossyFlag, int)
- vtkGetMacro (ApplyLookupTable, int)
- vtkGetMacro (ApplyYBRToRGB, int) vtkSetMacro(ApplyYBRToRGB
- vtkGetMacro (ImageFormat, int)
- vtkGetMacro (LoadIconImage, int)
- vtkGetMacro (LoadOverlays, int)
- vtkGetMacro (LossyFlag, int)
- vtkGetMacro (NumberOfIconImages, int)
- vtkGetMacro (NumberOfOverlays, int)
- vtkGetMacro (PlanarConfiguration, int)
- vtkGetMacro (Scale, double)
- vtkGetMacro (Shift, double)
- vtkGetObjectMacro (Curve, vtkPolyData)
- vtkGetObjectMacro (DirectionCosines, vtkMatrix4x4)
- vtkGetObjectMacro (FileNames, vtkStringArray)
- vtkGetObjectMacro (MedicalImageProperties, vtkMedicalImageProperties)
- vtkGetVector3Macro (ImagePositionPatient, double)
- vtkGetVector6Macro (ImageOrientationPatient, double)
- vtkSetMacro (ApplyLookupTable, int)

- vtkSetMacro (LoadIconImage, int)
- vtkSetMacro (LoadOverlays, int)
- vtkSetMacro (LossyFlag, int)
- vtkTypeMacro (vtkGDCMImageReader, vtkMedicalImageReader2)

Static Public Member Functions

- static vtkGDCMImageReader * New ()

Protected Member Functions

- vtkGDCMImageReader ()
- ~vtkGDCMImageReader ()
- void ExecuteData (vtkDataObject *out)
- void ExecuteInformation ()
- void FillMedicalImageInformation (const gdcm::ImageReader &reader)
- int LoadSingleFile (const char *filename, char *pointer, unsigned long &outlen)
- int RequestDataCompat ()
- int RequestInformationCompat ()
- void SetFilePattern (const char *)
- void SetFilePrefix (const char *)
- vtkGetStringMacro (FilePattern)
- vtkGetStringMacro (FilePrefix)
- vtkSetVector6Macro (ImageOrientationPatient, double)

Protected Attributes

- int ApplyInverseVideo
- int ApplyLookupTable
- int ApplyPlanarConfiguration
- int ApplyShiftScale
- int ApplyYBRToRGB
- vtkPolyData * Curve
- vtkMatrix4x4 * DirectionCosines
- vtkStringArray * FileNames
- int ForceRescale
- int IconDataScalarType
- int IconImageDataExtent [6]
- int IconNumberOfScalarComponents
- int ImageFormat
- double ImageOrientationPatient [6]
- double ImagePositionPatient [3]
- int LoadIconImage
- int LoadOverlays
- int LossyFlag
- vtkMedicalImageProperties * MedicalImageProperties
- int NumberOfIconImages
- int NumberOfOverlays
- int PlanarConfiguration
- double Scale
- double Shift

12.384.1 Detailed Description

Examples

AWTMedical3.java, Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, HelloActiviz.cs, HelloActiviz2.cs, HelloActiviz3.cs, HelloActiviz4.cs, HelloActiviz5.cs, HelloVTKWorld.cs, HelloVTKWorld.java, MIPViewer.java, MPRViewer.java, MPRViewer2.java, MagnifyFile.cxx, MetaImageMD5Activiz.cs, ReadSeriesIntoVTK.java, RefCounting.cs, gdcmorthoplanes.cxx, gdcmreslice.cxx, gdcmtexture.cxx, gdcmvolume.cxx, and offscreenimage.cxx.

12.384.2 Constructor & Destructor Documentation

12.384.2.1 vtkGDCMImageReader()

```
vtkGDCMImageReader::vtkGDCMImageReader ()  [protected]
```

Examples

HelloActiviz2.cs.

References vtkGDCMImageReader().

Referenced by vtkGDCMImageReader(), ~vtkGDCMImageReader(), New(), vtkGetStringMacro(), vtkTypeMacro(), and vtkGDCMThreadedImageReader::vtkTypeMacro().

12.384.2.2 ~vtkGDCMImageReader()

```
vtkGDCMImageReader::~vtkGDCMImageReader ()  [protected]
```

References vtkGDCMImageReader().

12.384.3 Member Function Documentation

12.384.3.1 CanReadFile()

```
virtual int vtkGDCMImageReader::CanReadFile (
            const char * fname)  [virtual]
```

Examples

AWTMedical3.java, and MetaImageMD5Activiz.cs.

12.384.3.2 ExecuteData()

```
void vtkGDCMImageReader::ExecuteData (
            vtkDataObject * out)  [protected]
```

12.384.3.3 ExecuteInformation()

```
void vtkGDCMImageReader::ExecuteInformation ()  [protected]
```

12.384.3.4 FillMedicalImageInformation()

```
void vtkGDCMImageReader::FillMedicalImageInformation (
            const gdcm::ImageReader & reader)  [protected]
```

References FillMedicalImageInformation().

Referenced by FillMedicalImageInformation().

12.384.3.5 GetDescriptiveName()

```
virtual const char * vtkGDCMImageReader::GetDescriptiveName ()  [inline], [virtual]
```

12.384.3.6 GetFileExtensions()

```
virtual const char * vtkGDCMImageReader::GetFileExtensions ()  [inline], [virtual]
```

12.384.3.7 GetIconImage()

```
vtkImageData * vtkGDCMImageReader::GetIconImage ()
```

12.384.3.8 GetOverlay()

```
vtkImageData * vtkGDCMImageReader::GetOverlay (
            int i)
```

12.384.3.9 LoadSingleFile()

```
int vtkGDCMImageReader::LoadSingleFile (
            const char * filename,
            char * pointer,
            unsigned long & outlen)  [protected]
```

12.384.3.10 New()

```
vtkGDCMImageReader * vtkGDCMImageReader::New ()  [static]
```

Examples

Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, HelloActiviz.cs, HelloActiviz3.cs, HelloActiviz4.cs, HelloActiviz5.cs, HelloVTKWorld.cs, MagnifyFile.cxx, MetaImageMD5Activiz.cs, RefCounting.cs, gdcmorthoplanes.cxx, gdcmreslice.cxx, gdcmtexture.cxx, gdcmvolume.cxx, offscreenimage.cxx, and reslicesphere.cxx.

References vtkGDCMImageReader().

12.384.3.11 PrintSelf()

```
virtual void vtkGDCMImageReader::PrintSelf (
            ostream & os,
            vtkIndent indent)  [virtual]
```

Reimplemented in vtkGDCMThreadedImageReader.

12.384.3.12 RequestDataCompat()

```
int vtkGDCMImageReader::RequestDataCompat ()  [protected]
```

References RequestDataCompat().

Referenced by RequestDataCompat().

12.384.3.13 RequestInformationCompat()

```
int vtkGDCMImageReader::RequestInformationCompat ()  [protected]
```

References RequestInformationCompat().

Referenced by RequestInformationCompat().

12.384.3.14 SetCurve()

```
virtual void vtkGDCMImageReader::SetCurve (
            vtkPolyData * pd)  [virtual]
```

References SetCurve().

Referenced by SetCurve().

12.384.3.15 SetFileNames()

```
virtual void vtkGDCMImageReader::SetFileNames (
            vtkStringArray * )  [virtual]
```

Examples

AWTMedical3.java, HelloActiviz3.cs, HelloActiviz4.cs, HelloActiviz5.cs, MIPViewer.java, MPRViewer.java, MPRViewer2.java, ReadSeriesIntoVTK.java, and gdcmorthoplanes.cxx.

12.384.3.16 SetFilePattern()

```
void vtkGDCMImageReader::SetFilePattern (
            const char * )  [inline], [protected]
```

12.384.3.17 SetFilePrefix()

```
void vtkGDCMImageReader::SetFilePrefix (
            const char * )  [inline], [protected]
```

12.384.3.18 SetMedicalImageProperties()

```
virtual void vtkGDCMImageReader::SetMedicalImageProperties (
            vtkMedicalImageProperties * pd)  [virtual]
```

12.384.3.19 vtkBooleanMacro() [1/5]

```
vtkGDCMImageReader::vtkBooleanMacro (
            ApplyLookupTable ,
            int )
```

References ApplyLookupTable.

12.384.3.20 vtkBooleanMacro() [2/5]

```
int vtkGDCMImageReader::vtkBooleanMacro (
            ApplyYBRToRGB ,
            int )
```

References ApplyYBRToRGB, and vtkBooleanMacro().

12.384.3.21 vtkBooleanMacro() [3/5]

```
vtkGDCMImageReader::vtkBooleanMacro (
            LoadIconImage ,
            int )
```

References LoadIconImage.

12.384.3.22 vtkBooleanMacro() [4/5]

```
vtkGDCMImageReader::vtkBooleanMacro (
            LoadOverlays ,
            int )
```

References LoadOverlays.

Referenced by vtkBooleanMacro().

12.384.3.23 vtkBooleanMacro() [5/5]

```
vtkGDCMImageReader::vtkBooleanMacro (
            LossyFlag ,
            int )
```

References LossyFlag.

12.384.3.24 vtkGetMacro() [1/11]

```
vtkGDCMImageReader::vtkGetMacro (
            ApplyLookupTable ,
            int )
```

References ApplyLookupTable.

12.384.3.25 vtkGetMacro() [2/11]

```
vtkGDCMImageReader::vtkGetMacro (
            ApplyYBRToRGB ,
            int )
```

References ApplyYBRToRGB, and vtkSetMacro().

12.384.3.26 vtkGetMacro() [3/11]

```
vtkGDCMImageReader::vtkGetMacro (
            ImageFormat ,
            int )
```

References ImageFormat, and vtkGetMacro().

12.384.3.27 vtkGetMacro() [4/11]

```
vtkGDCMImageReader::vtkGetMacro (
            LoadIconImage ,
            int )
```

References LoadIconImage.

12.384.3.28 vtkGetMacro() [5/11]

```
vtkGDCMImageReader::vtkGetMacro (
            LoadOverlays ,
            int )
```

References LoadOverlays.

Referenced by vtkGetMacro(), vtkGetMacro(), vtkGetMacro(), and vtkGetMacro().

12.384.3.29 vtkGetMacro() [6/11]

```
vtkGDCMImageReader::vtkGetMacro (
            LossyFlag ,
            int )
```

References LossyFlag.

12.384.3.30 vtkGetMacro() [7/11]

```
vtkGDCMImageReader::vtkGetMacro (
            NumberOfIconImages ,
            int )
```

References NumberOfIconImages.

12.384.3.31 vtkGetMacro() [8/11]

```
vtkGDCMImageReader::vtkGetMacro (
            NumberOfOverlays ,
            int )
```

References NumberOfOverlays.

12.384.3.32 vtkGetMacro() [9/11]

```
vtkGDCMImageReader::vtkGetMacro (
            PlanarConfiguration ,
            int )
```

References PlanarConfiguration, and vtkGetMacro().

12.384.3.33 vtkGetMacro() [10/11]

```
vtkGDCMImageReader::vtkGetMacro (
            Scale ,
            double )
```

References Scale, and vtkGetMacro().

12.384.3.34 vtkGetMacro() [11/11]

```
vtkGDCMImageReader::vtkGetMacro (
            Shift ,
            double )
```

References Shift, and vtkGetMacro().

12.384.3.35 vtkGetObjectMacro() [1/4]

```
vtkGDCMImageReader::vtkGetObjectMacro (
            Curve ,
            vtkPolyData )
```

References Curve, and vtkGetObjectMacro().

12.384.3.36 vtkGetObjectMacro() [2/4]

```
vtkGDCMImageReader::vtkGetObjectMacro (
            DirectionCosines ,
            vtkMatrix4x4 )
```

References DirectionCosines.

Referenced by vtkGetObjectMacro().

12.384.3.37 vtkGetObjectMacro() [3/4]

```
vtkGDCMImageReader::vtkGetObjectMacro (
            FileNames ,
            vtkStringArray )
```

References FileNames.

12.384.3.38 vtkGetObjectMacro() [4/4]

```
vtkGDCMImageReader::vtkGetObjectMacro (
            MedicalImageProperties ,
            vtkMedicalImageProperties )
```

References MedicalImageProperties.

12.384.3.39 vtkGetStringMacro() [1/2]

```
vtkGDCMImageReader::vtkGetStringMacro (
            FilePattern )  [protected]
```

References vtkGDCMImageReader().

12.384.3.40 vtkGetStringMacro() [2/2]

```
vtkGDCMImageReader::vtkGetStringMacro (
            FilePrefix )  [protected]
```

12.384.3.41 vtkGetVector3Macro()

```
vtkGDCMImageReader::vtkGetVector3Macro (
            ImagePositionPatient ,
            double )
```

References ImagePositionPatient, and vtkGetVector3Macro().

Referenced by vtkGetVector3Macro().

12.384.3.42 vtkGetVector6Macro()

```
vtkGDCMImageReader::vtkGetVector6Macro (
            ImageOrientationPatient ,
            double )
```

References ImageOrientationPatient, and vtkGetVector6Macro().

Referenced by vtkGetVector6Macro().

12.384.3.43 vtkSetMacro() [1/4]

```
vtkGDCMImageReader::vtkSetMacro (
            ApplyLookupTable ,
            int )
```

References ApplyLookupTable.

12.384.3.44 vtkSetMacro() [2/4]

```
vtkGDCMImageReader::vtkSetMacro (
            LoadIconImage ,
            int )
```

References LoadIconImage.

12.384.3.45 vtkSetMacro() [3/4]

```
vtkGDCMImageReader::vtkSetMacro (
            LoadOverlays ,
            int )
```

References LoadOverlays.

Referenced by vtkGetMacro().

12.384.3.46 vtkSetMacro() [4/4]

```
vtkGDCMImageReader::vtkSetMacro (
            LossyFlag ,
            int )
```

References LossyFlag.

12.384.3.47 vtkSetVector6Macro()

```
vtkGDCMImageReader::vtkSetVector6Macro (
            ImageOrientationPatient ,
            double )  [protected]
```

References ImageOrientationPatient, and vtkSetVector6Macro().

Referenced by vtkSetVector6Macro().

12.384.3.48 vtkTypeMacro()

```
vtkGDCMImageReader::vtkTypeMacro (
            vtkGDCMImageReader ,
            vtkMedicalImageReader2 )
```

References vtkGDCMImageReader().

12.384.4 Member Data Documentation

12.384.4.1 ApplyInverseVideo

```
int vtkGDCMImageReader::ApplyInverseVideo  [protected]
```

12.384.4.2 ApplyLookupTable

```
int vtkGDCMImageReader::ApplyLookupTable  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

12.384.4.3 ApplyPlanarConfiguration

```
int vtkGDCMImageReader::ApplyPlanarConfiguration  [protected]
```

12.384.4.4 ApplyShiftScale

```
int vtkGDCMImageReader::ApplyShiftScale  [protected]
```

12.384.4.5 ApplyYBRToRGB

```
int vtkGDCMImageReader::ApplyYBRToRGB  [protected]
```

Referenced by vtkBooleanMacro(), and vtkGetMacro().

12.384.4.6 Curve

```
vtkPolyData* vtkGDCMImageReader::Curve  [protected]
```

Referenced by vtkGetObjectMacro().

12.384.4.7 DirectionCosines

```
vtkMatrix4x4* vtkGDCMImageReader::DirectionCosines  [protected]
```

Referenced by vtkGetObjectMacro().

12.384.4.8 FileNames

```
vtkStringArray* vtkGDCMImageReader::FileNames  [protected]
```

Referenced by vtkGetObjectMacro().

12.384.4.9 ForceRescale

```
int vtkGDCMImageReader::ForceRescale  [protected]
```

12.384.4.10 IconDataScalarType

```
int vtkGDCMImageReader::IconDataScalarType  [protected]
```

12.384.4.11 IconImageDataExtent

```
int vtkGDCMImageReader::IconImageDataExtent[6]  [protected]
```

12.384.4.12 IconNumberOfScalarComponents

```
int vtkGDCMImageReader::IconNumberOfScalarComponents  [protected]
```

12.384.4.13 ImageFormat

```
int vtkGDCMImageReader::ImageFormat  [protected]
```

Referenced by vtkGetMacro().

12.384.4.14 ImageOrientationPatient

```
double vtkGDCMImageReader::ImageOrientationPatient[6]  [protected]
```

Referenced by vtkGetVector6Macro(), and vtkSetVector6Macro().

12.384.4.15 ImagePositionPatient

```
double vtkGDCMImageReader::ImagePositionPatient[3]  [protected]
```

Referenced by vtkGetVector3Macro().

12.384.4.16 LoadIconImage

```
int vtkGDCMImageReader::LoadIconImage  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

12.384.4.17 LoadOverlays

```
int vtkGDCMImageReader::LoadOverlays  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

12.384.4.18 LossyFlag

```
int vtkGDCMImageReader::LossyFlag  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

12.384.4.19 MedicalImageProperties

```
vtkMedicalImageProperties* vtkGDCMImageReader::MedicalImageProperties  [protected]
```

Referenced by vtkGetObjectMacro().

12.384.4.20 NumberOfIconImages

```
int vtkGDCMImageReader::NumberOfIconImages  [protected]
```

Referenced by vtkGetMacro().

12.384.4.21 NumberOfOverlays

```
int vtkGDCMImageReader::NumberOfOverlays  [protected]
```

Referenced by vtkGetMacro().

12.384.4.22 PlanarConfiguration

```
int vtkGDCMImageReader::PlanarConfiguration  [protected]
```

Referenced by vtkGetMacro().

12.384.4.23 Scale

```
double vtkGDCMImageReader::Scale  [protected]
```

Referenced by vtkGetMacro(), and vtkGDCMThreadedImageReader::vtkSetMacro().

12.384.4.24 Shift

```
double vtkGDCMImageReader::Shift  [protected]
```

Referenced by vtkGetMacro(), and vtkGDCMThreadedImageReader::vtkSetMacro().

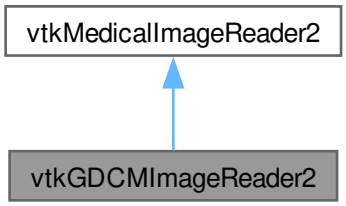
The documentation for this class was generated from the following file:

- vtkGDCMImageReader.h

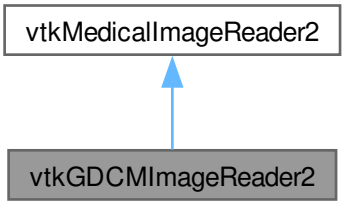
12.385 vtkGDCMImageReader2 Class Reference

```
#include <vtkGDCMImageReader2.h>
```

Inheritance diagram for vtkGDCMImageReader2:



Collaboration diagram for vtkGDCMImageReader2:



Public Member Functions

- virtual int CanReadFile (const char ∗fname)
- virtual const char ∗ GetDescriptiveName ()
- virtual const char ∗ GetFileExtensions ()
- vtkImageData ∗ GetIconImage ()
- vtkAlgorithmOutput ∗ GetIconImagePort ()
- vtkImageData ∗ GetOverlay (int i)
- vtkAlgorithmOutput ∗ GetOverlayPort (int index)
- virtual void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetCurve (vtkPolyData ∗pd)
- virtual void SetMedicalImageProperties (vtkMedicalImageProperties ∗pd)
- vtkBooleanMacro (ApplyLookupTable, int)
- int vtkBooleanMacro (ApplyYBRToRGB, int)
- vtkBooleanMacro (LoadIconImage, int)
- vtkBooleanMacro (LoadOverlays, int)
- vtkBooleanMacro (LossyFlag, int)
- vtkGetMacro (ApplyLookupTable, int)
- vtkGetMacro (ApplyYBRToRGB, int) vtkSetMacro(ApplyYBRToRGB
- vtkGetMacro (ImageFormat, int)
- vtkGetMacro (LoadIconImage, int)
- vtkGetMacro (LoadOverlays, int)
- vtkGetMacro (LossyFlag, int)
- vtkGetMacro (NumberOfIconImages, int)
- vtkGetMacro (NumberOfOverlays, int)
- vtkGetMacro (PlanarConfiguration, int)
- vtkGetMacro (Scale, double)
- vtkGetMacro (Shift, double)
- vtkGetObjectMacro (Curve, vtkPolyData)
- vtkGetObjectMacro (DirectionCosines, vtkMatrix4x4)
- vtkGetVector3Macro (ImagePositionPatient, double)
- vtkGetVector6Macro (ImageOrientationPatient, double)
- vtkSetMacro (ApplyLookupTable, int)
- vtkSetMacro (LoadIconImage, int)
- vtkSetMacro (LoadOverlays, int)
- vtkSetMacro (LossyFlag, int)
- vtkTypeMacro (vtkGDCMImageReader2, vtkMedicalImageReader2)

Static Public Member Functions

- static vtkGDCMImageReader2 * New ()

Protected Member Functions

- vtkGDCMImageReader2 ()
- ~vtkGDCMImageReader2 ()
- void FillMedicalImageInformation (const gdcm::ImageReader &reader)
- int LoadSingleFile (const char *filename, char *pointer, unsigned long &outlen)
- int ProcessRequest (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *output↩ Vector)
- int RequestData (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *output↩ Vector)
- int RequestDataCompat ()
- int RequestInformation (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector)
- int RequestInformationCompat ()
- void SetFilePattern (const char *)
- void SetFilePrefix (const char *)
- vtkGetStringMacro (FilePattern)
- vtkGetStringMacro (FilePrefix)
- vtkSetVector6Macro (ImageOrientationPatient, double)

Protected Attributes

- int ApplyInverseVideo
- int ApplyLookupTable
- int ApplyPlanarConfiguration
- int ApplyShiftScale
- int ApplyYBRToRGB
- vtkPolyData * Curve
- vtkMatrix4x4 * DirectionCosines
- int ForceRescale
- int IconDataScalarType
- int IconImageDataExtent [6]
- int IconNumberOfScalarComponents
- int ImageFormat
- double ImageOrientationPatient [6]
- double ImagePositionPatient [3]
- int LoadIconImage
- int LoadOverlays
- int LossyFlag
- int NumberOfIconImages
- int NumberOfOverlays
- int PlanarConfiguration
- double Scale
- double Shift

12.385.1 Detailed Description

Examples

Compute3DSpacing.cxx.

12.385.2 Constructor & Destructor Documentation

12.385.2.1 vtkGDCMImageReader2()

```
vtkGDCMImageReader2::vtkGDCMImageReader2 ()  [protected]
```

References vtkGDCMImageReader2().

Referenced by vtkGDCMImageReader2(), ~vtkGDCMImageReader2(), New(), vtkGetStringMacro(), and vtkTypeMacro().

12.385.2.2 ~vtkGDCMImageReader2()

```
vtkGDCMImageReader2::~vtkGDCMImageReader2 ()  [protected]
```

References vtkGDCMImageReader2().

12.385.3 Member Function Documentation

12.385.3.1 CanReadFile()

```
virtual int vtkGDCMImageReader2::CanReadFile (
            const char * fname)  [virtual]
```

12.385.3.2 FillMedicalImageInformation()

```
void vtkGDCMImageReader2::FillMedicalImageInformation (
            const gdcm::ImageReader & reader)  [protected]
```

References FillMedicalImageInformation().

Referenced by FillMedicalImageInformation().

12.385.3.3 GetDescriptiveName()

```
virtual const char * vtkGDCMImageReader2::GetDescriptiveName ()  [inline], [virtual]
```

12.385.3.4 GetFileExtensions()

```
virtual const char * vtkGDCMImageReader2::GetFileExtensions ()  [inline], [virtual]
```

12.385.3.5 GetIconImage()

```
vtkImageData * vtkGDCMImageReader2::GetIconImage ()
```

12.385.3.6 GetIconImagePort()

```
vtkAlgorithmOutput * vtkGDCMImageReader2::GetIconImagePort ()
```

12.385.3.7 GetOverlay()

```
vtkImageData * vtkGDCMImageReader2::GetOverlay (
            int i)
```

12.385.3.8 GetOverlayPort()

```
vtkAlgorithmOutput * vtkGDCMImageReader2::GetOverlayPort (
            int index)
```

12.385.3.9 LoadSingleFile()

```
int vtkGDCMImageReader2::LoadSingleFile (
            const char * filename,
            char * pointer,
            unsigned long & outlen)  [protected]
```

References LoadSingleFile().

Referenced by LoadSingleFile().

12.385.3.10 New()

```
vtkGDCMImageReader2 * vtkGDCMImageReader2::New ()  [static]
```

Examples

Compute3DSpacing.cxx.

References vtkGDCMImageReader2().

12.385.3.11 PrintSelf()

```
virtual void vtkGDCMImageReader2::PrintSelf (
            ostream & os,
            vtkIndent indent)  [virtual]
```

12.385.3.12 ProcessRequest()

```
int vtkGDCMImageReader2::ProcessRequest (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector)  [protected]
```

References ProcessRequest().

Referenced by ProcessRequest().

12.385.3.13 RequestData()

```
int vtkGDCMImageReader2::RequestData (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector)  [protected]
```

References RequestData().

Referenced by RequestData().

12.385.3.14 RequestDataCompat()

```
int vtkGDCMImageReader2::RequestDataCompat ()  [protected]
```

References RequestDataCompat().

Referenced by RequestDataCompat().

12.385.3.15 RequestInformation()

```
int vtkGDCMImageReader2::RequestInformation (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector)  [protected]
```

References RequestInformation().

Referenced by RequestInformation().

12.385.3.16 RequestInformationCompat()

```
int vtkGDCMImageReader2::RequestInformationCompat ()  [protected]
```

References RequestInformationCompat().

Referenced by RequestInformationCompat().

12.385.3.17 SetCurve()

```
virtual void vtkGDCMImageReader2::SetCurve (
            vtkPolyData * pd)  [virtual]
```

References SetCurve().

Referenced by SetCurve().

12.385.3.18 SetFilePattern()

```
void vtkGDCMImageReader2::SetFilePattern (
            const char * )  [inline], [protected]
```

12.385.3.19 SetFilePrefix()

```
void vtkGDCMImageReader2::SetFilePrefix (
            const char * )  [inline], [protected]
```

References SetFilePrefix().

Referenced by SetFilePrefix().

12.385.3.20 SetMedicalImageProperties()

```
virtual void vtkGDCMImageReader2::SetMedicalImageProperties (
            vtkMedicalImageProperties * pd)  [virtual]
```

12.385.3.21 vtkBooleanMacro() [1/5]

```
vtkGDCMImageReader2::vtkBooleanMacro (
            ApplyLookupTable ,
            int )
```

References ApplyLookupTable.

12.385.3.22 vtkBooleanMacro() [2/5]

```
int vtkGDCMImageReader2::vtkBooleanMacro (
            ApplyYBRToRGB ,
            int )
```

References ApplyYBRToRGB, and vtkBooleanMacro().

12.385.3.23 vtkBooleanMacro() [3/5]

```
vtkGDCMImageReader2::vtkBooleanMacro (
            LoadIconImage ,
            int )
```

References LoadIconImage.

12.385.3.24 vtkBooleanMacro() [4/5]

```
vtkGDCMImageReader2::vtkBooleanMacro (
            LoadOverlays ,
            int )
```

References LoadOverlays.

Referenced by vtkBooleanMacro().

12.385.3.25 vtkBooleanMacro() [5/5]

```
vtkGDCMImageReader2::vtkBooleanMacro (
            LossyFlag ,
            int )
```

References LossyFlag.

12.385.3.26 vtkGetMacro() [1/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            ApplyLookupTable ,
            int )
```

References ApplyLookupTable.

12.385.3.27 vtkGetMacro() [2/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            ApplyYBRToRGB ,
            int )
```

References ApplyYBRToRGB, and vtkSetMacro().

12.385.3.28 vtkGetMacro() [3/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            ImageFormat ,
            int )
```

References ImageFormat, and vtkGetMacro().

12.385.3.29 vtkGetMacro() [4/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            LoadIconImage ,
            int )
```

References LoadIconImage.

12.385.3.30 vtkGetMacro() [5/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            LoadOverlays ,
            int )
```

References LoadOverlays.

Referenced by vtkGetMacro(), vtkGetMacro(), vtkGetMacro(), and vtkGetMacro().

12.385.3.31 vtkGetMacro() [6/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            LossyFlag ,
            int )
```

References LossyFlag.

12.385.3.32 vtkGetMacro() [7/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            NumberOfIconImages ,
            int )
```

References NumberOfIconImages.

12.385.3.33 vtkGetMacro() [8/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            NumberOfOverlays ,
            int )
```

References NumberOfOverlays.

12.385.3.34 vtkGetMacro() [9/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            PlanarConfiguration ,
            int )
```

References PlanarConfiguration, and vtkGetMacro().

12.385.3.35 vtkGetMacro() [10/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            Scale ,
            double )
```

References Scale, and vtkGetMacro().

12.385.3.36 vtkGetMacro() [11/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            Shift ,
            double )
```

References Shift, and vtkGetMacro().

12.385.3.37 vtkGetObjectMacro() [1/2]

```
vtkGDCMImageReader2::vtkGetObjectMacro (
            Curve ,
            vtkPolyData )
```

References Curve, and vtkGetObjectMacro().

12.385.3.38 vtkGetObjectMacro() [2/2]

```
vtkGDCMImageReader2::vtkGetObjectMacro (
            DirectionCosines ,
            vtkMatrix4x4 )
```

References DirectionCosines.

Referenced by vtkGetObjectMacro().

12.385.3.39 vtkGetStringMacro() [1/2]

```
vtkGDCMImageReader2::vtkGetStringMacro (
            FilePattern )  [protected]
```

References vtkGDCMImageReader2().

12.385.3.40 vtkGetStringMacro() [2/2]

```
vtkGDCMImageReader2::vtkGetStringMacro (
            FilePrefix )  [protected]
```

12.385.3.41 vtkGetVector3Macro()

```
vtkGDCMImageReader2::vtkGetVector3Macro (
            ImagePositionPatient ,
            double )
```

References ImagePositionPatient, and vtkGetVector3Macro().

Referenced by vtkGetVector3Macro().

12.385.3.42 vtkGetVector6Macro()

```
vtkGDCMImageReader2::vtkGetVector6Macro (
            ImageOrientationPatient ,
            double )
```

References ImageOrientationPatient, and vtkGetVector6Macro().

Referenced by vtkGetVector6Macro().

12.385.3.43 vtkSetMacro() [1/4]

```
vtkGDCMImageReader2::vtkSetMacro (
            ApplyLookupTable ,
            int )
```

References ApplyLookupTable.

12.385.3.44 vtkSetMacro() [2/4]

```
vtkGDCMImageReader2::vtkSetMacro (
            LoadIconImage ,
            int )
```

References LoadIconImage.

12.385.3.45 vtkSetMacro() [3/4]

```
vtkGDCMImageReader2::vtkSetMacro (
            LoadOverlays ,
            int )
```

References LoadOverlays.

Referenced by vtkGetMacro().

12.385.3.46 vtkSetMacro() [4/4]

```
vtkGDCMImageReader2::vtkSetMacro (
            LossyFlag ,
            int )
```

References LossyFlag.

12.385.3.47 vtkSetVector6Macro()

```
vtkGDCMImageReader2::vtkSetVector6Macro (
            ImageOrientationPatient ,
            double )  [protected]
```

References ImageOrientationPatient, and vtkSetVector6Macro().

Referenced by vtkSetVector6Macro().

12.385.3.48 vtkTypeMacro()

```
vtkGDCMImageReader2::vtkTypeMacro (
             vtkGDCMImageReader2 ,
             vtkMedicalImageReader2 )
```

References vtkGDCMImageReader2().

12.385.4 Member Data Documentation

12.385.4.1 ApplyInverseVideo

```
int vtkGDCMImageReader2::ApplyInverseVideo  [protected]
```

12.385.4.2 ApplyLookupTable

```
int vtkGDCMImageReader2::ApplyLookupTable  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

12.385.4.3 ApplyPlanarConfiguration

```
int vtkGDCMImageReader2::ApplyPlanarConfiguration  [protected]
```

12.385.4.4 ApplyShiftScale

```
int vtkGDCMImageReader2::ApplyShiftScale  [protected]
```

12.385.4.5 ApplyYBRToRGB

```
int vtkGDCMImageReader2::ApplyYBRToRGB  [protected]
```

Referenced by vtkBooleanMacro(), and vtkGetMacro().

12.385.4.6 Curve

```
vtkPolyData* vtkGDCMImageReader2::Curve  [protected]
```

Referenced by vtkGetObjectMacro().

12.385.4.7 DirectionCosines

```
vtkMatrix4x4* vtkGDCMImageReader2::DirectionCosines  [protected]
```

Referenced by vtkGetObjectMacro().

12.385.4.8 ForceRescale

```
int vtkGDCMImageReader2::ForceRescale  [protected]
```

12.385.4.9 IconDataScalarType

```
int vtkGDCMImageReader2::IconDataScalarType  [protected]
```

12.385.4.10 IconImageDataExtent

```
int vtkGDCMImageReader2::IconImageDataExtent[6]  [protected]
```

12.385.4.11 IconNumberOfScalarComponents

```
int vtkGDCMImageReader2::IconNumberOfScalarComponents  [protected]
```

12.385.4.12 ImageFormat

```
int vtkGDCMImageReader2::ImageFormat  [protected]
```

Referenced by vtkGetMacro().

12.385.4.13 ImageOrientationPatient

```
double vtkGDCMImageReader2::ImageOrientationPatient[6]  [protected]
```

Referenced by vtkGetVector6Macro(), and vtkSetVector6Macro().

12.385.4.14 ImagePositionPatient

```
double vtkGDCMImageReader2::ImagePositionPatient[3]  [protected]
```

Referenced by vtkGetVector3Macro().

12.385.4.15 LoadIconImage

```
int vtkGDCMImageReader2::LoadIconImage  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

12.385.4.16 LoadOverlays

```
int vtkGDCMImageReader2::LoadOverlays  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

12.385.4.17 LossyFlag

```
int vtkGDCMImageReader2::LossyFlag  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

12.385.4.18 NumberOfIconImages

```
int vtkGDCMImageReader2::NumberOfIconImages  [protected]
```

Referenced by vtkGetMacro().

12.385.4.19 NumberOfOverlays

```
int vtkGDCMImageReader2::NumberOfOverlays  [protected]
```

Referenced by vtkGetMacro().

12.385.4.20 PlanarConfiguration

```
int vtkGDCMImageReader2::PlanarConfiguration  [protected]
```

Referenced by vtkGetMacro().

12.385.4.21 Scale

```
double vtkGDCMImageReader2::Scale  [protected]
```

Referenced by vtkGetMacro().

12.385.4.22 Shift

```
double vtkGDCMImageReader2::Shift  [protected]
```

Referenced by vtkGetMacro().

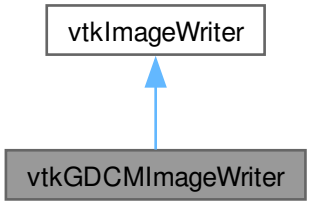
The documentation for this class was generated from the following file:

- vtkGDCMImageReader2.h

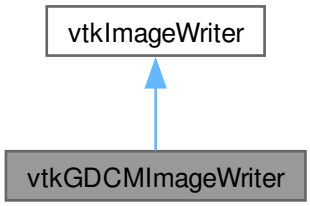
12.386 vtkGDCMImageWriter Class Reference

```
#include <vtkGDCMImageWriter.h>
```

Inheritance diagram for vtkGDCMImageWriter:



Collaboration diagram for vtkGDCMImageWriter:



Public Types

- enum CompressionTypes {
  NO_COMPRESSION = 0 ,
  JPEG_COMPRESSION ,
  JPEG2000_COMPRESSION ,
  JPEGLS_COMPRESSION ,
  RLE_COMPRESSION }

Public Member Functions

- virtual const char * GetDescriptiveName ()
- virtual const char * GetFileExtensions ()
- virtual void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetDirectionCosines (vtkMatrix4x4 *matrix)
- virtual void SetDirectionCosinesFromImageOrientationPatient (const double dircos[6])
- virtual void SetFileNames (vtkStringArray *)
- virtual void SetMedicalImageProperties (vtkMedicalImageProperties *)
- vtkBooleanMacro (FileLowerLeft, int)
- vtkBooleanMacro (LossyFlag, int)
- vtkGetMacro (CompressionType, int)
- vtkGetMacro (FileLowerLeft, int)
- vtkGetMacro (ImageFormat, int)
- vtkGetMacro (LossyFlag, int)
- vtkGetMacro (PlanarConfiguration, int)
- vtkGetMacro (Scale, double)
- vtkGetMacro (Shift, double)
- vtkGetObjectMacro (DirectionCosines, vtkMatrix4x4)
- vtkGetObjectMacro (FileNames, vtkStringArray)
- vtkGetObjectMacro (MedicalImageProperties, vtkMedicalImageProperties)
- vtkGetStringMacro (SeriesUID)
- vtkGetStringMacro (StudyUID)
- vtkSetMacro (CompressionType, int)
- vtkSetMacro (FileLowerLeft, int)
- vtkSetMacro (ImageFormat, int)
- vtkSetMacro (LossyFlag, int)
- vtkSetMacro (PlanarConfiguration, int)
- vtkSetMacro (Scale, double)
- vtkSetMacro (Shift, double)
- vtkSetStringMacro (SeriesUID)
- vtkSetStringMacro (StudyUID)
- vtkTypeMacro (vtkGDCMImageWriter, vtkImageWriter)
- virtual void Write ()

Static Public Member Functions

- static vtkGDCMImageWriter * New ()

Protected Member Functions

- vtkGDCMImageWriter ()
- ~vtkGDCMImageWriter ()
- virtual char * GetFileName ()
- int WriteGDCMData (vtkImageData *data, int timeStep)
- void WriteSlice (vtkImageData *data)

12.386.1 Detailed Description

Examples

Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, CreateFakePET.cxx, CreateFakeRTDOSE.cxx, HelloActiviz.cs, HelloActiviz2.cs, HelloVTKWorld.cs, HelloVTKWorld.java, HelloVTKWorld2.cs, MagnifyFile.cxx, RefCounting.cs, and gdcmorthoplanes.cxx.

12.386.2 Member Enumeration Documentation

12.386.2.1 CompressionTypes

```
enum vtkGDCMImageWriter::CompressionTypes
```

Enumerator

NO_COMPRESSION	
JPEG_COMPRESSION	
JPEG2000_COMPRESSION	
JPEGLS_COMPRESSION	
RLE_COMPRESSION	

12.386.3 Constructor & Destructor Documentation

12.386.3.1 vtkGDCMImageWriter()

```
vtkGDCMImageWriter::vtkGDCMImageWriter ()  [protected]
```

Referenced by GetFileName(), New(), and vtkTypeMacro().

12.386.3.2 ~vtkGDCMImageWriter()

```
vtkGDCMImageWriter::~vtkGDCMImageWriter ()  [protected]
```

12.386.4 Member Function Documentation

12.386.4.1 GetDescriptiveName()

```
virtual const char * vtkGDCMImageWriter::GetDescriptiveName ()  [inline], [virtual]
```

12.386.4.2 GetFileExtensions()

```
virtual const char * vtkGDCMImageWriter::GetFileExtensions ()  [inline], [virtual]
```

12.386.4.3 GetFileName()

```
virtual char * vtkGDCMImageWriter::GetFileName ()  [protected], [virtual]
```

References vtkGDCMImageWriter().

12.386.4.4 New()

```
vtkGDCMImageWriter * vtkGDCMImageWriter::New ()  [static]
```

Examples

Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, CreateFakePET.cxx, CreateFakeRTDOSE.cxx, HelloActiviz.cs, HelloVTKWorld.cs, HelloVTKWorld2.cs, MagnifyFile.cxx, RefCounting.cs, and gdcmorthoplanes.cxx.

References vtkGDCMImageWriter().

12.386.4.5 PrintSelf()

```
virtual void vtkGDCMImageWriter::PrintSelf (
            ostream & os,
            vtkIndent indent)  [virtual]
```

12.386.4.6 SetDirectionCosines()

```
virtual void vtkGDCMImageWriter::SetDirectionCosines (
            vtkMatrix4x4 * matrix)  [virtual]
```

Examples

Convert16BitsTo8Bits.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, HelloActiviz2.cs, HelloVTKWorld.cs, HelloVTKWorld.java, MagnifyFile.cxx, and gdcmorthoplanes.cxx.

12.386.4.7 SetDirectionCosinesFromImageOrientationPatient()

```
virtual void vtkGDCMImageWriter::SetDirectionCosinesFromImageOrientationPatient (
            const double dircos[6])  [virtual]
```

12.386.4.8 SetFileNames()

```
virtual void vtkGDCMImageWriter::SetFileNames (
            vtkStringArray * )  [virtual]
```

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

12.386.4.9 SetMedicalImageProperties()

```
virtual void vtkGDCMImageWriter::SetMedicalImageProperties (
            vtkMedicalImageProperties * )  [virtual]
```

Examples

Convert16BitsTo8Bits.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, HelloActiviz.cs, HelloActiviz2.cs, HelloVTKWorld.cs, HelloVTKWorld.java, MagnifyFile.cxx, and gdcmorthoplanes.cxx.

12.386.4.10 vtkBooleanMacro() [1/2]

```
vtkGDCMImageWriter::vtkBooleanMacro (
            FileLowerLeft ,
            int )
```

12.386.4.11 vtkBooleanMacro() [2/2]

```
vtkGDCMImageWriter::vtkBooleanMacro (
            LossyFlag ,
            int )
```

12.386.4.12 vtkGetMacro() [1/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            CompressionType ,
            int )
```

12.386.4.13 vtkGetMacro() [2/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            FileLowerLeft ,
            int )
```

12.386.4.14 vtkGetMacro() [3/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            ImageFormat ,
            int )
```

12.386.4.15 vtkGetMacro() [4/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            LossyFlag ,
            int )
```

12.386.4.16 vtkGetMacro() [5/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            PlanarConfiguration ,
            int )
```

12.386.4.17 vtkGetMacro() [6/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            Scale ,
            double )
```

12.386.4.18 vtkGetMacro() [7/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            Shift ,
            double )
```

12.386.4.19 vtkGetObjectMacro() [1/3]

```
vtkGDCMImageWriter::vtkGetObjectMacro (
            DirectionCosines ,
            vtkMatrix4x4 )
```

12.386.4.20 vtkGetObjectMacro() [2/3]

```
vtkGDCMImageWriter::vtkGetObjectMacro (
            FileNames ,
            vtkStringArray )
```

12.386.4.21 vtkGetObjectMacro() [3/3]

```
vtkGDCMImageWriter::vtkGetObjectMacro (
            MedicalImageProperties ,
            vtkMedicalImageProperties )
```

12.386.4.22 vtkGetStringMacro() [1/2]

```
vtkGDCMImageWriter::vtkGetStringMacro (
            SeriesUID )
```

12.386.4.23 vtkGetStringMacro() [2/2]

```
vtkGDCMImageWriter::vtkGetStringMacro (
            StudyUID )
```

12.386.4.24 vtkSetMacro() [1/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            CompressionType ,
            int )
```

12.386.4.25 vtkSetMacro() [2/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            FileLowerLeft ,
            int )
```

12.386.4.26 vtkSetMacro() [3/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            ImageFormat ,
            int )
```

12.386.4.27 vtkSetMacro() [4/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            LossyFlag ,
            int )
```

12.386.4.28 vtkSetMacro() [5/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            PlanarConfiguration ,
            int )
```

12.386.4.29 vtkSetMacro() [6/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            Scale ,
            double )
```

12.386.4.30 vtkSetMacro() [7/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            Shift ,
            double )
```

12.386.4.31 vtkSetStringMacro() [1/2]

```
vtkGDCMImageWriter::vtkSetStringMacro (
            SeriesUID )
```

12.386.4.32 vtkSetStringMacro() [2/2]

```
vtkGDCMImageWriter::vtkSetStringMacro (
            StudyUID )
```

12.386.4.33 vtkTypeMacro()

```
vtkGDCMImageWriter::vtkTypeMacro (
            vtkGDCMImageWriter ,
            vtkImageWriter )
```

References vtkGDCMImageWriter().

12.386.4.34 Write()

```
virtual void vtkGDCMImageWriter::Write ()  [virtual]
```

Examples

Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, CreateFakePET.cxx, CreateFakeRTDOSE.cxx, HelloActiviz.cs, HelloActiviz2.cs, HelloVTKWorld.cs, HelloVTKWorld.java, HelloVTKWorld2.cs, MagnifyFile.cxx, and gdcmorthoplanes.cxx.

12.386.4.35 WriteGDCMData()

```
int vtkGDCMImageWriter::WriteGDCMData (
            vtkImageData * data,
            int timeStep)  [protected]
```

12.386.4.36 WriteSlice()

```
void vtkGDCMImageWriter::WriteSlice (
            vtkImageData * data)  [protected]
```

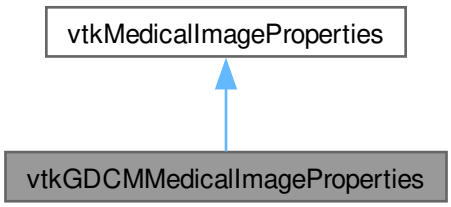
The documentation for this class was generated from the following file:

- vtkGDCMImageWriter.h

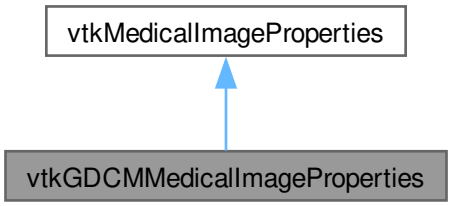
12.387 vtkGDCMMedicalImageProperties Class Reference

```
#include <vtkGDCMMedicalImageProperties.h>
```

Inheritance diagram for vtkGDCMMedicalImageProperties:



Collaboration diagram for vtkGDCMMedicalImageProperties:



Public Member Functions

- virtual void Clear ()
- void PrintSelf (ostream &os, vtkIndent indent)
- vtkTypeMacro (vtkGDCMMedicalImageProperties, vtkMedicalImageProperties)

Static Public Member Functions

- static vtkGDCMMedicalImageProperties * New ()

Protected Member Functions

- vtkGDCMMedicalImageProperties ()
- ~vtkGDCMMedicalImageProperties ()
- gdcm::File const & GetFile (unsigned int t)
- void PushBackFile (gdcm::File const &f)

Friends

- class vtkGDCMImageReader
- class vtkGDCMImageReader2
- class vtkGDCMImageWriter

12.387.1 Constructor & Destructor Documentation

12.387.1.1 vtkGDCMMedicalImageProperties()

```
vtkGDCMMedicalImageProperties::vtkGDCMMedicalImageProperties ()  [protected]
```

Referenced by GetFile(), New(), and vtkTypeMacro().

12.387.1.2 ~vtkGDCMMedicalImageProperties()

```
vtkGDCMMedicalImageProperties::~vtkGDCMMedicalImageProperties ()  [protected]
```

12.387.2 Member Function Documentation

12.387.2.1 Clear()

```
virtual void vtkGDCMMedicalImageProperties::Clear ()  [virtual]
```

12.387.2.2 GetFile()

```
gdcm::File const & vtkGDCMMedicalImageProperties::GetFile (
            unsigned int t)  [protected]
```

References vtkGDCMMedicalImageProperties().

12.387.2.3 New()

```
vtkGDCMMedicalImageProperties * vtkGDCMMedicalImageProperties::New ()  [static]
```

References vtkGDCMMedicalImageProperties().

12.387.2.4 PrintSelf()

```
void vtkGDCMMedicalImageProperties::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.387.2.5 PushBackFile()

```
void vtkGDCMMedicalImageProperties::PushBackFile (
            gdcm::File const & f)  [protected]
```

12.387.2.6 vtkTypeMacro()

```
vtkGDCMMedicalImageProperties::vtkTypeMacro (
            vtkGDCMMedicalImageProperties ,
            vtkMedicalImageProperties )
```

References vtkGDCMMedicalImageProperties().

12.387.3 Friends And Related Symbol Documentation

12.387.3.1 vtkGDCMImageReader

```
friend class vtkGDCMImageReader  [friend]
```

References vtkGDCMImageReader.

Referenced by vtkGDCMImageReader.

12.387.3.2 vtkGDCMImageReader2

```
friend class vtkGDCMImageReader2  [friend]
```

References vtkGDCMImageReader2.

Referenced by vtkGDCMImageReader2.

12.387.3.3 vtkGDCMImageWriter

```
friend class vtkGDCMImageWriter  [friend]
```

References vtkGDCMImageWriter.

Referenced by vtkGDCMImageWriter.

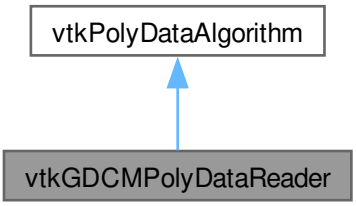
The documentation for this class was generated from the following file:

- vtkGDCMMedicalImageProperties.h

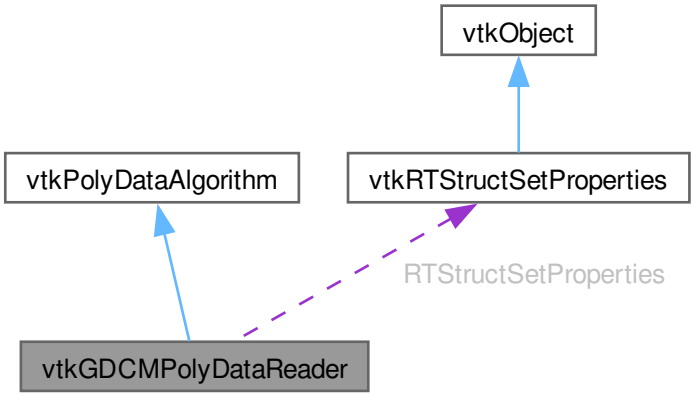
12.388 vtkGDCMPolyDataReader Class Reference

```
#include <vtkGDCMPolyDataReader.h>
```

Inheritance diagram for vtkGDCMPolyDataReader:



Collaboration diagram for vtkGDCMPolyDataReader:



Public Member Functions

- virtual void PrintSelf (ostream &os, vtkIndent indent)
- vtkGetObjectMacro (MedicalImageProperties, vtkMedicalImageProperties)
- vtkGetObjectMacro (RTStructSetProperties, vtkRTStructSetProperties)
- vtkGetStringMacro (FileName)
- vtkSetStringMacro (FileName)
- vtkTypeMacro (vtkGDCMPolyDataReader, vtkPolyDataAlgorithm)

Static Public Member Functions

- static vtkGDCMPolyDataReader * New ()

Protected Member Functions

- vtkGDCMPolyDataReader ()
- ~vtkGDCMPolyDataReader ()
- void FillMedicalImageInformation (const gdcm::Reader &reader)
- int RequestData (vtkInformation *, vtkInformationVector **, vtkInformationVector *)
- int RequestData_HemodynamicWaveformStorage (gdcm::Reader const &reader, vtkInformationVector *output↩ Vector)
- int RequestData_RTStructureSetStorage (gdcm::Reader const &reader, vtkInformationVector *outputVector)
- int RequestInformation (vtkInformation *vtkNotUsed(request), vtkInformationVector **vtkNotUsed(inputVector), vtkInformationVector *outputVector)
- int RequestInformation_HemodynamicWaveformStorage (gdcm::Reader const &reader)
- int RequestInformation_RTStructureSetStorage (gdcm::Reader const &reader)

Protected Attributes

- char * FileName
- vtkMedicalImageProperties * MedicalImageProperties
- vtkRTStructSetProperties * RTStructSetProperties

12.388.1 Detailed Description

Examples

GenerateRTSTRUCT.cxx, gdcmscene.cxx, and rtstructapp.cxx.

12.388.2 Constructor & Destructor Documentation

12.388.2.1 vtkGDCMPolyDataReader()

```
vtkGDCMPolyDataReader::vtkGDCMPolyDataReader ()  [protected]
```

Referenced by New(), RequestData_HemodynamicWaveformStorage(), and vtkTypeMacro().

12.388.2.2 ~vtkGDCMPolyDataReader()

```
vtkGDCMPolyDataReader::~vtkGDCMPolyDataReader ()  [protected]
```

12.388.3 Member Function Documentation

12.388.3.1 FillMedicalImageInformation()

```
void vtkGDCMPolyDataReader::FillMedicalImageInformation (
            const gdcm::Reader & reader)  [protected]
```

12.388.3.2 New()

```
vtkGDCMPolyDataReader * vtkGDCMPolyDataReader::New ()  [static]
```

Examples

GenerateRTSTRUCT.cxx, gdcmscene.cxx, and rtstructapp.cxx.

References vtkGDCMPolyDataReader().

12.388.3.3 PrintSelf()

```
virtual void vtkGDCMPolyDataReader::PrintSelf (
            ostream & os,
            vtkIndent indent)  [virtual]
```

12.388.3.4 RequestData()

```
int vtkGDCMPolyDataReader::RequestData (
            vtkInformation * ,
            vtkInformationVector ** ,
            vtkInformationVector * )  [protected]
```

12.388.3.5 RequestData_HemodynamicWaveformStorage()

```
int vtkGDCMPolyDataReader::RequestData_HemodynamicWaveformStorage (
            gdcm::Reader const & reader,
            vtkInformationVector * outputVector)  [protected]
```

References vtkGDCMPolyDataReader().

12.388.3.6 RequestData_RTStructureSetStorage()

```
int vtkGDCMPolyDataReader::RequestData_RTStructureSetStorage (
            gdcm::Reader const & reader,
            vtkInformationVector * outputVector)  [protected]
```

12.388.3.7 RequestInformation()

```
int vtkGDCMPolyDataReader::RequestInformation (
            vtkInformation * vtkNotUsedrequest,
            vtkInformationVector ** vtkNotUsedinputVector,
            vtkInformationVector * outputVector)  [protected]
```

12.388.3.8 RequestInformation_HemodynamicWaveformStorage()

```
int vtkGDCMPolyDataReader::RequestInformation_HemodynamicWaveformStorage (
            gdcm::Reader const & reader)  [protected]
```

12.388.3.9 RequestInformation_RTStructureSetStorage()

```
int vtkGDCMPolyDataReader::RequestInformation_RTStructureSetStorage (
            gdcm::Reader const & reader)  [protected]
```

12.388.3.10 vtkGetObjectMacro() [1/2]

```
vtkGDCMPolyDataReader::vtkGetObjectMacro (
            MedicalImageProperties ,
            vtkMedicalImageProperties )
```

References MedicalImageProperties.

12.388.3.11 vtkGetObjectMacro() [2/2]

```
vtkGDCMPolyDataReader::vtkGetObjectMacro (
            RTStructSetProperties ,
            vtkRTStructSetProperties )
```

References RTStructSetProperties.

12.388.3.12 vtkGetStringMacro()

```
vtkGDCMPolyDataReader::vtkGetStringMacro (
            FileName )
```

References FileName.

12.388.3.13 vtkSetStringMacro()

```
vtkGDCMPolyDataReader::vtkSetStringMacro (
            FileName )
```

References FileName.

12.388.3.14 vtkTypeMacro()

```
vtkGDCMPolyDataReader::vtkTypeMacro (
            vtkGDCMPolyDataReader ,
            vtkPolyDataAlgorithm )
```

References vtkGDCMPolyDataReader().

12.388.4 Member Data Documentation

12.388.4.1 FileName

```
char* vtkGDCMPolyDataReader::FileName  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.388.4.2 MedicalImageProperties

```
vtkMedicalImageProperties* vtkGDCMPolyDataReader::MedicalImageProperties  [protected]
```

Referenced by vtkGetObjectMacro().

12.388.4.3 RTStructSetProperties

```
vtkRTStructSetProperties* vtkGDCMPolyDataReader::RTStructSetProperties  [protected]
```

Referenced by vtkGetObjectMacro().

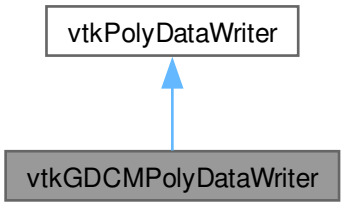
The documentation for this class was generated from the following file:

- vtkGDCMPolyDataReader.h

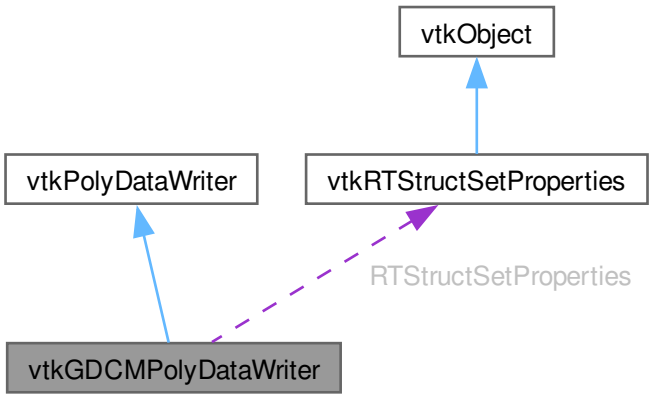
12.389 vtkGDCMPolyDataWriter Class Reference

```
#include <vtkGDCMPolyDataWriter.h>
```

Inheritance diagram for vtkGDCMPolyDataWriter:



Collaboration diagram for vtkGDCMPolyDataWriter:



Public Member Functions

- void InitializeRTStructSet (vtkStdString inDirectory, vtkStdString inStructLabel, vtkStdString inStructName, vtk↩ StringArray ∗inROINames, vtkStringArray ∗inROIAlgorithmName, vtkStringArray ∗inROIType)
- virtual void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetMedicalImageProperties (vtkMedicalImageProperties ∗pd)
- void SetNumberOfInputPorts (int n)
- virtual void SetRTStructSetProperties (vtkRTStructSetProperties ∗pd)
- vtkTypeMacro (vtkGDCMPolyDataWriter, vtkPolyDataWriter)

Static Public Member Functions

- static vtkGDCMPolyDataWriter ∗ New ()

Protected Member Functions

- vtkGDCMPolyDataWriter ()
- ∼vtkGDCMPolyDataWriter ()
- void WriteData ()
- void WriteRTSTRUCTData (gdcm::File &file, int num)
- void WriteRTSTRUCTInfo (gdcm::File &file)

Protected Attributes

- vtkMedicalImageProperties ∗ MedicalImageProperties
- vtkRTStructSetProperties ∗ RTStructSetProperties

12.389.1 Detailed Description

Examples

GenerateRTSTRUCT.cxx, and rtstructapp.cxx.

12.389.2 Constructor & Destructor Documentation

12.389.2.1 vtkGDCMPolyDataWriter()

```
vtkGDCMPolyDataWriter::vtkGDCMPolyDataWriter ()  [protected]
```

Referenced by New(), vtkTypeMacro(), and WriteRTSTRUCTData().

12.389.2.2 ~vtkGDCMPolyDataWriter()

```
vtkGDCMPolyDataWriter::~vtkGDCMPolyDataWriter ()  [protected]
```

12.389.3 Member Function Documentation

12.389.3.1 InitializeRTStructSet()

```
void vtkGDCMPolyDataWriter::InitializeRTStructSet (
            vtkStdString inDirectory,
            vtkStdString inStructLabel,
            vtkStdString inStructName,
            vtkStringArray * inROINames,
            vtkStringArray * inROIAlgorithmName,
            vtkStringArray * inROIType)
```

Examples

GenerateRTSTRUCT.cxx.

12.389.3.2 New()

```
vtkGDCMPolyDataWriter * vtkGDCMPolyDataWriter::New ()  [static]
```

Examples

GenerateRTSTRUCT.cxx, and rtstructapp.cxx.

References vtkGDCMPolyDataWriter().

12.389.3.3 PrintSelf()

```
virtual void vtkGDCMPolyDataWriter::PrintSelf (
            ostream & os,
            vtkIndent indent)  [virtual]
```

12.389.3.4 SetMedicalImageProperties()

```
virtual void vtkGDCMPolyDataWriter::SetMedicalImageProperties (
            vtkMedicalImageProperties * pd)  [virtual]
```

Examples

GenerateRTSTRUCT.cxx, and rtstructapp.cxx.

12.389.3.5 SetNumberOfInputPorts()

```
void vtkGDCMPolyDataWriter::SetNumberOfInputPorts (
            int n)
```

Examples

GenerateRTSTRUCT.cxx, and rtstructapp.cxx.

12.389.3.6 SetRTStructSetProperties()

```
virtual void vtkGDCMPolyDataWriter::SetRTStructSetProperties (
            vtkRTStructSetProperties * pd)  [virtual]
```

Examples

GenerateRTSTRUCT.cxx, and rtstructapp.cxx.

12.389.3.7 vtkTypeMacro()

```
vtkGDCMPolyDataWriter::vtkTypeMacro (
            vtkGDCMPolyDataWriter ,
            vtkPolyDataWriter )
```

References vtkGDCMPolyDataWriter().

12.389.3.8 WriteData()

```
void vtkGDCMPolyDataWriter::WriteData ()  [protected]
```

12.389.3.9 WriteRTSTRUCTData()

```
void vtkGDCMPolyDataWriter::WriteRTSTRUCTData (
            gdcm::File & file,
            int num)  [protected]
```

References vtkGDCMPolyDataWriter().

12.389.3.10 WriteRTSTRUCTInfo()

```
void vtkGDCMPolyDataWriter::WriteRTSTRUCTInfo (
            gdcm::File & file)  [protected]
```

12.389.4 Member Data Documentation

12.389.4.1 MedicalImageProperties

```
vtkMedicalImageProperties* vtkGDCMPolyDataWriter::MedicalImageProperties  [protected]
```

12.389.4.2 RTStructSetProperties

```
vtkRTStructSetProperties* vtkGDCMPolyDataWriter::RTStructSetProperties  [protected]
```

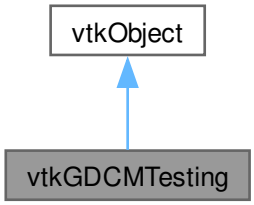
The documentation for this class was generated from the following file:

- vtkGDCMPolyDataWriter.h

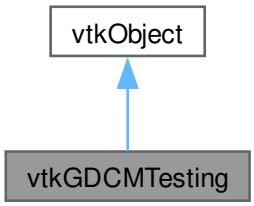
12.390 vtkGDCMTesting Class Reference

`#include <vtkGDCMTesting.h>`

Inheritance diagram for vtkGDCMTesting:



Collaboration diagram for vtkGDCMTesting:



Public Types

- typedef const char *const (* MD5MetaImagesType)[3]

Public Member Functions

- void PrintSelf (ostream &os, vtkIndent indent)
- vtkTypeMacro (vtkGDCMTesting, vtkObject)

Static Public Member Functions

- static const char * GetGDCMDataRoot ()
- static const char *const * GetMD5MetaImage (unsigned int file)
- static const char * GetMHDMD5FromFile (const char *filepath)
- static unsigned int GetNumberOfMD5MetaImages ()
- static const char * GetRAWMD5FromFile (const char *filepath)
- static const char * GetVTKDataRoot ()
- static vtkGDCMTesting * New ()

Protected Member Functions

- vtkGDCMTesting ()
- ~vtkGDCMTesting ()

12.390.1 Detailed Description

Examples

HelloActiviz5.cs, HelloVTKWorld2.cs, MetaImageMD5Activiz.cs, ReadSeriesIntoVTK.java, and RefCounting.cs.

12.390.2 Member Typedef Documentation

12.390.2.1 MD5MetaImagesType

```
typedef const char* const(* vtkGDCMTesting::MD5MetaImagesType)[3]
```

12.390.3 Constructor & Destructor Documentation

12.390.3.1 vtkGDCMTesting()

```
vtkGDCMTesting::vtkGDCMTesting ()  [protected]
```

Referenced by ~vtkGDCMTesting(), New(), and vtkTypeMacro().

12.390.3.2 ~vtkGDCMTesting()

```
vtkGDCMTesting::~vtkGDCMTesting ()  [protected]
```

References vtkGDCMTesting().

12.390.4 Member Function Documentation

12.390.4.1 GetGDCMDataRoot()

```
const char * vtkGDCMTesting::GetGDCMDataRoot ()  [static]
```

Examples

HelloActiviz5.cs, and ReadSeriesIntoVTK.java.

12.390.4.2 GetMD5MetaImage()

```
const char *const * vtkGDCMTesting::GetMD5MetaImage (
            unsigned int file)  [static]
```

12.390.4.3 GetMHDMD5FromFile()

```
const char * vtkGDCMTesting::GetMHDMD5FromFile (
            const char * filepath)  [static]
```

Examples

MetaImageMD5Activiz.cs.

12.390.4.4 GetNumberOfMD5MetaImages()

```
unsigned int vtkGDCMTesting::GetNumberOfMD5MetaImages ()  [static]
```

12.390.4.5 GetRAWMD5FromFile()

```
const char * vtkGDCMTesting::GetRAWMD5FromFile (
            const char * filepath)  [static]
```

Examples

MetaImageMD5Activiz.cs.

12.390.4.6 GetVTKDataRoot()

```
const char * vtkGDCMTesting::GetVTKDataRoot ()  [static]
```

Examples

HelloActiviz5.cs, and HelloVTKWorld2.cs.

12.390.4.7 New()

```
vtkGDCMTesting * vtkGDCMTesting::New ()  [static]
```

Examples

RefCounting.cs.

References vtkGDCMTesting().

12.390.4.8 PrintSelf()

```
void vtkGDCMTesting::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.390.4.9 vtkTypeMacro()

```
vtkGDCMTesting::vtkTypeMacro (
            vtkGDCMTesting ,
            vtkObject )
```

References vtkGDCMTesting().

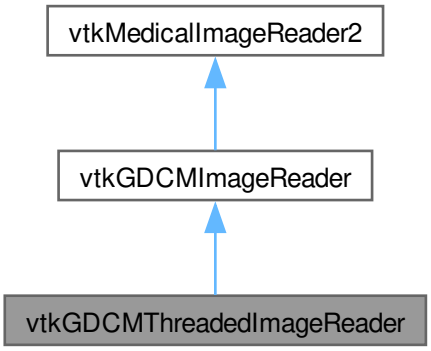
The documentation for this class was generated from the following file:

- vtkGDCMTesting.h

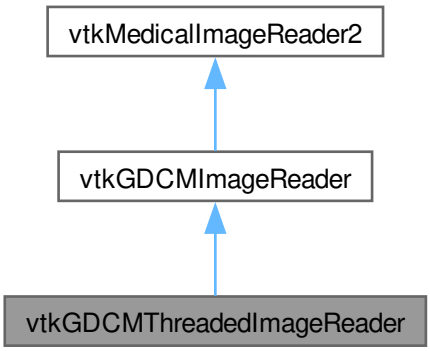
12.391 vtkGDCMThreadedImageReader Class Reference

```
#include <vtkGDCMThreadedImageReader.h>
```

Inheritance diagram for vtkGDCMThreadedImageReader:



Collaboration diagram for vtkGDCMThreadedImageReader:



Public Member Functions

- virtual void PrintSelf (ostream &os, vtkIndent indent)
- vtkBooleanMacro (UseShiftScale, int)
- vtkGetMacro (UseShiftScale, int)
- vtkSetMacro (Scale, double)
- vtkSetMacro (Shift, double)
- vtkSetMacro (UseShiftScale, int)
- vtkTypeMacro (vtkGDCMThreadedImageReader, vtkGDCMImageReader)

Public Member Functions inherited from vtkGDCMImageReader

- virtual int CanReadFile (const char ∗fname)
- virtual const char ∗ GetDescriptiveName ()
- virtual const char ∗ GetFileExtensions ()
- vtkImageData ∗ GetIconImage ()
- vtkImageData ∗ GetOverlay (int i)
- virtual void SetCurve (vtkPolyData ∗pd)
- virtual void SetFileNames (vtkStringArray ∗)
- virtual void SetMedicalImageProperties (vtkMedicalImageProperties ∗pd)
- vtkBooleanMacro (ApplyLookupTable, int)
- int vtkBooleanMacro (ApplyYBRToRGB, int)
- vtkBooleanMacro (LoadIconImage, int)
- vtkBooleanMacro (LoadOverlays, int)
- vtkBooleanMacro (LossyFlag, int)
- vtkGetMacro (ApplyLookupTable, int)
- vtkGetMacro (ApplyYBRToRGB, int) vtkSetMacro(ApplyYBRToRGB
- vtkGetMacro (ImageFormat, int)
- vtkGetMacro (LoadIconImage, int)

- vtkGetMacro (LoadOverlays, int)
- vtkGetMacro (LossyFlag, int)
- vtkGetMacro (NumberOfIconImages, int)
- vtkGetMacro (NumberOfOverlays, int)
- vtkGetMacro (PlanarConfiguration, int)
- vtkGetMacro (Scale, double)
- vtkGetMacro (Shift, double)
- vtkGetObjectMacro (Curve, vtkPolyData)
- vtkGetObjectMacro (DirectionCosines, vtkMatrix4x4)
- vtkGetObjectMacro (FileNames, vtkStringArray)
- vtkGetObjectMacro (MedicalImageProperties, vtkMedicalImageProperties)
- vtkGetVector3Macro (ImagePositionPatient, double)
- vtkGetVector6Macro (ImageOrientationPatient, double)
- vtkSetMacro (ApplyLookupTable, int)
- vtkSetMacro (LoadIconImage, int)
- vtkSetMacro (LoadOverlays, int)
- vtkSetMacro (LossyFlag, int)
- vtkTypeMacro (vtkGDCMImageReader, vtkMedicalImageReader2)

Static Public Member Functions

- static vtkGDCMThreadedImageReader * New ()

Static Public Member Functions inherited from vtkGDCMImageReader

- static vtkGDCMImageReader * New ()

Protected Member Functions

- vtkGDCMThreadedImageReader ()
- ~vtkGDCMThreadedImageReader ()
- void ExecuteData (vtkDataObject *out)
- void ExecuteInformation ()
- void ReadFiles (unsigned int nfiles, const char *filenames[])
- void RequestDataCompat ()

Protected Member Functions inherited from vtkGDCMImageReader

- vtkGDCMImageReader ()
- ~vtkGDCMImageReader ()
- void ExecuteData (vtkDataObject *out)
- void ExecuteInformation ()
- void FillMedicalImageInformation (const gdcm::ImageReader &reader)
- int LoadSingleFile (const char *filename, char *pointer, unsigned long &outlen)
- int RequestDataCompat ()
- int RequestInformationCompat ()
- void SetFilePattern (const char *)
- void SetFilePrefix (const char *)
- vtkGetStringMacro (FilePattern)
- vtkGetStringMacro (FilePrefix)
- vtkSetVector6Macro (ImageOrientationPatient, double)

Additional Inherited Members

Protected Attributes inherited from vtkGDCMImageReader

- int ApplyInverseVideo
- int ApplyLookupTable
- int ApplyPlanarConfiguration
- int ApplyShiftScale
- int ApplyYBRToRGB
- vtkPolyData * Curve
- vtkMatrix4x4 * DirectionCosines
- vtkStringArray * FileNames
- int ForceRescale
- int IconDataScalarType
- int IconImageDataExtent [6]
- int IconNumberOfScalarComponents
- int ImageFormat
- double ImageOrientationPatient [6]
- double ImagePositionPatient [3]
- int LoadIconImage
- int LoadOverlays
- int LossyFlag
- vtkMedicalImageProperties * MedicalImageProperties
- int NumberOfIconImages
- int NumberOfOverlays
- int PlanarConfiguration
- double Scale
- double Shift

12.391.1 Constructor & Destructor Documentation

12.391.1.1 vtkGDCMThreadedImageReader()

```
vtkGDCMThreadedImageReader::vtkGDCMThreadedImageReader ()  [protected]
```

Referenced by New(), RequestDataCompat(), and vtkTypeMacro().

12.391.1.2 ~vtkGDCMThreadedImageReader()

```
vtkGDCMThreadedImageReader::~vtkGDCMThreadedImageReader ()  [protected]
```

12.391.2 Member Function Documentation

12.391.2.1 ExecuteData()

```
void vtkGDCMThreadedImageReader::ExecuteData (
            vtkDataObject * out)  [protected]
```

12.391.2.2 ExecuteInformation()

```
void vtkGDCMThreadedImageReader::ExecuteInformation ()  [protected]
```

12.391.2.3 New()

```
vtkGDCMThreadedImageReader * vtkGDCMThreadedImageReader::New ()  [static]
```

References vtkGDCMThreadedImageReader().

12.391.2.4 PrintSelf()

```
virtual void vtkGDCMThreadedImageReader::PrintSelf (
            ostream & os,
            vtkIndent indent)  [virtual]
```

Reimplemented from vtkGDCMImageReader.

12.391.2.5 ReadFiles()

```
void vtkGDCMThreadedImageReader::ReadFiles (
            unsigned int nfiles,
            const char * filenames[])  [protected]
```

12.391.2.6 RequestDataCompat()

```
void vtkGDCMThreadedImageReader::RequestDataCompat ()  [protected]
```

References vtkGDCMThreadedImageReader().

12.391.2.7 vtkBooleanMacro()

```
vtkGDCMThreadedImageReader::vtkBooleanMacro (
            UseShiftScale ,
            int )
```

12.391.2.8 vtkGetMacro()

```
vtkGDCMThreadedImageReader::vtkGetMacro (
            UseShiftScale ,
            int )
```

12.391.2.9 vtkSetMacro() [1/3]

```
vtkGDCMThreadedImageReader::vtkSetMacro (
            Scale ,
            double )
```

References vtkGDCMImageReader::Scale.

12.391.2.10 vtkSetMacro() [2/3]

```
vtkGDCMThreadedImageReader::vtkSetMacro (
            Shift ,
            double )
```

References vtkGDCMImageReader::Shift.

12.391.2.11 vtkSetMacro() [3/3]

```
vtkGDCMThreadedImageReader::vtkSetMacro (
            UseShiftScale ,
            int )
```

12.391.2.12 vtkTypeMacro()

```
vtkGDCMThreadedImageReader::vtkTypeMacro (
            vtkGDCMThreadedImageReader ,
            vtkGDCMImageReader )
```

References vtkGDCMImageReader::vtkGDCMImageReader(), and vtkGDCMThreadedImageReader().

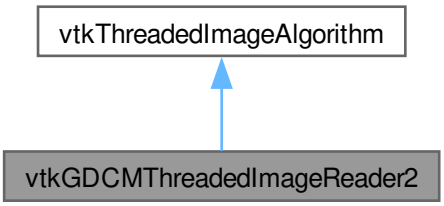
The documentation for this class was generated from the following file:

- vtkGDCMThreadedImageReader.h

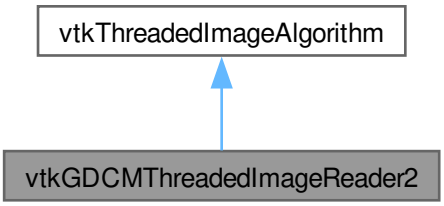
12.392 vtkGDCMThreadedImageReader2 Class Reference

`#include <vtkGDCMThreadedImageReader2.h>`

Inheritance diagram for vtkGDCMThreadedImageReader2:



Collaboration diagram for vtkGDCMThreadedImageReader2:



Public Member Functions

- virtual const char * GetFileName (int i=0)
- virtual void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetFileName (const char *filename)
- virtual void SetFileNames (vtkStringArray *)
- int SplitExtent (int splitExt[6], int startExt[6], int num, int total)
- vtkBooleanMacro (FileLowerLeft, int)
- vtkBooleanMacro (LoadOverlays, int)
- vtkBooleanMacro (UseShiftScale, int)
- vtkGetMacro (DataScalarType, int)
- vtkGetMacro (FileLowerLeft, int)
- vtkGetMacro (LoadOverlays, int)

- vtkGetMacro (NumberOfOverlays, int)
- vtkGetMacro (NumberOfScalarComponents, int)
- vtkGetMacro (Scale, double)
- vtkGetMacro (Shift, double)
- vtkGetMacro (UseShiftScale, int)
- vtkGetObjectMacro (FileNames, vtkStringArray)
- vtkGetVector3Macro (DataOrigin, double)
- vtkGetVector3Macro (DataSpacing, double)
- vtkGetVector6Macro (DataExtent, int)
- vtkSetMacro (DataScalarType, int)
- vtkSetMacro (FileLowerLeft, int)
- vtkSetMacro (LoadOverlays, int)
- vtkSetMacro (NumberOfScalarComponents, int)
- vtkSetMacro (Scale, double)
- vtkSetMacro (Shift, double)
- vtkSetMacro (UseShiftScale, int)
- vtkSetVector3Macro (DataOrigin, double)
- vtkSetVector3Macro (DataSpacing, double)
- vtkSetVector6Macro (DataExtent, int)
- vtkTypeMacro (vtkGDCMThreadedImageReader2, vtkThreadedImageAlgorithm)

Static Public Member Functions

- static vtkGDCMThreadedImageReader2 * New ()

Protected Member Functions

- vtkGDCMThreadedImageReader2 ()
- ~vtkGDCMThreadedImageReader2 ()
- int RequestInformation (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector)
- void ThreadedRequestData (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector, vtkImageData ***inData, vtkImageData **outData, int outExt[6], int id)

12.392.1 Constructor & Destructor Documentation

12.392.1.1 vtkGDCMThreadedImageReader2()

```
vtkGDCMThreadedImageReader2::vtkGDCMThreadedImageReader2 ()  [protected]
```

Referenced by New(), ThreadedRequestData(), and vtkTypeMacro().

12.392.1.2 ~vtkGDCMThreadedImageReader2()

```
vtkGDCMThreadedImageReader2::~vtkGDCMThreadedImageReader2 ()  [protected]
```

12.392.2 Member Function Documentation

12.392.2.1 GetFileName()

```
virtual const char * vtkGDCMThreadedImageReader2::GetFileName (
            int i = 0)  [virtual]
```

12.392.2.2 New()

```
vtkGDCMThreadedImageReader2 * vtkGDCMThreadedImageReader2::New ()  [static]
```

References vtkGDCMThreadedImageReader2().

12.392.2.3 PrintSelf()

```
virtual void vtkGDCMThreadedImageReader2::PrintSelf (
            ostream & os,
            vtkIndent indent)  [virtual]
```

12.392.2.4 RequestInformation()

```
int vtkGDCMThreadedImageReader2::RequestInformation (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector)  [protected]
```

12.392.2.5 SetFileName()

```
virtual void vtkGDCMThreadedImageReader2::SetFileName (
            const char * filename)  [virtual]
```

12.392.2.6 SetFileNames()

```
virtual void vtkGDCMThreadedImageReader2::SetFileNames (
            vtkStringArray * )  [virtual]
```

12.392.2.7 SplitExtent()

```
int vtkGDCMThreadedImageReader2::SplitExtent (
            int splitExt[6],
            int startExt[6],
            int num,
            int total)
```

12.392.2.8 ThreadedRequestData()

```
void vtkGDCMThreadedImageReader2::ThreadedRequestData (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector,
            vtkImageData *** inData,
            vtkImageData ** outData,
            int outExt[6],
            int id)  [protected]
```

References vtkGDCMThreadedImageReader2().

12.392.2.9 vtkBooleanMacro() [1/3]

```
vtkGDCMThreadedImageReader2::vtkBooleanMacro (
            FileLowerLeft ,
            int )
```

12.392.2.10 vtkBooleanMacro() [2/3]

```
vtkGDCMThreadedImageReader2::vtkBooleanMacro (
            LoadOverlays ,
            int )
```

12.392.2.11 vtkBooleanMacro() [3/3]

```
vtkGDCMThreadedImageReader2::vtkBooleanMacro (
            UseShiftScale ,
            int )
```

12.392.2.12 vtkGetMacro() [1/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            DataScalarType ,
            int )
```

12.392.2.13 vtkGetMacro() [2/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            FileLowerLeft ,
            int )
```

12.392.2.14 vtkGetMacro() [3/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            LoadOverlays ,
            int )
```

12.392.2.15 vtkGetMacro() [4/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            NumberOfOverlays ,
            int )
```

12.392.2.16 vtkGetMacro() [5/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            NumberOfScalarComponents ,
            int )
```

12.392.2.17 vtkGetMacro() [6/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            Scale ,
            double )
```

12.392.2.18 vtkGetMacro() [7/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            Shift ,
            double )
```

12.392.2.19 vtkGetMacro() [8/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            UseShiftScale ,
            int )
```

12.392.2.20 vtkGetObjectMacro()

```
vtkGDCMThreadedImageReader2::vtkGetObjectMacro (
            FileNames ,
            vtkStringArray )
```

12.392.2.21 vtkGetVector3Macro() [1/2]

```
vtkGDCMThreadedImageReader2::vtkGetVector3Macro (
            DataOrigin ,
            double )
```

12.392.2.22 vtkGetVector3Macro() [2/2]

```
vtkGDCMThreadedImageReader2::vtkGetVector3Macro (
            DataSpacing ,
            double )
```

12.392.2.23 vtkGetVector6Macro()

```
vtkGDCMThreadedImageReader2::vtkGetVector6Macro (
            DataExtent ,
            int )
```

12.392.2.24 vtkSetMacro() [1/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            DataScalarType ,
            int )
```

12.392.2.25 vtkSetMacro() [2/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            FileLowerLeft ,
            int )
```

12.392.2.26 vtkSetMacro() [3/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            LoadOverlays ,
            int )
```

12.392.2.27 vtkSetMacro() [4/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            NumberOfScalarComponents ,
            int )
```

12.392.2.28 vtkSetMacro() [5/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            Scale ,
            double )
```

12.392.2.29 vtkSetMacro() [6/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            Shift ,
            double )
```

12.392.2.30 vtkSetMacro() [7/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            UseShiftScale ,
            int )
```

12.392.2.31 vtkSetVector3Macro() [1/2]

```
vtkGDCMThreadedImageReader2::vtkSetVector3Macro (
            DataOrigin ,
            double )
```

12.392.2.32 vtkSetVector3Macro() [2/2]

```
vtkGDCMThreadedImageReader2::vtkSetVector3Macro (
            DataSpacing ,
            double )
```

12.392.2.33 vtkSetVector6Macro()

```
vtkGDCMThreadedImageReader2::vtkSetVector6Macro (
            DataExtent ,
            int )
```

12.392.2.34 vtkTypeMacro()

```
vtkGDCMThreadedImageReader2::vtkTypeMacro (
            vtkGDCMThreadedImageReader2 ,
            vtkThreadedImageAlgorithm )
```

References vtkGDCMThreadedImageReader2().

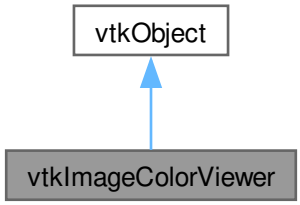
The documentation for this class was generated from the following file:

- vtkGDCMThreadedImageReader2.h

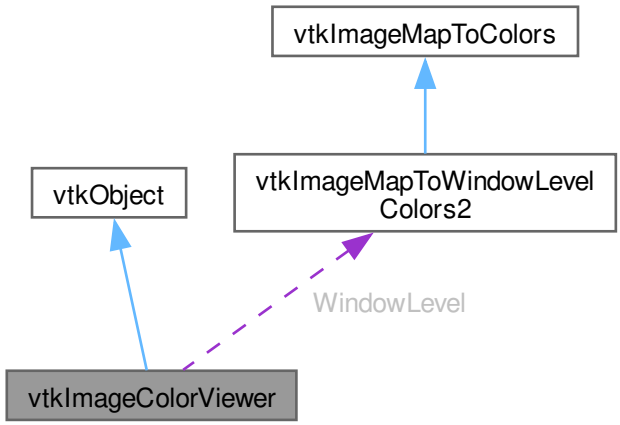
12.393 vtkImageColorViewer Class Reference

`#include <vtkImageColorViewer.h>`

Inheritance diagram for vtkImageColorViewer:



Collaboration diagram for vtkImageColorViewer:



Public Types

- enum {
  SLICE_ORIENTATION_YZ = 0 ,
  SLICE_ORIENTATION_XZ = 1 ,
  SLICE_ORIENTATION_XY = 2 }

Public Member Functions

- virtual void AddInput (vtkImageData ∗input)
- virtual void AddInputConnection (vtkAlgorithmOutput ∗input)
- virtual double GetColorLevel ()
- virtual double GetColorWindow ()
- virtual vtkImageData ∗ GetInput ()
- virtual int GetOffScreenRendering ()
- double GetOverlayVisibility ()
- virtual int ∗ GetPosition ()
- virtual int ∗ GetSize ()
- virtual int GetSliceMax ()
- virtual int GetSliceMin ()
- virtual int ∗ GetSliceRange ()
- virtual void GetSliceRange (int &min, int &max)
- virtual void GetSliceRange (int range[2])
- virtual const char ∗ GetWindowName ()
- void PrintSelf (ostream &os, vtkIndent indent)
- virtual void Render (void)
- virtual void SetColorLevel (double s)
- virtual void SetColorWindow (double s)
- virtual void SetDisplayId (void ∗a)
- virtual void SetInput (vtkImageData ∗in)
- virtual void SetInputConnection (vtkAlgorithmOutput ∗input)
- virtual void SetOffScreenRendering (int)
- void SetOverlayVisibility (double vis)
- virtual void SetParentId (void ∗a)
- virtual void SetPosition (int a, int b)
- virtual void SetPosition (int a[2])
- virtual void SetRenderer (vtkRenderer ∗arg)
- virtual void SetRenderWindow (vtkRenderWindow ∗arg)
- virtual void SetSize (int a, int b)
- virtual void SetSize (int a[2])
- virtual void SetSlice (int s)
- virtual void SetSliceOrientation (int orientation)
- virtual void SetSliceOrientationToXY ()
- virtual void SetSliceOrientationToXZ ()
- virtual void SetSliceOrientationToYZ ()
- virtual void SetupInteractor (vtkRenderWindowInteractor ∗)
- virtual void SetWindowId (void ∗a)
- virtual void UpdateDisplayExtent ()
- vtkBooleanMacro (OffScreenRendering, int)
- vtkGetMacro (Slice, int)
- vtkGetMacro (SliceOrientation, int)
- vtkGetObjectMacro (ImageActor, vtkImageActor)
- vtkGetObjectMacro (InteractorStyle, vtkInteractorStyleImage)
- vtkGetObjectMacro (Renderer, vtkRenderer)
- vtkGetObjectMacro (RenderWindow, vtkRenderWindow)
- vtkGetObjectMacro (WindowLevel, vtkImageMapToWindowLevelColors2)
- vtkTypeMacro (vtkImageColorViewer, vtkObject)

Static Public Member Functions

- static vtkImageColorViewer * New ()

Protected Member Functions

- vtkImageColorViewer ()
- ~vtkImageColorViewer ()
- virtual void InstallPipeline ()
- virtual void UnInstallPipeline ()
- virtual void UpdateOrientation ()

Protected Attributes

- int FirstRender
- vtkImageActor * ImageActor
- vtkRenderWindowInteractor * Interactor
- vtkInteractorStyleImage * InteractorStyle
- vtkImageActor * OverlayImageActor
- vtkRenderer * Renderer
- vtkRenderWindow * RenderWindow
- int Slice
- int SliceOrientation
- vtkImageMapToWindowLevelColors2 * WindowLevel

Friends

- class vtkImageColorViewerCallback

12.393.1 Detailed Description

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.393.2 Member Enumeration Documentation

12.393.2.1 anonymous enum

```
anonymous enum
```

Enumerator

SLICE_ORIENTATION_YZ	
SLICE_ORIENTATION_XZ	
SLICE_ORIENTATION_XY	

12.393.3 Constructor & Destructor Documentation

12.393.3.1 vtkImageColorViewer()

```
vtkImageColorViewer::vtkImageColorViewer ()  [protected]
```

Referenced by New(), vtkImageColorViewerCallback, and vtkTypeMacro().

12.393.3.2 ~vtkImageColorViewer()

```
vtkImageColorViewer::~vtkImageColorViewer ()  [protected]
```

12.393.4 Member Function Documentation

12.393.4.1 AddInput()

```
virtual void vtkImageColorViewer::AddInput (
            vtkImageData * input)  [virtual]
```

12.393.4.2 AddInputConnection()

```
virtual void vtkImageColorViewer::AddInputConnection (
            vtkAlgorithmOutput * input)  [virtual]
```

12.393.4.3 GetColorLevel()

```
virtual double vtkImageColorViewer::GetColorLevel ()  [virtual]
```

12.393.4.4 GetColorWindow()

```
virtual double vtkImageColorViewer::GetColorWindow ()  [virtual]
```

12.393.4.5 GetInput()

```
virtual vtkImageData * vtkImageColorViewer::GetInput ()  [virtual]
```

12.393.4.6 GetOffScreenRendering()

```
virtual int vtkImageColorViewer::GetOffScreenRendering ()  [virtual]
```

12.393.4.7 GetOverlayVisibility()

```
double vtkImageColorViewer::GetOverlayVisibility ()
```

12.393.4.8 GetPosition()

```
virtual int * vtkImageColorViewer::GetPosition ()  [virtual]
```

12.393.4.9 GetSize()

```
virtual int * vtkImageColorViewer::GetSize ()  [virtual]
```

12.393.4.10 GetSliceMax()

```
virtual int vtkImageColorViewer::GetSliceMax ()  [virtual]
```

12.393.4.11 GetSliceMin()

```
virtual int vtkImageColorViewer::GetSliceMin ()  [virtual]
```

12.393.4.12 GetSliceRange() [1/3]

```
virtual int * vtkImageColorViewer::GetSliceRange ()  [virtual]
```

12.393.4.13 GetSliceRange() [2/3]

```
virtual void vtkImageColorViewer::GetSliceRange (
            int & min,
            int & max)  [virtual]
```

12.393.4.14 GetSliceRange() [3/3]

```
virtual void vtkImageColorViewer::GetSliceRange (
            int range[2])  [inline], [virtual]
```

References GetSliceRange().

Referenced by GetSliceRange().

12.393.4.15 GetWindowName()

```
virtual const char * vtkImageColorViewer::GetWindowName ()  [virtual]
```

12.393.4.16 InstallPipeline()

```
virtual void vtkImageColorViewer::InstallPipeline ()  [protected], [virtual]
```

12.393.4.17 New()

```
vtkImageColorViewer * vtkImageColorViewer::New ()  [static]
```

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

References vtkImageColorViewer().

12.393.4.18 PrintSelf()

```
void vtkImageColorViewer::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.393.4.19 Render()

```
virtual void vtkImageColorViewer::Render (
            void )  [virtual]
```

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.393.4.20 SetColorLevel()

```
virtual void vtkImageColorViewer::SetColorLevel (
            double s)  [virtual]
```

12.393.4.21 SetColorWindow()

```
virtual void vtkImageColorViewer::SetColorWindow (
            double s)  [virtual]
```

12.393.4.22 SetDisplayId()

```
virtual void vtkImageColorViewer::SetDisplayId (
            void * a)  [virtual]
```

12.393.4.23 SetInput()

```
virtual void vtkImageColorViewer::SetInput (
            vtkImageData * in)  [virtual]
```

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.393.4.24 SetInputConnection()

```
virtual void vtkImageColorViewer::SetInputConnection (
            vtkAlgorithmOutput * input)  [virtual]
```

12.393.4.25 SetOffScreenRendering()

```
virtual void vtkImageColorViewer::SetOffScreenRendering (
            int )  [virtual]
```

12.393.4.26 SetOverlayVisibility()

```
void vtkImageColorViewer::SetOverlayVisibility (
            double vis)
```

12.393.4.27 SetParentId()

```
virtual void vtkImageColorViewer::SetParentId (
            void * a)  [virtual]
```

12.393.4.28 SetPosition() [1/2]

```
virtual void vtkImageColorViewer::SetPosition (
            int a,
            int b)  [virtual]
```

12.393.4.29 SetPosition() [2/2]

```
virtual void vtkImageColorViewer::SetPosition (
            int a[2])  [inline], [virtual]
```

References SetPosition().

Referenced by SetPosition().

12.393.4.30 SetRenderer()

```
virtual void vtkImageColorViewer::SetRenderer (
            vtkRenderer * arg)  [virtual]
```

12.393.4.31 SetRenderWindow()

```
virtual void vtkImageColorViewer::SetRenderWindow (
            vtkRenderWindow * arg)  [virtual]
```

12.393.4.32 SetSize() [1/2]

```
virtual void vtkImageColorViewer::SetSize (
            int a,
            int b)  [virtual]
```

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.393.4.33 SetSize() [2/2]

```
virtual void vtkImageColorViewer::SetSize (
            int a[2])  [inline], [virtual]
```

References SetSize().

Referenced by SetSize().

12.393.4.34 SetSlice()

```
virtual void vtkImageColorViewer::SetSlice (
            int s)  [virtual]
```

12.393.4.35 SetSliceOrientation()

```
virtual void vtkImageColorViewer::SetSliceOrientation (
            int orientation)  [virtual]
```

Referenced by SetSliceOrientationToXY(), SetSliceOrientationToXZ(), and SetSliceOrientationToYZ().

12.393.4.36 SetSliceOrientationToXY()

```
virtual void vtkImageColorViewer::SetSliceOrientationToXY ()  [inline], [virtual]
```

References SetSliceOrientation(), and SLICE_ORIENTATION_XY.

12.393.4.37 SetSliceOrientationToXZ()

```
virtual void vtkImageColorViewer::SetSliceOrientationToXZ ()  [inline], [virtual]
```

References SetSliceOrientation(), and SLICE_ORIENTATION_XZ.

12.393.4.38 SetSliceOrientationToYZ()

```
virtual void vtkImageColorViewer::SetSliceOrientationToYZ ()  [inline], [virtual]
```

References SetSliceOrientation(), and SLICE_ORIENTATION_YZ.

12.393.4.39 SetupInteractor()

```
virtual void vtkImageColorViewer::SetupInteractor (
            vtkRenderWindowInteractor * )  [virtual]
```

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.393.4.40 SetWindowId()

```
virtual void vtkImageColorViewer::SetWindowId (
            void * a)  [virtual]
```

12.393.4.41 UnInstallPipeline()

```
virtual void vtkImageColorViewer::UnInstallPipeline ()  [protected], [virtual]
```

12.393.4.42 UpdateDisplayExtent()

```
virtual void vtkImageColorViewer::UpdateDisplayExtent ()  [virtual]
```

12.393.4.43 UpdateOrientation()

```
virtual void vtkImageColorViewer::UpdateOrientation ()  [protected], [virtual]
```

12.393.4.44 vtkBooleanMacro()

```
vtkImageColorViewer::vtkBooleanMacro (
            OffScreenRendering ,
            int )
```

12.393.4.45 vtkGetMacro() [1/2]

```
vtkImageColorViewer::vtkGetMacro (
            Slice ,
            int )
```

References Slice.

12.393.4.46 vtkGetMacro() [2/2]

```
vtkImageColorViewer::vtkGetMacro (
            SliceOrientation ,
            int )
```

References SliceOrientation.

12.393.4.47 vtkGetObjectMacro() [1/5]

```
vtkImageColorViewer::vtkGetObjectMacro (
            ImageActor ,
            vtkImageActor )
```

References ImageActor.

12.393.4.48 vtkGetObjectMacro() [2/5]

```
vtkImageColorViewer::vtkGetObjectMacro (
            InteractorStyle ,
            vtkInteractorStyleImage )
```

References InteractorStyle.

12.393.4.49 vtkGetObjectMacro() [3/5]

```
vtkImageColorViewer::vtkGetObjectMacro (
            Renderer ,
            vtkRenderer )
```

References Renderer.

12.393.4.50 vtkGetObjectMacro() [4/5]

```
vtkImageColorViewer::vtkGetObjectMacro (
            RenderWindow ,
            vtkRenderWindow )
```

References RenderWindow.

12.393.4.51 vtkGetObjectMacro() [5/5]

```
vtkImageColorViewer::vtkGetObjectMacro (
            WindowLevel ,
            vtkImageMapToWindowLevelColors2 )
```

References WindowLevel.

12.393.4.52 vtkTypeMacro()

```
vtkImageColorViewer::vtkTypeMacro (
            vtkImageColorViewer ,
            vtkObject )
```

References vtkImageColorViewer().

12.393.5 Friends And Related Symbol Documentation

12.393.5.1 vtkImageColorViewerCallback

```
friend class vtkImageColorViewerCallback  [friend]
```

References vtkImageColorViewer(), and vtkImageColorViewerCallback.

Referenced by vtkImageColorViewerCallback.

12.393.6 Member Data Documentation

12.393.6.1 FirstRender

```
int vtkImageColorViewer::FirstRender  [protected]
```

12.393.6.2 ImageActor

```
vtkImageActor* vtkImageColorViewer::ImageActor  [protected]
```

Referenced by vtkGetObjectMacro().

12.393.6.3 Interactor

```
vtkRenderWindowInteractor* vtkImageColorViewer::Interactor  [protected]
```

12.393.6.4 InteractorStyle

```
vtkInteractorStyleImage* vtkImageColorViewer::InteractorStyle  [protected]
```

Referenced by vtkGetObjectMacro().

12.393.6.5 OverlayImageActor

```
vtkImageActor* vtkImageColorViewer::OverlayImageActor  [protected]
```

12.393.6.6 Renderer

```
vtkRenderer* vtkImageColorViewer::Renderer  [protected]
```

Referenced by vtkGetObjectMacro().

12.393.6.7 RenderWindow

```
vtkRenderWindow* vtkImageColorViewer::RenderWindow  [protected]
```

Referenced by vtkGetObjectMacro().

12.393.6.8 Slice

```
int vtkImageColorViewer::Slice  [protected]
```

Referenced by vtkGetMacro().

12.393.6.9 SliceOrientation

```
int vtkImageColorViewer::SliceOrientation  [protected]
```

Referenced by vtkGetMacro().

12.393.6.10 WindowLevel

```
vtkImageMapToWindowLevelColors2* vtkImageColorViewer::WindowLevel  [protected]
```

Referenced by vtkGetObjectMacro().

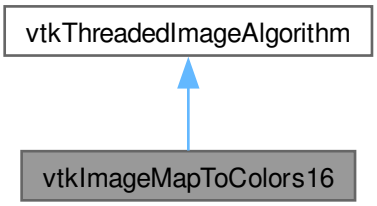
The documentation for this class was generated from the following file:

- vtkImageColorViewer.h

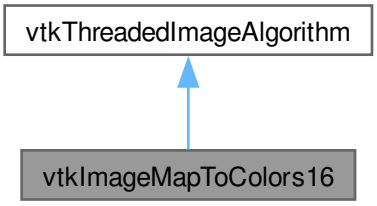
12.394 vtkImageMapToColors16 Class Reference

```
#include <vtkImageMapToColors16.h>
```

Inheritance diagram for vtkImageMapToColors16:



Collaboration diagram for vtkImageMapToColors16:



Public Member Functions

- virtual unsigned long GetMTime ()
- void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetLookupTable (vtkScalarsToColors *)
- void SetOutputFormatToLuminance ()
- void SetOutputFormatToLuminanceAlpha ()
- void SetOutputFormatToRGB ()
- void SetOutputFormatToRGBA ()
- vtkBooleanMacro (PassAlphaToOutput, int)
- vtkGetMacro (ActiveComponent, int)
- vtkGetMacro (OutputFormat, int)
- vtkGetMacro (PassAlphaToOutput, int)
- vtkGetObjectMacro (LookupTable, vtkScalarsToColors)
- vtkSetMacro (ActiveComponent, int)
- vtkSetMacro (OutputFormat, int)
- vtkSetMacro (PassAlphaToOutput, int)
- vtkTypeMacro (vtkImageMapToColors16, vtkThreadedImageAlgorithm)

Static Public Member Functions

- static vtkImageMapToColors16 * New ()

Protected Member Functions

- vtkImageMapToColors16 ()
- ~vtkImageMapToColors16 ()
- virtual int RequestData (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector)
- virtual int RequestInformation (vtkInformation *, vtkInformationVector **, vtkInformationVector *)
- void ThreadedRequestData (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector, vtkImageData ***inData, vtkImageData **outData, int extent[6], int id)

Protected Attributes

- int ActiveComponent
- int DataWasPassed
- vtkScalarsToColors * LookupTable
- int OutputFormat
- int PassAlphaToOutput

12.394.1 Constructor & Destructor Documentation

12.394.1.1 vtkImageMapToColors16()

```
vtkImageMapToColors16::vtkImageMapToColors16 ()  [protected]
```

Referenced by New(), and vtkTypeMacro().

12.394.1.2 ~vtkImageMapToColors16()

```
vtkImageMapToColors16::~vtkImageMapToColors16 ()  [protected]
```

12.394.2 Member Function Documentation

12.394.2.1 GetMTime()

```
virtual unsigned long vtkImageMapToColors16::GetMTime ()  [virtual]
```

Referenced by vtkGetMacro().

12.394.2.2 New()

```
vtkImageMapToColors16 * vtkImageMapToColors16::New ()  [static]
```

References vtkImageMapToColors16().

12.394.2.3 PrintSelf()

```
void vtkImageMapToColors16::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.394.2.4 RequestData()

```
virtual int vtkImageMapToColors16::RequestData (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector)  [protected], [virtual]
```

12.394.2.5 RequestInformation()

```
virtual int vtkImageMapToColors16::RequestInformation (
            vtkInformation * ,
            vtkInformationVector ** ,
            vtkInformationVector * )  [protected], [virtual]
```

12.394.2.6 SetLookupTable()

```
virtual void vtkImageMapToColors16::SetLookupTable (
            vtkScalarsToColors * )  [virtual]
```

12.394.2.7 SetOutputFormatToLuminance()

```
void vtkImageMapToColors16::SetOutputFormatToLuminance ()  [inline]
```

References OutputFormat.

12.394.2.8 SetOutputFormatToLuminanceAlpha()

```
void vtkImageMapToColors16::SetOutputFormatToLuminanceAlpha ()  [inline]
```

References OutputFormat.

12.394.2.9 SetOutputFormatToRGB()

```
void vtkImageMapToColors16::SetOutputFormatToRGB ()  [inline]
```

References OutputFormat.

12.394.2.10 SetOutputFormatToRGBA()

```
void vtkImageMapToColors16::SetOutputFormatToRGBA ()  [inline]
```

References OutputFormat.

12.394.2.11 ThreadedRequestData()

```
void vtkImageMapToColors16::ThreadedRequestData (
             vtkInformation * request,
             vtkInformationVector ** inputVector,
             vtkInformationVector * outputVector,
             vtkImageData *** inData,
             vtkImageData ** outData,
             int extent[6],
             int id)  [protected]
```

12.394.2.12 vtkBooleanMacro()

```
vtkImageMapToColors16::vtkBooleanMacro (
             PassAlphaToOutput ,
             int )
```

References PassAlphaToOutput.

12.394.2.13 vtkGetMacro() [1/3]

```
vtkImageMapToColors16::vtkGetMacro (
             ActiveComponent ,
             int )
```

References ActiveComponent.

12.394.2.14 vtkGetMacro() [2/3]

```
vtkImageMapToColors16::vtkGetMacro (
             OutputFormat ,
             int )
```

References OutputFormat.

12.394.2.15 vtkGetMacro() [3/3]

```
vtkImageMapToColors16::vtkGetMacro (
             PassAlphaToOutput ,
             int )
```

References GetMTime(), and PassAlphaToOutput.

12.394.2.16 vtkGetObjectMacro()

```
vtkImageMapToColors16::vtkGetObjectMacro (
            LookupTable ,
            vtkScalarsToColors )
```

References LookupTable.

12.394.2.17 vtkSetMacro() [1/3]

```
vtkImageMapToColors16::vtkSetMacro (
            ActiveComponent ,
            int )
```

References ActiveComponent.

12.394.2.18 vtkSetMacro() [2/3]

```
vtkImageMapToColors16::vtkSetMacro (
            OutputFormat ,
            int )
```

References OutputFormat.

12.394.2.19 vtkSetMacro() [3/3]

```
vtkImageMapToColors16::vtkSetMacro (
            PassAlphaToOutput ,
            int )
```

References PassAlphaToOutput.

12.394.2.20 vtkTypeMacro()

```
vtkImageMapToColors16::vtkTypeMacro (
            vtkImageMapToColors16 ,
            vtkThreadedImageAlgorithm )
```

References vtkImageMapToColors16().

12.394.3 Member Data Documentation

12.394.3.1 ActiveComponent

```
int vtkImageMapToColors16::ActiveComponent  [protected]
```

Referenced by vtkGetMacro(), and vtkSetMacro().

12.394.3.2 DataWasPassed

```
int vtkImageMapToColors16::DataWasPassed  [protected]
```

12.394.3.3 LookupTable

```
vtkScalarsToColors* vtkImageMapToColors16::LookupTable  [protected]
```

Referenced by vtkGetObjectMacro().

12.394.3.4 OutputFormat

```
int vtkImageMapToColors16::OutputFormat  [protected]
```

Referenced by SetOutputFormatToLuminance(), SetOutputFormatToLuminanceAlpha(), SetOutputFormatToRGB(), SetOutputFormatToRGBA(), vtkGetMacro(), and vtkSetMacro().

12.394.3.5 PassAlphaToOutput

```
int vtkImageMapToColors16::PassAlphaToOutput  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

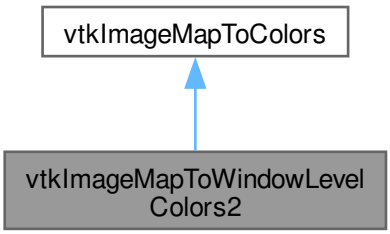
The documentation for this class was generated from the following file:

- vtkImageMapToColors16.h

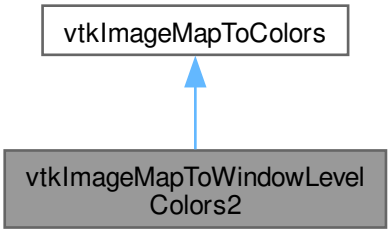
12.395 vtkImageMapToWindowLevelColors2 Class Reference

```
#include <vtkImageMapToWindowLevelColors2.h>
```

Inheritance diagram for vtkImageMapToWindowLevelColors2:



Collaboration diagram for vtkImageMapToWindowLevelColors2:



Public Member Functions

- void PrintSelf (ostream &os, vtkIndent indent)
- vtkGetMacro (Level, double)
- vtkGetMacro (Window, double)
- vtkSetMacro (Level, double)
- vtkSetMacro (Window, double)
- vtkTypeMacro (vtkImageMapToWindowLevelColors2, vtkImageMapToColors)

Static Public Member Functions

- static vtkImageMapToWindowLevelColors2 * New ()

Protected Member Functions

- vtkImageMapToWindowLevelColors2 ()
- ~vtkImageMapToWindowLevelColors2 ()
- virtual int RequestData (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector)
- virtual int RequestInformation (vtkInformation *, vtkInformationVector **, vtkInformationVector *)
- void ThreadedRequestData (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector, vtkImageData ***inData, vtkImageData **outData, int extent[6], int id)

Protected Attributes

- double Level
- double Window

12.395.1 Constructor & Destructor Documentation

12.395.1.1 vtkImageMapToWindowLevelColors2()

```
vtkImageMapToWindowLevelColors2::vtkImageMapToWindowLevelColors2 ()  [protected]
```

Referenced by New(), and vtkTypeMacro().

12.395.1.2 ~vtkImageMapToWindowLevelColors2()

```
vtkImageMapToWindowLevelColors2::~vtkImageMapToWindowLevelColors2 ()  [protected]
```

12.395.2 Member Function Documentation

12.395.2.1 New()

```
vtkImageMapToWindowLevelColors2 * vtkImageMapToWindowLevelColors2::New ()  [static]
```

References vtkImageMapToWindowLevelColors2().

12.395.2.2 PrintSelf()

```
void vtkImageMapToWindowLevelColors2::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.395.2.3 RequestData()

```
virtual int vtkImageMapToWindowLevelColors2::RequestData (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector)  [protected], [virtual]
```

12.395.2.4 RequestInformation()

```
virtual int vtkImageMapToWindowLevelColors2::RequestInformation (
            vtkInformation * ,
            vtkInformationVector ** ,
            vtkInformationVector * )  [protected], [virtual]
```

12.395.2.5 ThreadedRequestData()

```
void vtkImageMapToWindowLevelColors2::ThreadedRequestData (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector,
            vtkImageData *** inData,
            vtkImageData ** outData,
            int extent[6],
            int id)  [protected]
```

12.395.2.6 vtkGetMacro() [1/2]

```
vtkImageMapToWindowLevelColors2::vtkGetMacro (
            Level ,
            double )
```

References Level.

12.395.2.7 vtkGetMacro() [2/2]

```
vtkImageMapToWindowLevelColors2::vtkGetMacro (
            Window ,
            double )
```

References Window.

12.395.2.8 vtkSetMacro() [1/2]

```
vtkImageMapToWindowLevelColors2::vtkSetMacro (
            Level ,
            double )
```

References Level.

12.395.2.9 vtkSetMacro() [2/2]

```
vtkImageMapToWindowLevelColors2::vtkSetMacro (
            Window ,
            double )
```

References Window.

12.395.2.10 vtkTypeMacro()

```
vtkImageMapToWindowLevelColors2::vtkTypeMacro (
            vtkImageMapToWindowLevelColors2 ,
            vtkImageMapToColors )
```

References vtkImageMapToWindowLevelColors2().

12.395.3 Member Data Documentation

12.395.3.1 Level

```
double vtkImageMapToWindowLevelColors2::Level  [protected]
```

Referenced by vtkGetMacro(), and vtkSetMacro().

12.395.3.2 Window

```
double vtkImageMapToWindowLevelColors2::Window  [protected]
```

Referenced by vtkGetMacro(), and vtkSetMacro().

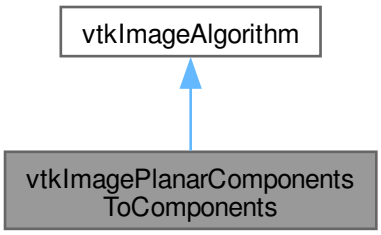
The documentation for this class was generated from the following file:

- vtkImageMapToWindowLevelColors2.h

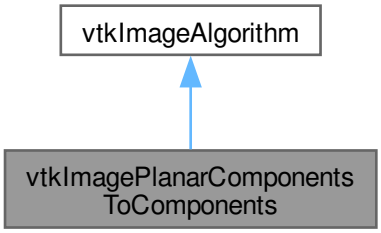
12.396 vtkImagePlanarComponentsToComponents Class Reference

```
#include <vtkImagePlanarComponentsToComponents.h>
```

Inheritance diagram for vtkImagePlanarComponentsToComponents:



Collaboration diagram for vtkImagePlanarComponentsToComponents:



Public Member Functions

- void PrintSelf (ostream &os, vtkIndent indent)
- vtkTypeMacro (vtkImagePlanarComponentsToComponents, vtkImageAlgorithm)

Static Public Member Functions

- static vtkImagePlanarComponentsToComponents * New ()

Protected Member Functions

- vtkImagePlanarComponentsToComponents ()
- ~vtkImagePlanarComponentsToComponents ()
- virtual int RequestData (vtkInformation *, vtkInformationVector **, vtkInformationVector *)

12.396.1 Constructor & Destructor Documentation

12.396.1.1 vtkImagePlanarComponentsToComponents()

```
vtkImagePlanarComponentsToComponents::vtkImagePlanarComponentsToComponents () [protected]
```

Referenced by New(), RequestData(), and vtkTypeMacro().

12.396.1.2 ~vtkImagePlanarComponentsToComponents()

```
vtkImagePlanarComponentsToComponents::~vtkImagePlanarComponentsToComponents () [inline], [protected]
```

12.396.2 Member Function Documentation

12.396.2.1 New()

```
vtkImagePlanarComponentsToComponents * vtkImagePlanarComponentsToComponents::New ()  [static]
```

References vtkImagePlanarComponentsToComponents().

12.396.2.2 PrintSelf()

```
void vtkImagePlanarComponentsToComponents::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.396.2.3 RequestData()

```
virtual int vtkImagePlanarComponentsToComponents::RequestData (
            vtkInformation * ,
            vtkInformationVector ** ,
            vtkInformationVector * )  [protected], [virtual]
```

References vtkImagePlanarComponentsToComponents().

12.396.2.4 vtkTypeMacro()

```
vtkImagePlanarComponentsToComponents::vtkTypeMacro (
            vtkImagePlanarComponentsToComponents ,
            vtkImageAlgorithm )
```

References vtkImagePlanarComponentsToComponents().

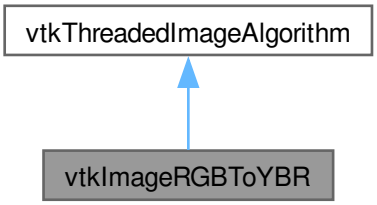
The documentation for this class was generated from the following file:

- vtkImagePlanarComponentsToComponents.h

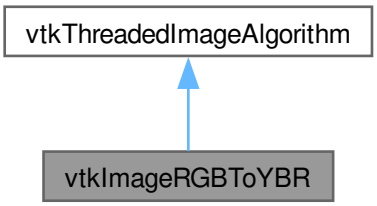
12.397 vtkImageRGBToYBR Class Reference

`#include <vtkImageRGBToYBR.h>`

Inheritance diagram for vtkImageRGBToYBR:



Collaboration diagram for vtkImageRGBToYBR:



Public Member Functions

- void PrintSelf (ostream &os, vtkIndent indent)
- vtkTypeMacro (vtkImageRGBToYBR, vtkThreadedImageAlgorithm)

Static Public Member Functions

- static vtkImageRGBToYBR * New ()

Protected Member Functions

- vtkImageRGBToYBR ()
- ∼vtkImageRGBToYBR ()
- void ThreadedExecute (vtkImageData ∗inData, vtkImageData ∗outData, int ext[6], int id)

12.397.1 Constructor & Destructor Documentation

12.397.1.1 vtkImageRGBToYBR()

```
vtkImageRGBToYBR::vtkImageRGBToYBR ()  [protected]
```

Referenced by New(), ThreadedExecute(), and vtkTypeMacro().

12.397.1.2 ∼vtkImageRGBToYBR()

```
vtkImageRGBToYBR::∼vtkImageRGBToYBR ()  [inline], [protected]
```

12.397.2 Member Function Documentation

12.397.2.1 New()

```
vtkImageRGBToYBR * vtkImageRGBToYBR::New ()  [static]
```

References vtkImageRGBToYBR().

12.397.2.2 PrintSelf()

```
void vtkImageRGBToYBR::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.397.2.3 ThreadedExecute()

```
void vtkImageRGBToYBR::ThreadedExecute (
            vtkImageData * inData,
            vtkImageData * outData,
            int ext[6],
            int id)  [protected]
```

References vtkImageRGBToYBR().

12.397.2.4 vtkTypeMacro()

```
vtkImageRGBToYBR::vtkTypeMacro (
             vtkImageRGBToYBR ,
             vtkThreadedImageAlgorithm )
```

References vtkImageRGBToYBR().

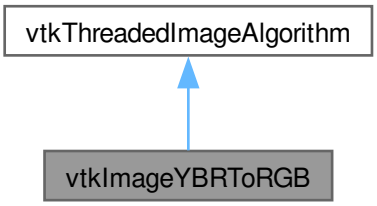
The documentation for this class was generated from the following file:

- vtkImageRGBToYBR.h

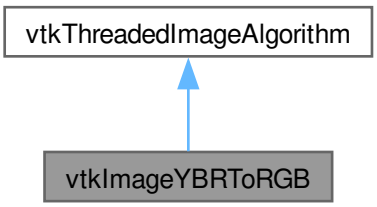
12.398 vtkImageYBRToRGB Class Reference

```
#include <vtkImageYBRToRGB.h>
```

Inheritance diagram for vtkImageYBRToRGB:



Collaboration diagram for vtkImageYBRToRGB:



Public Member Functions

- void PrintSelf (ostream &os, vtkIndent indent)
- vtkTypeMacro (vtkImageYBRToRGB, vtkThreadedImageAlgorithm)

Static Public Member Functions

- static vtkImageYBRToRGB * New ()

Protected Member Functions

- vtkImageYBRToRGB ()
- ~vtkImageYBRToRGB ()
- void ThreadedExecute (vtkImageData *inData, vtkImageData *outData, int ext[6], int id)

12.398.1 Constructor & Destructor Documentation

12.398.1.1 vtkImageYBRToRGB()

```
vtkImageYBRToRGB::vtkImageYBRToRGB ()  [protected]
```

Referenced by New(), ThreadedExecute(), and vtkTypeMacro().

12.398.1.2 ~vtkImageYBRToRGB()

```
vtkImageYBRToRGB::~vtkImageYBRToRGB ()  [inline], [protected]
```

12.398.2 Member Function Documentation

12.398.2.1 New()

```
vtkImageYBRToRGB * vtkImageYBRToRGB::New ()  [static]
```

References vtkImageYBRToRGB().

12.398.2.2 PrintSelf()

```
void vtkImageYBRToRGB::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.398.2.3 ThreadedExecute()

```
void vtkImageYBRToRGB::ThreadedExecute (
             vtkImageData * inData,
             vtkImageData * outData,
             int ext[6],
             int id)  [protected]
```

References vtkImageYBRToRGB().

12.398.2.4 vtkTypeMacro()

```
vtkImageYBRToRGB::vtkTypeMacro (
             vtkImageYBRToRGB ,
             vtkThreadedImageAlgorithm )
```

References vtkImageYBRToRGB().

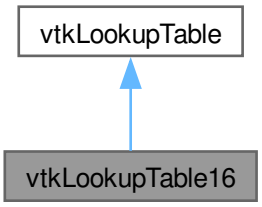
The documentation for this class was generated from the following file:

- vtkImageYBRToRGB.h

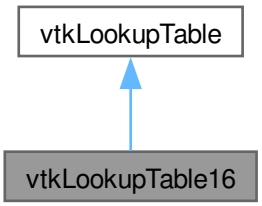
12.399 vtkLookupTable16 Class Reference

```
#include <vtkLookupTable16.h>
```

Inheritance diagram for vtkLookupTable16:



Collaboration diagram for vtkLookupTable16:



Public Member Functions

- void Build ()
- unsigned short * GetPointer (const vtkIdType id)
- void PrintSelf (ostream &os, vtkIndent indent)
- void SetNumberOfTableValues (vtkIdType number)
- vtkTypeMacro (vtkLookupTable16, vtkLookupTable)
- unsigned char * WritePointer (const vtkIdType id, const int number)

Static Public Member Functions

- static vtkLookupTable16 * New ()

Protected Member Functions

- vtkLookupTable16 (int sze=256, int ext=256)
- ~vtkLookupTable16 ()
- void MapScalarsThroughTable2 (void *input, unsigned char *output, int inputDataType, int numberOfValues, int inputIncrement, int outputFormat)

Protected Attributes

- vtkUnsignedShortArray * Table16

12.399.1 Constructor & Destructor Documentation

12.399.1.1 vtkLookupTable16()

```
vtkLookupTable16::vtkLookupTable16 (
            int sze = 256,
            int ext = 256)  [protected]
```

Referenced by MapScalarsThroughTable2(), New(), and vtkTypeMacro().

12.399.1.2 ~vtkLookupTable16()

```
vtkLookupTable16::~vtkLookupTable16 ()  [protected]
```

12.399.2 Member Function Documentation

12.399.2.1 Build()

```
void vtkLookupTable16::Build ()
```

12.399.2.2 GetPointer()

```
unsigned short * vtkLookupTable16::GetPointer (
            const vtkIdType id)  [inline]
```

References Table16.

12.399.2.3 MapScalarsThroughTable2()

```
void vtkLookupTable16::MapScalarsThroughTable2 (
            void * input,
            unsigned char * output,
            int inputDataType,
            int numberOfValues,
            int inputIncrement,
            int outputFormat)  [protected]
```

References vtkLookupTable16().

12.399.2.4 New()

```
vtkLookupTable16 * vtkLookupTable16::New ()  [static]
```

References vtkLookupTable16().

12.399.2.5 PrintSelf()

```
void vtkLookupTable16::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.399.2.6 SetNumberOfTableValues()

```
void vtkLookupTable16::SetNumberOfTableValues (
            vtkIdType number)
```

References WritePointer().

12.399.2.7 vtkTypeMacro()

```
vtkLookupTable16::vtkTypeMacro (
            vtkLookupTable16 ,
            vtkLookupTable )
```

References vtkLookupTable16().

12.399.2.8 WritePointer()

```
unsigned char * vtkLookupTable16::WritePointer (
            const vtkIdType id,
            const int number)  [inline]
```

References Table16.

Referenced by SetNumberOfTableValues().

12.399.3 Member Data Documentation

12.399.3.1 Table16

```
vtkUnsignedShortArray* vtkLookupTable16::Table16  [protected]
```

Referenced by GetPointer(), and WritePointer().

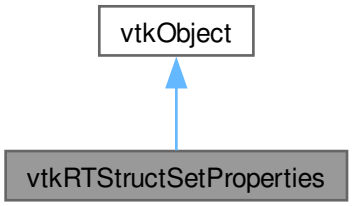
The documentation for this class was generated from the following file:

- vtkLookupTable16.h

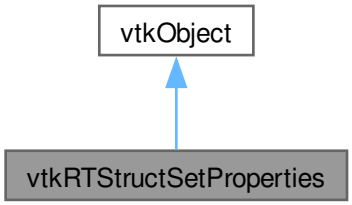
12.400 vtkRTStructSetProperties Class Reference

`#include <vtkRTStructSetProperties.h>`

Inheritance diagram for vtkRTStructSetProperties:



Collaboration diagram for vtkRTStructSetProperties:



Public Member Functions

- void AddContourReferencedFrameOfReference (vtkIdType pdnum, const char ∗classuid, const char ∗instanceuid)
- void AddReferencedFrameOfReference (const char ∗classuid, const char ∗instanceuid)
- void AddStructureSetROI (int roinumber, const char ∗reframerefuid, const char ∗roiname, const char ∗ROIGenerationAlgorithm, const char ∗ROIDescription=0)
- void AddStructureSetROIObservation (int refnumber, int observationnumber, const char ∗rtroiinterpretedtype, const char ∗roiinterpreter, const char ∗roiobservationlabel=0)
- virtual void Clear ()
- virtual void DeepCopy (vtkRTStructSetProperties ∗p)
- const char ∗ GetContourReferencedFrameOfReferenceClassUID (vtkIdType pdnum, vtkIdType id)
- const char ∗ GetContourReferencedFrameOfReferenceInstanceUID (vtkIdType pdnum, vtkIdType id)
- vtkIdType GetNumberOfContourReferencedFrameOfReferences ()

- vtkIdType GetNumberOfContourReferencedFrameOfReferences (vtkIdType pdnum)
- vtkIdType GetNumberOfReferencedFrameOfReferences ()
- vtkIdType GetNumberOfStructureSetROIs ()
- const char * GetReferencedFrameOfReferenceClassUID (vtkIdType id)
- const char * GetReferencedFrameOfReferenceInstanceUID (vtkIdType id)
- int GetStructureSetObservationNumber (vtkIdType id)
- const char * GetStructureSetROIDescription (vtkIdType id)
- const char * GetStructureSetROIGenerationAlgorithm (vtkIdType)
- const char * GetStructureSetROIName (vtkIdType)
- int GetStructureSetROINumber (vtkIdType id)
- const char * GetStructureSetROIObservationLabel (vtkIdType id)
- const char * GetStructureSetROIRefFrameRefUID (vtkIdType)
- const char * GetStructureSetRTROIInterpretedType (vtkIdType id)
- void PrintSelf (ostream &os, vtkIndent indent)
- vtkGetStringMacro (ReferenceFrameOfReferenceUID)
- vtkGetStringMacro (ReferenceSeriesInstanceUID)
- vtkGetStringMacro (SeriesInstanceUID)
- vtkGetStringMacro (SOPInstanceUID)
- vtkGetStringMacro (StructureSetDate)
- vtkGetStringMacro (StructureSetLabel)
- vtkGetStringMacro (StructureSetName)
- vtkGetStringMacro (StructureSetTime)
- vtkGetStringMacro (StudyInstanceUID)
- vtkSetStringMacro (ReferenceFrameOfReferenceUID)
- vtkSetStringMacro (ReferenceSeriesInstanceUID)
- vtkSetStringMacro (SeriesInstanceUID)
- vtkSetStringMacro (SOPInstanceUID)
- vtkSetStringMacro (StructureSetDate)
- vtkSetStringMacro (StructureSetLabel)
- vtkSetStringMacro (StructureSetName)
- vtkSetStringMacro (StructureSetTime)
- vtkSetStringMacro (StudyInstanceUID)
- vtkTypeMacro (vtkRTStructSetProperties, vtkObject)

Static Public Member Functions

- static vtkRTStructSetProperties * New ()

Protected Member Functions

- vtkRTStructSetProperties ()
- ~vtkRTStructSetProperties ()

Protected Attributes

- vtkRTStructSetPropertiesInternals * Internals
- char * ReferenceFrameOfReferenceUID
- char * ReferenceSeriesInstanceUID
- char * SeriesInstanceUID
- char * SOPInstanceUID
- char * StructureSetDate
- char * StructureSetLabel
- char * StructureSetName
- char * StructureSetTime
- char * StudyInstanceUID

12.400.1 Detailed Description

Examples

GenerateRTSTRUCT.cxx.

12.400.2 Constructor & Destructor Documentation

12.400.2.1 vtkRTStructSetProperties()

```
vtkRTStructSetProperties::vtkRTStructSetProperties ()  [protected]
```

Referenced by DeepCopy(), New(), and vtkTypeMacro().

12.400.2.2 ~vtkRTStructSetProperties()

```
vtkRTStructSetProperties::~vtkRTStructSetProperties ()  [protected]
```

12.400.3 Member Function Documentation

12.400.3.1 AddContourReferencedFrameOfReference()

```
void vtkRTStructSetProperties::AddContourReferencedFrameOfReference (
            vtkIdType pdnum,
            const char * classuid,
            const char * instanceuid)
```

12.400.3.2 AddReferencedFrameOfReference()

```
void vtkRTStructSetProperties::AddReferencedFrameOfReference (
            const char * classuid,
            const char * instanceuid)
```

12.400.3.3 AddStructureSetROI()

```
void vtkRTStructSetProperties::AddStructureSetROI (
            int roinumber,
            const char * reframerefuid,
            const char * roiname,
            const char * ROIGenerationAlgorithm,
            const char * ROIDescription = 0)
```

12.400.3.4 AddStructureSetROIObservation()

```
void vtkRTStructSetProperties::AddStructureSetROIObservation (
            int refnumber,
            int observationnumber,
            const char * rtroiinterpretedtype,
            const char * roiinterpreter,
            const char * roiobservationlabel = 0)
```

12.400.3.5 Clear()

```
virtual void vtkRTStructSetProperties::Clear ()  [virtual]
```

12.400.3.6 DeepCopy()

```
virtual void vtkRTStructSetProperties::DeepCopy (
            vtkRTStructSetProperties * p)  [virtual]
```

References vtkRTStructSetProperties().

12.400.3.7 GetContourReferencedFrameOfReferenceClassUID()

```
const char * vtkRTStructSetProperties::GetContourReferencedFrameOfReferenceClassUID (
            vtkIdType pdnum,
            vtkIdType id)
```

12.400.3.8 GetContourReferencedFrameOfReferenceInstanceUID()

```
const char * vtkRTStructSetProperties::GetContourReferencedFrameOfReferenceInstanceUID (
            vtkIdType pdnum,
            vtkIdType id)
```

12.400.3.9 GetNumberOfContourReferencedFrameOfReferences() [1/2]

```
vtkIdType vtkRTStructSetProperties::GetNumberOfContourReferencedFrameOfReferences ()
```

12.400.3.10 GetNumberOfContourReferencedFrameOfReferences() [2/2]

```
vtkIdType vtkRTStructSetProperties::GetNumberOfContourReferencedFrameOfReferences (
            vtkIdType pdnum)
```

12.400.3.11 GetNumberOfReferencedFrameOfReferences()

```
vtkIdType vtkRTStructSetProperties::GetNumberOfReferencedFrameOfReferences ()
```

12.400.3.12 GetNumberOfStructureSetROIs()

```
vtkIdType vtkRTStructSetProperties::GetNumberOfStructureSetROIs ()
```

12.400.3.13 GetReferencedFrameOfReferenceClassUID()

```
const char * vtkRTStructSetProperties::GetReferencedFrameOfReferenceClassUID (
            vtkIdType id)
```

12.400.3.14 GetReferencedFrameOfReferenceInstanceUID()

```
const char * vtkRTStructSetProperties::GetReferencedFrameOfReferenceInstanceUID (
            vtkIdType id)
```

12.400.3.15 GetStructureSetObservationNumber()

```
int vtkRTStructSetProperties::GetStructureSetObservationNumber (
            vtkIdType id)
```

12.400.3.16 GetStructureSetROIDescription()

```
const char * vtkRTStructSetProperties::GetStructureSetROIDescription (
            vtkIdType id)
```

12.400.3.17 GetStructureSetROIGenerationAlgorithm()

```
const char * vtkRTStructSetProperties::GetStructureSetROIGenerationAlgorithm (
            vtkIdType )
```

12.400.3.18 GetStructureSetROIName()

```
const char * vtkRTStructSetProperties::GetStructureSetROIName (
            vtkIdType )
```

12.400.3.19 GetStructureSetROINumber()

```
int vtkRTStructSetProperties::GetStructureSetROINumber (
            vtkIdType id)
```

12.400.3.20 GetStructureSetROIObservationLabel()

```
const char * vtkRTStructSetProperties::GetStructureSetROIObservationLabel (
            vtkIdType id)
```

12.400.3.21 GetStructureSetROIRefFrameRefUID()

```
const char * vtkRTStructSetProperties::GetStructureSetROIRefFrameRefUID (
            vtkIdType )
```

12.400.3.22 GetStructureSetRTROIInterpretedType()

```
const char * vtkRTStructSetProperties::GetStructureSetRTROIInterpretedType (
            vtkIdType id)
```

12.400.3.23 New()

```
vtkRTStructSetProperties * vtkRTStructSetProperties::New ()  [static]
```

Examples

GenerateRTSTRUCT.cxx.

References vtkRTStructSetProperties().

12.400.3.24 PrintSelf()

```
void vtkRTStructSetProperties::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.400.3.25 vtkGetStringMacro() [1/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            ReferenceFrameOfReferenceUID )
```

References ReferenceFrameOfReferenceUID.

12.400.3.26 vtkGetStringMacro() [2/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            ReferenceSeriesInstanceUID )
```

References ReferenceSeriesInstanceUID.

12.400.3.27 vtkGetStringMacro() [3/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            SeriesInstanceUID )
```

References SeriesInstanceUID.

12.400.3.28 vtkGetStringMacro() [4/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            SOPInstanceUID )
```

References SOPInstanceUID.

12.400.3.29 vtkGetStringMacro() [5/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            StructureSetDate )
```

References StructureSetDate.

12.400.3.30 vtkGetStringMacro() [6/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            StructureSetLabel )
```

References StructureSetLabel.

12.400.3.31 vtkGetStringMacro() [7/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            StructureSetName )
```

References StructureSetName.

12.400.3.32 vtkGetStringMacro() [8/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            StructureSetTime )
```

References StructureSetTime.

12.400.3.33 vtkGetStringMacro() [9/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            StudyInstanceUID )
```

References StudyInstanceUID.

12.400.3.34 vtkSetStringMacro() [1/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            ReferenceFrameOfReferenceUID )
```

References ReferenceFrameOfReferenceUID.

12.400.3.35 vtkSetStringMacro() [2/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            ReferenceSeriesInstanceUID )
```

References ReferenceSeriesInstanceUID.

12.400.3.36 vtkSetStringMacro() [3/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            SeriesInstanceUID )
```

References SeriesInstanceUID.

12.400.3.37 vtkSetStringMacro() [4/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            SOPInstanceUID )
```

References SOPInstanceUID.

12.400.3.38 vtkSetStringMacro() [5/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            StructureSetDate )
```

References StructureSetDate.

12.400.3.39 vtkSetStringMacro() [6/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            StructureSetLabel )
```

References StructureSetLabel.

12.400.3.40 vtkSetStringMacro() [7/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            StructureSetName )
```

References StructureSetName.

12.400.3.41 vtkSetStringMacro() [8/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            StructureSetTime )
```

References StructureSetTime.

12.400.3.42 vtkSetStringMacro() [9/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            StudyInstanceUID )
```

References StudyInstanceUID.

12.400.3.43 vtkTypeMacro()

```
vtkRTStructSetProperties::vtkTypeMacro (
            vtkRTStructSetProperties ,
            vtkObject )
```

References vtkRTStructSetProperties().

12.400.4 Member Data Documentation

12.400.4.1 Internals

```
vtkRTStructSetPropertiesInternals* vtkRTStructSetProperties::Internals  [protected]
```

12.400.4.2 ReferenceFrameOfReferenceUID

```
char* vtkRTStructSetProperties::ReferenceFrameOfReferenceUID  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.400.4.3 ReferenceSeriesInstanceUID

```
char* vtkRTStructSetProperties::ReferenceSeriesInstanceUID  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.400.4.4 SeriesInstanceUID

```
char* vtkRTStructSetProperties::SeriesInstanceUID  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.400.4.5 SOPInstanceUID

```
char* vtkRTStructSetProperties::SOPInstanceUID  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.400.4.6 StructureSetDate

```
char* vtkRTStructSetProperties::StructureSetDate  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.400.4.7 StructureSetLabel

```
char* vtkRTStructSetProperties::StructureSetLabel  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.400.4.8 StructureSetName

```
char* vtkRTStructSetProperties::StructureSetName  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.400.4.9 StructureSetTime

```
char* vtkRTStructSetProperties::StructureSetTime  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.400.4.10 StudyInstanceUID

```
char* vtkRTStructSetProperties::StudyInstanceUID  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

The documentation for this class was generated from the following file:

- vtkRTStructSetProperties.h

12.401 gdcm::Waveform Class Reference

Waveform class.

```
#include <gdcmWaveform.h>
```

Public Member Functions

- Waveform ()=default

12.401.1 Detailed Description

Waveform class.

12.401.2 Constructor & Destructor Documentation

12.401.2.1 Waveform()

```
gdcm::Waveform::Waveform ()  [default]
```

The documentation for this class was generated from the following file:

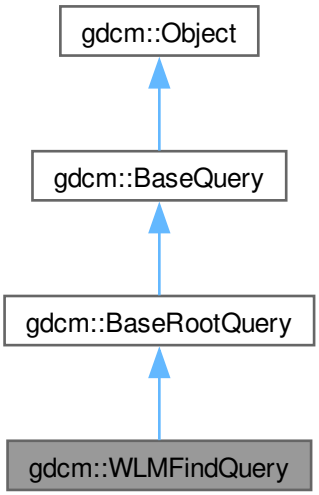
- gdcmWaveform.h

12.402 gdcm::WLMFindQuery Class Reference

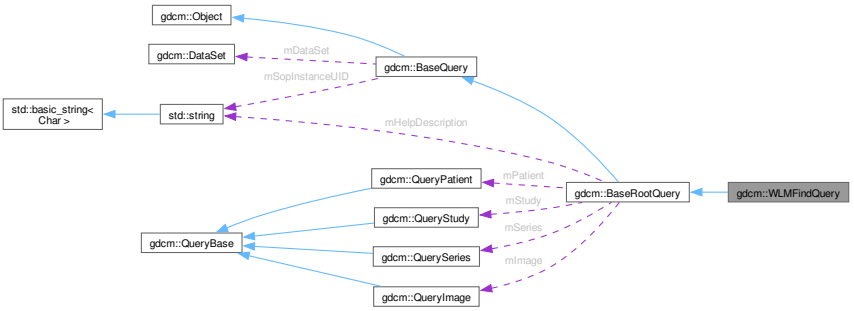
PatientRootQuery.

```
#include <gdcmWLMFindQuery.h>
```

Inheritance diagram for gdcm::WLMFindQuery:



Collaboration diagram for gdcm::WLMFindQuery:



Public Member Functions

- WLMFindQuery ()
- UIDs::TSName GetAbstractSyntaxUID () const override
- std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel) override
- void InitializeDataSet (const EQueryLevel &inQueryLevel) override
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseRootQuery

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Member Functions

- DataSet GetValidDataSet () const

Protected Member Functions inherited from gdcm::BaseRootQuery

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- class QueryFactory

Additional Inherited Members

Static Public Member Functions inherited from gdcm::BaseRootQuery

- static QueryBase * Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char *str)
- static const char * GetQueryLevelString (EQueryLevel ql)

Protected Attributes inherited from gdcm::BaseRootQuery

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

12.402.1 Detailed Description

PatientRootQuery.

contains: the class which will produce a dataset for c-find with patient root

12.402.2 Constructor & Destructor Documentation

12.402.2.1 WLMFindQuery()

```
gdcm::WLMFindQuery::WLMFindQuery ()
```

12.402.3 Member Function Documentation

12.402.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::WLMFindQuery::GetAbstractSyntaxUID () const  [override], [virtual]
```

Implements gdcm::BaseQuery.

12.402.3.2 GetTagListByLevel()

```
std::vector< Tag > gdcm::WLMFindQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements gdcm::BaseRootQuery.

12.402.3.3 GetValidDataSet()

```
DataSet gdcm::WLMFindQuery::GetValidDataSet () const  [protected]
```

12.402.3.4 InitializeDataSet()

```
void gdcm::WLMFindQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implements gdcm::BaseRootQuery.

12.402.3.5 ValidateQuery()

```
bool gdcm::WLMFindQuery::ValidateQuery (
            bool inStrict = true) const  [override], [virtual]
```

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements gdcm::BaseRootQuery.

12.402.4 Friends And Related Symbol Documentation

12.402.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

The documentation for this class was generated from the following file:

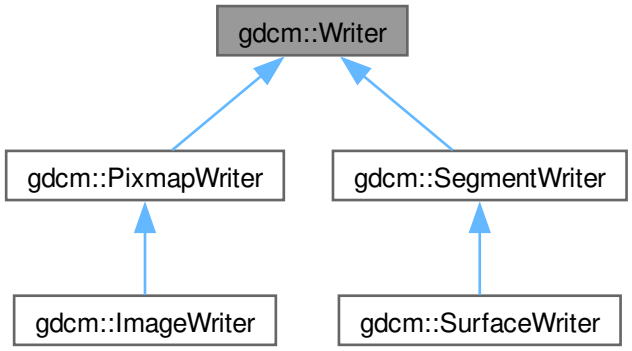
- gdcmWLMFindQuery.h

12.403 gdcm::Writer Class Reference

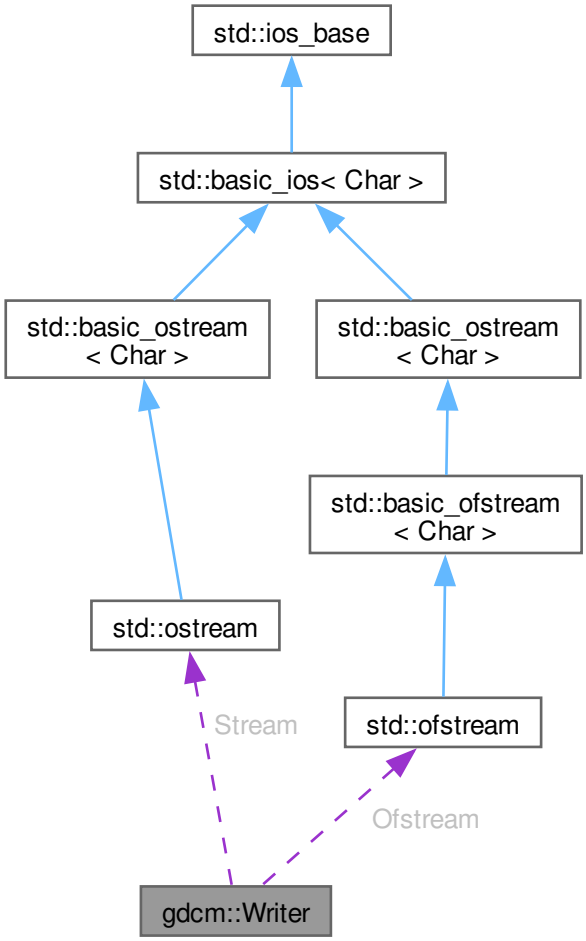
Writer ala DOM (Document Object Model).

```
#include <gdcmWriter.h>
```

Inheritance diagram for gdcm::Writer:



Collaboration diagram for gdcm::Writer:



Public Member Functions

- Writer ()
- virtual ~Writer ()
- void CheckFileMetaInformationOff ()
- void CheckFileMetaInformationOn ()
- File & GetFile ()
- void SetCheckFileMetaInformation (bool b)

  Undocumented function, do not use (= leave default).
- void SetFile (const File &f)

  Set/Get the DICOM file (DataSet + Header).
- void SetFileName (const char *filename_native)

Set the filename of DICOM file to write:

- void SetStream (std::ostream &output_stream)

  Set user ostream buffer.

- virtual bool Write ()

  Main function to tell the writer to write.

Protected Member Functions

- bool GetCheckFileMetaInformation () const
- std::ostream * GetStreamPtr () const
- void SetWriteDataSetOnly (bool b)

Protected Attributes

- std::ofstream * Ofstream
- std::ostream * Stream

Friends

- class StreamImageWriter

12.403.1 Detailed Description

Writer ala DOM (Document Object Model).

This class is a non-validating writer, it will only performs well- formedness check only.

Detailed description here To avoid GDCM being yet another broken DICOM lib we try to be user level and avoid writing illegal stuff (odd length, non-zero value for Item start/end length ...) Therefore you cannot (well unless you are really smart) write DICOM with even length tag. All the checks are consider basics:

- Correct Meta Information Header (see gdcm::FileMetaInformation)
- Zero value for Item Length (0xfffe, 0xe00d/0xe0dd)
- Even length for any elements
- Alphabetical order for elements (guaranteed by design of internals)
- 32bits VR will be rewritten with 00

Warning

gdcm::Writer cannot write a DataSet if no SOP Instance UID (0008,0018) is found, unless a DICOMDIR is being written out

See also

Reader DataSet File

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, ClinicalTrialAnnotate.cxx, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DeriveSeries.cxx, DuplicatePCDE.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GenerateDICOMDIR.cs, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReformatFile.cs, StreamImageReaderTest.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.403.2 Constructor & Destructor Documentation

12.403.2.1 Writer()

```
gdcm::Writer::Writer ()
```

12.403.2.2 ~Writer()

```
virtual gdcm::Writer::~Writer ()  [virtual]
```

12.403.3 Member Function Documentation

12.403.3.1 CheckFileMetaInformationOff()

```
void gdcm::Writer::CheckFileMetaInformationOff ()  [inline]
```

Examples

CreateFakeRTDOSE.cxx, FixBrokenJ2K.cxx, and HelloWorld.cxx.

12.403.3.2 CheckFileMetaInformationOn()

```
void gdcm::Writer::CheckFileMetaInformationOn ()  [inline]
```

12.403.3.3 GetCheckFileMetaInformation()

```
bool gdcm::Writer::GetCheckFileMetaInformation () const  [inline], [protected]
```

12.403.3.4 GetFile()

```
File & gdcm::Writer::GetFile ()  [inline]
```

Examples

CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer
GenAllVR.cxx, GenFakeIdentifyFile.cxx, GetSubSequenceData.cxx, MpegVideoInfo.cs, QIDO-RS.cxx,
StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.403.3.5 GetStreamPtr()

```
std::ostream * gdcm::Writer::GetStreamPtr () const  [inline], [protected]
```

References Stream.

12.403.3.6 SetCheckFileMetaInformation()

```
void gdcm::Writer::SetCheckFileMetaInformation (
            bool b)  [inline]
```

Undocumented function, do not use (= leave default).

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, and PatchFile.cxx.

12.403.3.7 SetFile()

```
void gdcm::Writer::SetFile (
            const File & f)  [inline]
```

Set/Get the DICOM file (DataSet + Header).

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CompressImage.cxx, CompressLossyJPEG.cs, CreateFakeRTDOSE.cxx, DecompressImage.cs, DeriveSeries.cxx, DuplicatePCDE.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GenerateDICOMDIR.cs, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, MergeTwoFiles.cxx, NewSequence.cs, PatchFile.cxx, ReformatFile.cs, StandardizeFiles.cs, pmsct_rgb1.cxx, and rle2img.cxx.

12.403.3.8 SetFileName()

```
void gdcm::Writer::SetFileName (
            const char * filename_native)
```

Set the filename of DICOM file to write:

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CompressImage.cxx, CompressLossyJPEG.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DecompressImage.cs, DeriveSeries.cxx, DuplicatePCDE.cxx, EncapsulateFileInRawData.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GenerateDICOMDIR.cs, GetSubSequenceData.cxx, HelloVizWorld.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, MergeTwoFiles.cxx, MpegVideoInfo.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReformatFile.cs, StandardizeFiles.cs, TemplateEmptyImage.cxx, csa2img.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.403.3.9 SetStream()

```
void gdcm::Writer::SetStream (
            std::ostream & output_stream)  [inline]
```

Set user ostream buffer.

References Stream.

12.403.3.10 SetWriteDataSetOnly()

```
void gdcm::Writer::SetWriteDataSetOnly (
            bool b)  [inline], [protected]
```

12.403.3.11 Write()

```
virtual bool gdcm::Writer::Write ()  [virtual]
```

Main function to tell the writer to write.

Reimplemented in gdcm::ImageWriter, gdcm::PixmapWriter, gdcm::SegmentWriter, and gdcm::SurfaceWriter.

Examples

BasicAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DeriveSeries.cxx, DuplicatePCDE.cxx, EncapsulateFileInRawData.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GenerateDICOMDIR.cs, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReformatFile.cs, pmsct_rgb1.cxx, and rle2img.cxx.

12.403.4 Friends And Related Symbol Documentation

12.403.4.1 StreamImageWriter

```
friend class StreamImageWriter  [friend]
```

References StreamImageWriter.

Referenced by StreamImageWriter.

12.403.5 Member Data Documentation

12.403.5.1 Ofstream

```
std::ofstream* gdcm::Writer::Ofstream  [protected]
```

12.403.5.2 Stream

```
std::ostream* gdcm::Writer::Stream  [protected]
```

Referenced by GetStreamPtr(), and SetStream().

The documentation for this class was generated from the following file:

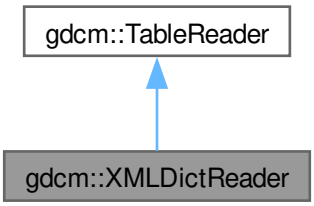
- gdcmWriter.h

12.404 gdcm::XMLDictReader Class Reference

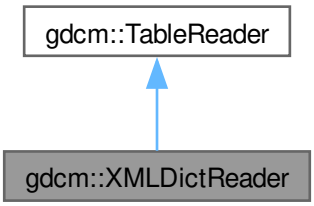
Class for representing a XMLDictReader.

```
#include <gdcmXMLDictReader.h>
```

Inheritance diagram for gdcm::XMLDictReader:



Collaboration diagram for gdcm::XMLDictReader:



Public Member Functions

- XMLDictReader ()
- ~XMLDictReader ()
- void CharacterDataHandler (const char *data, int length)
- void EndElement (const char *name)
- const Dict & GetDict ()
- void StartElement (const char *name, const char **atts)

Public Member Functions inherited from gdcm::TableReader

- TableReader (Defs &defs)
- virtual ~TableReader ()=default
- const Defs & GetDefs () const
- const char * GetFilename ()
- void HandleIOD (const char **atts)
- void HandleIODEntry (const char **atts)
- void HandleMacro (const char **atts)
- void HandleMacroEntry (const char **atts)
- void HandleMacroEntryDescription (const char **atts)
- void HandleModule (const char **atts)
- void HandleModuleEntry (const char **atts)
- void HandleModuleEntryDescription (const char **atts)
- void HandleModuleInclude (const char **atts)
- int Read ()
- void SetFilename (const char *filename)

Protected Member Functions

- void HandleDescription (const char **atts)
- void HandleEntry (const char **atts)

12.404.1 Detailed Description

Class for representing a XMLDictReader.

Note

bla Will read the DICOMV3.xml file

12.404.2 Constructor & Destructor Documentation

12.404.2.1 XMLDictReader()

```
gdcm::XMLDictReader::XMLDictReader ()
```

12.404.2.2 ~XMLDictReader()

```
gdcm::XMLDictReader::~XMLDictReader ()  [inline]
```

12.404.3 Member Function Documentation

12.404.3.1 CharacterDataHandler()

```
void gdcm::XMLDictReader::CharacterDataHandler (
            const char * data,
            int length)  [virtual]
```

Reimplemented from gdcm::TableReader.

12.404.3.2 EndElement()

```
void gdcm::XMLDictReader::EndElement (
            const char * name)  [virtual]
```

Reimplemented from gdcm::TableReader.

12.404.3.3 GetDict()

```
const Dict & gdcm::XMLDictReader::GetDict ()  [inline]
```

12.404.3.4 HandleDescription()

```
void gdcm::XMLDictReader::HandleDescription (
            const char ** atts)  [protected]
```

12.404.3.5 HandleEntry()

```
void gdcm::XMLDictReader::HandleEntry (
            const char ** atts)  [protected]
```

12.404.3.6 StartElement()

```
void gdcm::XMLDictReader::StartElement (
            const char * name,
            const char ** atts)  [virtual]
```

Reimplemented from gdcm::TableReader.

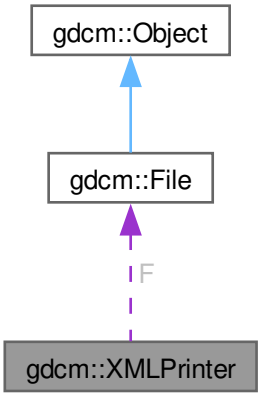
The documentation for this class was generated from the following file:

- gdcmXMLDictReader.h

12.405 gdcm::XMLPrinter Class Reference

`#include <gdcmXMLPrinter.h>`

Collaboration diagram for gdcm::XMLPrinter:



Public Types

- enum PrintStyles {
  OnlyUUID = 0 ,
  LOADBULKDATA = 1 }

Public Member Functions

- XMLPrinter ()
- virtual ~XMLPrinter ()
- PrintStyles GetPrintStyle () const
- virtual void HandleBulkData (const char *uuid, const TransferSyntax &ts, const char *bulkdata, size_t bulklen)
- void Print (std::ostream &os)
- void PrintDataSet (const DataSet &ds, const TransferSyntax &ts, std::ostream &os)
- void SetFile (File const &f)
- void SetStyle (PrintStyles ps)

Protected Member Functions

- VR PrintDataElement (std::ostream &os, const Dicts &dicts, const DataSet &ds, const DataElement &de, const TransferSyntax &ts)
- void PrintSQ (const SequenceOfItems *sqi, const TransferSyntax &ts, std::ostream &os)

Protected Attributes

- const File * F
- PrintStyles PrintStyle

12.405.1 Member Enumeration Documentation

12.405.1.1 PrintStyles

```
enum gdcm::XMLPrinter::PrintStyles
```

Enumerator

OnlyUUID	
LOADBULKDATA	

12.405.2 Constructor & Destructor Documentation

12.405.2.1 XMLPrinter()

```
gdcm::XMLPrinter::XMLPrinter ()
```

12.405.2.2 ~XMLPrinter()

```
virtual gdcm::XMLPrinter::~XMLPrinter ()  [virtual]
```

12.405.3 Member Function Documentation

12.405.3.1 GetPrintStyle()

```
PrintStyles gdcm::XMLPrinter::GetPrintStyle () const  [inline]
```

References PrintStyle.

12.405.3.2 HandleBulkData()

```
virtual void gdcm::XMLPrinter::HandleBulkData (
            const char * uuid,
            const TransferSyntax & ts,
            const char * bulkdata,
            size_t bulklen)  [virtual]
```

Virtual function mechanism to allow application programmer to override the default mechanism for BulkData handling. By default GDCM will simply discard the BulkData and only write the UUID

12.405.3.3 Print()

```
void gdcm::XMLPrinter::Print (
            std::ostream & os)
```

12.405.3.4 PrintDataElement()

```
VR gdcm::XMLPrinter::PrintDataElement (
            std::ostream & os,
            const Dicts & dicts,
            const DataSet & ds,
            const DataElement & de,
            const TransferSyntax & ts)  [protected]
```

12.405.3.5 PrintDataSet()

```
void gdcm::XMLPrinter::PrintDataSet (
            const DataSet & ds,
            const TransferSyntax & ts,
            std::ostream & os)
```

12.405.3.6 PrintSQ()

```
void gdcm::XMLPrinter::PrintSQ (
            const SequenceOfItems * sqi,
            const TransferSyntax & ts,
            std::ostream & os)  [protected]
```

12.405.3.7 SetFile()

```
void gdcm::XMLPrinter::SetFile (
            File const & f)  [inline]
```

References F.

12.405.3.8 SetStyle()

```
void gdcm::XMLPrinter::SetStyle (
            PrintStyles ps)  [inline]
```

References PrintStyle.

12.405.4 Member Data Documentation

12.405.4.1 F

```
const File* gdcm::XMLPrinter::F  [protected]
```

Referenced by SetFile().

12.405.4.2 PrintStyle

```
PrintStyles gdcm::XMLPrinter::PrintStyle  [protected]
```

Referenced by GetPrintStyle(), and SetStyle().

The documentation for this class was generated from the following file:

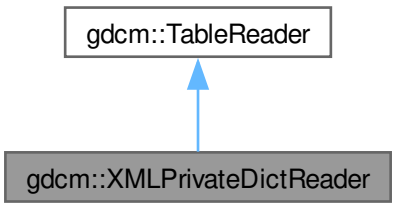
- gdcmXMLPrinter.h

12.406 gdcm::XMLPrivateDictReader Class Reference

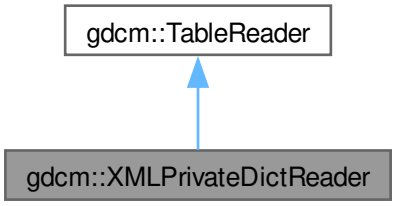
Class for representing a XMLPrivateDictReader.

```
#include <gdcmXMLPrivateDictReader.h>
```

Inheritance diagram for gdcm::XMLPrivateDictReader:



Collaboration diagram for gdcm::XMLPrivateDictReader:



Public Member Functions

- XMLPrivateDictReader ()
- ~XMLPrivateDictReader ()
- void CharacterDataHandler (const char *data, int length)
- void EndElement (const char *name)
- const PrivateDict & GetPrivateDict ()
- void StartElement (const char *name, const char **atts)

Public Member Functions inherited from gdcm::TableReader

- TableReader (Defs &defs)
- virtual ~TableReader ()=default
- const Defs & GetDefs () const
- const char * GetFilename ()
- void HandleIOD (const char **atts)
- void HandleIODEntry (const char **atts)
- void HandleMacro (const char **atts)
- void HandleMacroEntry (const char **atts)
- void HandleMacroEntryDescription (const char **atts)
- void HandleModule (const char **atts)
- void HandleModuleEntry (const char **atts)
- void HandleModuleEntryDescription (const char **atts)
- void HandleModuleInclude (const char **atts)
- int Read ()
- void SetFilename (const char *filename)

Protected Member Functions

- void HandleDescription (const char **atts)
- void HandleEntry (const char **atts)

12.406.1 Detailed Description

Class for representing a XMLPrivateDictReader.

Note

bla Will read the Private.xml file

12.406.2 Constructor & Destructor Documentation

12.406.2.1 XMLPrivateDictReader()

```
gdcm::XMLPrivateDictReader::XMLPrivateDictReader ()
```

12.406.2.2 ~XMLPrivateDictReader()

```
gdcm::XMLPrivateDictReader::~XMLPrivateDictReader ()  [inline]
```

12.406.3 Member Function Documentation

12.406.3.1 CharacterDataHandler()

```
void gdcm::XMLPrivateDictReader::CharacterDataHandler (
            const char * data,
            int length)  [virtual]
```

Reimplemented from gdcm::TableReader.

12.406.3.2 EndElement()

```
void gdcm::XMLPrivateDictReader::EndElement (
            const char * name)  [virtual]
```

Reimplemented from gdcm::TableReader.

12.406.3.3 GetPrivateDict()

```
const PrivateDict & gdcm::XMLPrivateDictReader::GetPrivateDict ()  [inline]
```

12.406.3.4 HandleDescription()

```
void gdcm::XMLPrivateDictReader::HandleDescription (
            const char ** atts)  [protected]
```

12.406.3.5 HandleEntry()

```
void gdcm::XMLPrivateDictReader::HandleEntry (
            const char ** atts)  [protected]
```

12.406.3.6 StartElement()

```
void gdcm::XMLPrivateDictReader::StartElement (
            const char * name,
            const char ** atts)  [virtual]
```

Reimplemented from gdcm::TableReader.

The documentation for this class was generated from the following file:

- gdcmXMLPrivateDictReader.h

Chapter 13

File Documentation

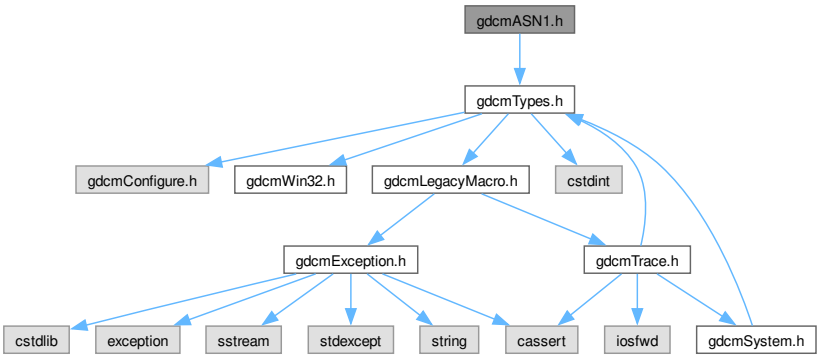
13.1 README.txt File Reference

13.2 TestsList.txt File Reference

13.3 gdcmASN1.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmASN1.h:



Classes

- class gdcm::ASN1

  Class for ASN1.

Namespaces

- namespace gdcm

13.4 gdcmASN1.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMASN1_H
00015 #define GDCMASN1_H
00016
00017 #include "gdcmTypes.h"
00018
00019
00020 namespace gdcm
00021 {
00022 //-----------------------------------------------------------------------------
00023 class ASN1Internals;
00028 class GDCM_EXPORT ASN1
00029 {
00030 public :
00031   ASN1();
00032   ~ASN1();
00033
00034   static bool ParseDumpFile(const char *filename);
00035
00036   static bool ParseDump(const char *array, size_t length);
00037
00038   ASN1(const ASN1&) = delete;
00039   void operator=(const ASN1&) = delete;
00040 protected:
00041   int TestPBKDF2();
00042
00043 private:
00044   ASN1Internals *Internals;
00045 };
00046 } // end namespace gdcm
00047 //-----------------------------------------------------------------------------
00048 #endif //GDCMASN1_H
```
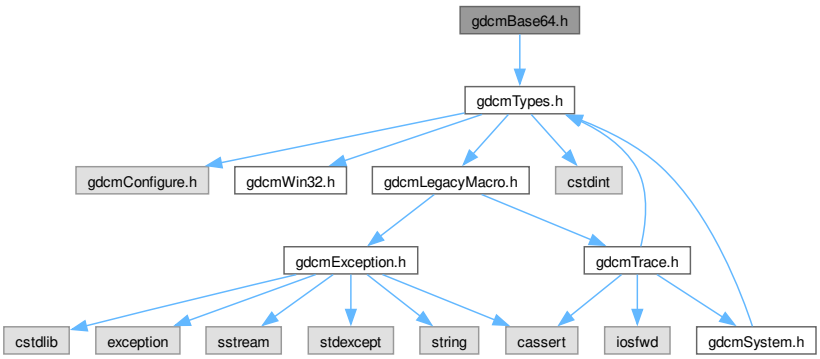

13.5 gdcmBase64.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmBase64.h:



Classes

- class gdcm::Base64

  Class for Base64.

Namespaces

- namespace gdcm

13.6 gdcmBase64.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBASE64_H
00015 #define GDCMBASE64_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00025 class GDCM_EXPORT Base64
```
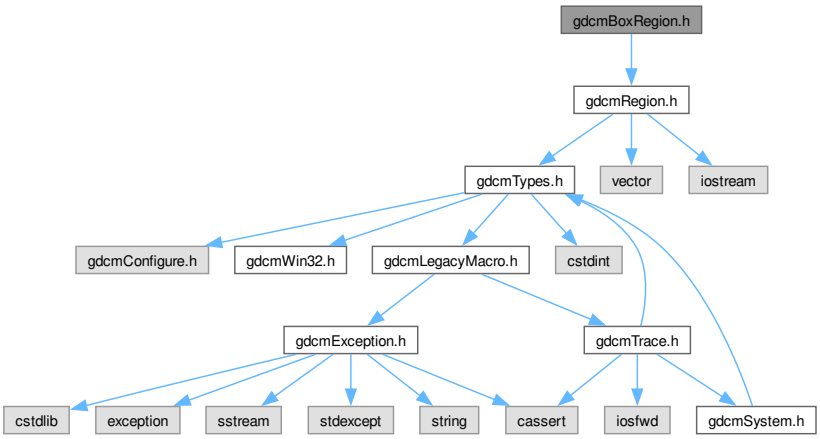

```
00026 {
00027 public:
00028
00032   static size_t GetEncodeLength(const char *src, size_t srclen );
00033
00045   static size_t Encode( char *dst, size_t dlen, const char *src, size_t slen );
00046
00050   static size_t GetDecodeLength( const char *src, size_t len );
00051
00062   static size_t Decode( char *dst, size_t dlen, const char *src, size_t slen );
00063
00064   Base64(const Base64&) = delete;
00065   void operator=(const Base64&) = delete;
00066 };
00067
00068 } // end namespace gdcm
00069
00070 #endif // GDCMBASE64_H
```

13.7 gdcmBoxRegion.h File Reference

`#include "gdcmRegion.h"`
Include dependency graph for gdcmBoxRegion.h:



Classes

- class gdcm::BoxRegion

  Class for manipulation box region.

Namespaces

- namespace gdcm

13.8 gdcmBoxRegion.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBOXREGION_H
00015 #define GDCMBOXREGION_H
00016
00017 #include "gdcmRegion.h"
00018
00019 namespace gdcm
00020 {
00021 class BoxRegionInternals;
00029 //-----------------------------------------------------------------------------
00030 class GDCM_EXPORT BoxRegion : public Region
00031 {
00032 public :
00033   BoxRegion();
00034   ~BoxRegion() override;
00035
00037   void SetDomain(unsigned int xmin, unsigned int xmax,
00038     unsigned int ymin, unsigned int ymax,
00039     unsigned int zmin, unsigned int zmax);
00040
00042   unsigned int GetXMin() const;
00043   unsigned int GetXMax() const;
00044   unsigned int GetYMin() const;
00045   unsigned int GetYMax() const;
00046   unsigned int GetZMin() const;
00047   unsigned int GetZMax() const;
00048
00049   // Satisfy pure virtual parent class
00050   Region *Clone() const override;
00051   bool Empty() const override;
00052   bool IsValid() const override;
00053   size_t Area() const override;
00054   BoxRegion ComputeBoundingBox() override;
00055
00056   void Print(std::ostream &os = std::cout) const override;
00057
00059   static BoxRegion BoundingBox(BoxRegion const & b1, BoxRegion const & b2 );
00060
00062   BoxRegion(const BoxRegion&);
00063   void operator=(const BoxRegion&);
00064 private:
00065   BoxRegionInternals *Internals;
00066 };
00067
00068 } // end namespace gdcm
00069 //-----------------------------------------------------------------------------
00070 #endif //GDCMREGION_H
```
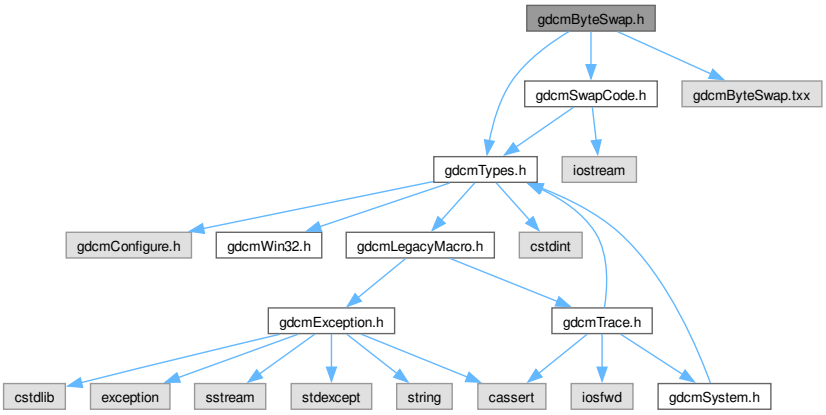

13.9 gdcmByteSwap.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmSwapCode.h"
```

`#include "gdcmByteSwap.txx"`
Include dependency graph for gdcmByteSwap.h:



Classes

- class gdcm::ByteSwap< T >
  ByteSwap.

Namespaces

- namespace gdcm

13.10 gdcmByteSwap.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBYTESWAP_H
00015 #define GDCMBYTESWAP_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmSwapCode.h"
00019
00020 namespace gdcm
00021 {
00022
00029 template<class T>
```
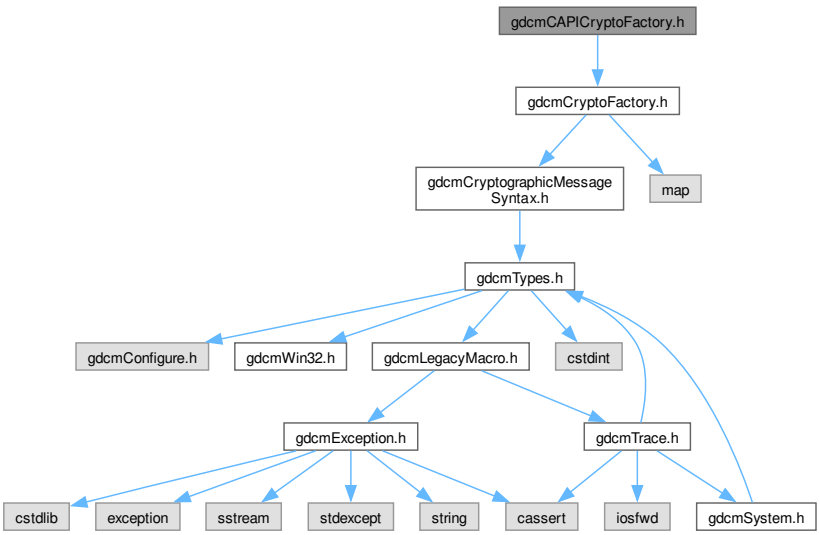

```
00030 class ByteSwap
00031 {
00032 public:
00034   static bool SystemIsBigEndian ();
00035   static bool SystemIsLittleEndian ();
00036
00037   static void Swap(T &p);
00038   static void SwapFromSwapCodeIntoSystem(T &p, SwapCode const &sc);
00039   static void SwapRange(T *p, unsigned int num);
00040   static void SwapRangeFromSwapCodeIntoSystem(T *p, SwapCode const &sc,
00041     std::streamoff num);
00042
00043 protected:
00044 //  ByteSwap() {}
00045 //  ~ByteSwap() {}
00046
00047 private:
00048
00049 };
00050
00055
00056 } // end namespace gdcm
00057
00058 #include "gdcmByteSwap.txx"
00059
00060 #endif //GDCMBYTESWAP_H
```

13.11 gdcmCAPICryptoFactory.h File Reference

`#include "gdcmCryptoFactory.h"`
Include dependency graph for gdcmCAPICryptoFactory.h:



Classes

- class gdcm::CAPICryptoFactory

Namespaces

- namespace gdcm

13.12 gdcmCAPICryptoFactory.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00012
00013 =========================================================================*/
00014 #ifndef GDCMCAPICRYPTOFACTORY_H
00015 #define GDCMCAPICRYPTOFACTORY_H
00016
00017 #include "gdcmCryptoFactory.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class GDCM_EXPORT CAPICryptoFactory : public CryptoFactory
00023 {
00024 public:
00025   CAPICryptoFactory(CryptoLib id);
00026   CryptographicMessageSyntax* CreateCMSProvider();
00027
00028 private:
00029   CAPICryptoFactory() {}
00030 };
00031
00032 } // end namespace gdcm
00033
00034 #endif //GDCMCAPICRYPTOFACTORY_H
```
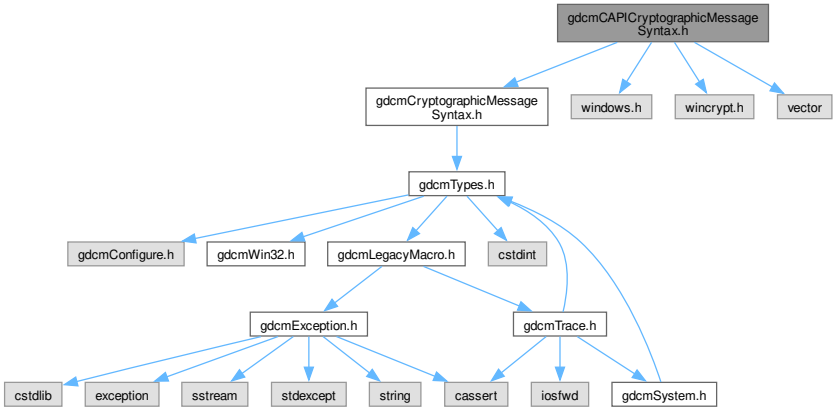

13.13 gdcmCAPICryptographicMessageSyntax.h File Reference

```
#include "gdcmCryptographicMessageSyntax.h"
#include <windows.h>
#include <wincrypt.h>
#include <vector>
```

Include dependency graph for gdcmCAPICryptographicMessageSyntax.h:



Classes

- class gdcm::CAPICryptographicMessageSyntax

Namespaces

- namespace gdcm

13.14 gdcmCAPICryptographicMessageSyntax.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00012
00013 =========================================================================*/
00014 #ifndef GDCMCAPICRYPTOGRAPHICMESSAGESYNTAX_H
00015 #define GDCMCAPICRYPTOGRAPHICMESSAGESYNTAX_H
00016
00017 #include "gdcmCryptographicMessageSyntax.h"
00018 #include <windows.h>
00019 #include <wincrypt.h>
00020 #include <vector>
00021
00022 namespace gdcm
00023 {
00024
00025 class GDCM_EXPORT CAPICryptographicMessageSyntax : public CryptographicMessageSyntax
00026 {
00027 public:
```
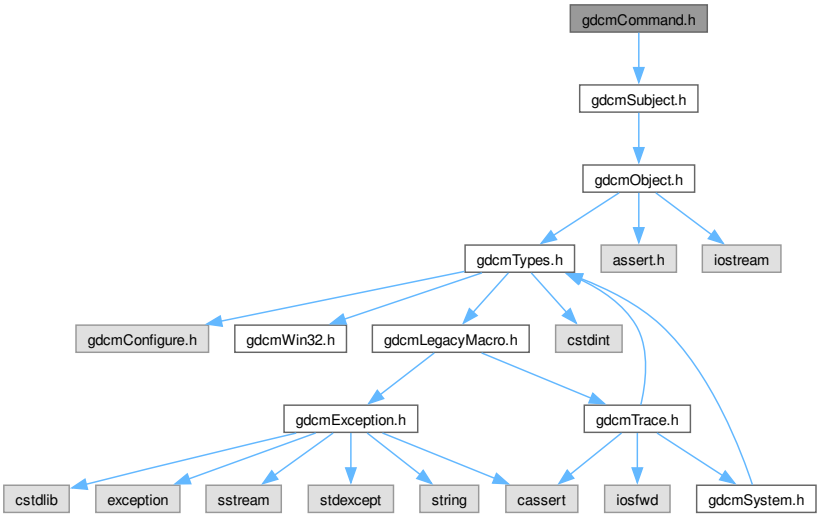

```
00028   CAPICryptographicMessageSyntax();
00029   ~CAPICryptographicMessageSyntax();
00030
00031   // X.509
00032   bool ParseCertificateFile( const char *filename );
00033   bool ParseKeyFile( const char *filename );
00034
00035   // PBE
00036   bool SetPassword(const char * pass, size_t passLen);
00037
00038   void SetCipherType(CipherTypes type);
00039
00040   CipherTypes GetCipherType() const;
00041
00043   bool Encrypt(char *output, size_t &outlen, const char *array, size_t len) const;
00045   bool Decrypt(char *output, size_t &outlen, const char *array, size_t len) const;
00046
00047   bool GetInitialized() const
00048   {
00049     return initialized;
00050   }
00051
00052 private:
00053   bool Initialize();
00054   static ALG_ID GetAlgIdByObjId(const char * pszObjId);
00055   const char *GetCipherObjId() const;
00056   static void ReverseBytes(unsigned char* data, DWORD len);
00057   static bool LoadFile(const char * filename, unsigned char* & buffer, DWORD & bufLen);
00058
00059 private:
00060   bool initialized;
00061   HCRYPTPROV hProv;
00062   std::vector<PCCERT_CONTEXT> certifList;
00063   HCRYPTKEY hRsaPrivK;
00064   CipherTypes cipherType;
00065 };
00066
00067 } // end namespace gdcm
00068
00069 #endif //GDCMCAPICRYPTOGRAPHICMESSAGESYNTAX_H
```

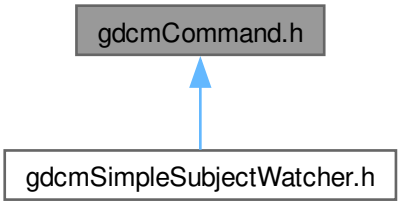
13.15 gdcmCommand.h File Reference

```
#include "gdcmSubject.h"
```

Include dependency graph for gdcmCommand.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Command

  Command superclass for callback/observer methods.
- class gdcm::MemberCommand< T >

  Command subclass that calls a pointer to a member function.
- class gdcm::SimpleMemberCommand< T >

  Command subclass that calls a pointer to a member function.

Namespaces

- namespace gdcm

13.16 gdcmCommand.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
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00004
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCOMMAND_H
00015 #define GDCMCOMMAND_H
00016
00017 #include "gdcmSubject.h"
00018
00019 namespace gdcm
00020 {
00021 class Event;
00022
00027 class GDCM_EXPORT Command : public Subject
00028 {
00029 public :
00030   Command(const Command&) = delete;
00031   void operator=(const Command&) = delete;
00032
00034   virtual void Execute(Subject *caller, const Event & event ) = 0;
00035
00040   virtual void Execute(const Subject *caller, const Event & event ) = 0;
00041
00042 protected:
00043   Command();
00044   ~Command() override;
00045 };
00046
00054 template <class T>
00055 class MemberCommand : public Command
00056 {
00057 public:
00058
00060   typedef  void (T::*TMemberFunctionPointer)(Subject*, const Event &);
00061   typedef  void (T::*TConstMemberFunctionPointer)(const Subject*,
00062                                                   const Event &);
00063
00065   typedef MemberCommand       Self;
00066   //typedef SmartPointer<Self>  Pointer;
00067
00068   MemberCommand(const Self&) = delete;
00069   void operator=(const Self&) = delete;
00070
00072   static SmartPointer<MemberCommand> New()
00073     {
00074     return new MemberCommand;
00075     }
00076
00078   //gdcmTypeMacro(MemberCommand,Command);
00079
00082   void SetCallbackFunction(T* object,
00083                            TMemberFunctionPointer memberFunction)
00084     {
00085     m_This = object;
00086     m_MemberFunction = memberFunction;
00087     }
00088   void SetCallbackFunction(T* object,
```

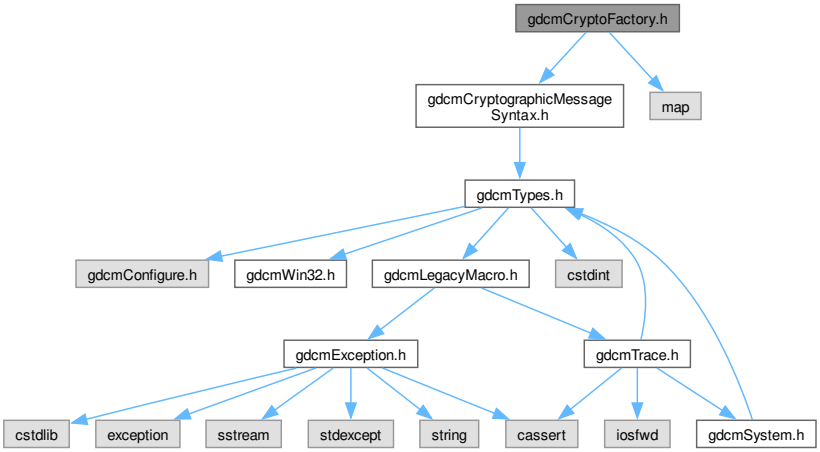
```
00089                           TConstMemberFunctionPointer memberFunction)
00090     {
00091     m_This = object;
00092     m_ConstMemberFunction = memberFunction;
00093     }
00094
00096   void Execute(Subject *caller, const Event & event ) override
00097     {
00098     if( m_MemberFunction )
00099       {
00100       ((*m_This).*(m_MemberFunction))(caller, event);
00101       }
00102     }
00103
00105   void Execute( const Subject *caller, const Event & event ) override
00106     {
00107     if( m_ConstMemberFunction )
00108       {
00109       ((*m_This).*(m_ConstMemberFunction))(caller, event);
00110       }
00111     }
00112
00113 protected:
00114
00115   T* m_This;
00116   TMemberFunctionPointer m_MemberFunction;
00117   TConstMemberFunctionPointer m_ConstMemberFunction;
00118   MemberCommand():m_MemberFunction(nullptr),m_ConstMemberFunction(nullptr) {}
00119   ~MemberCommand() override= default;
00120
00121 };
00122
00129 template <typename T>
00130 class SimpleMemberCommand : public Command
00131 {
00132 public:
00133
00135   typedef  void (T::*TMemberFunctionPointer)();
00136
00138   typedef SimpleMemberCommand   Self;
00139   //typedef SmartPointer<Self>    Pointer;
00140
00141   SimpleMemberCommand(const Self&) = delete;
00142   void operator=(const Self&) = delete;
00143
00145   //gdcmTypeMacro(SimpleMemberCommand,Command);
00146
00148   static SmartPointer<SimpleMemberCommand> New()
00149     {
00150     return new SimpleMemberCommand;
00151     }
00152
00154   void SetCallbackFunction(T* object,
00155                            TMemberFunctionPointer memberFunction)
00156     {
00157     m_This = object;
00158     m_MemberFunction = memberFunction;
00159     }
00160
00162   void Execute(Subject *,const Event & ) override
00163     {
00164     if( m_MemberFunction )
00165       {
00166       ((*m_This).*(m_MemberFunction))();
00167       }
00168     }
00169   void Execute(const Subject *,const Event & ) override
00170     {
00171     if( m_MemberFunction )
00172       {
00173       ((*m_This).*(m_MemberFunction))();
00174       }
00175     }
00176
00177 protected:
00178   T* m_This;
00179   TMemberFunctionPointer m_MemberFunction;
00180   SimpleMemberCommand():m_This(nullptr),m_MemberFunction(nullptr) {}
00181   ~SimpleMemberCommand() override = default;
00182 };
00183
```

```
00184 } // end namespace gdcm
00185 //-----------------------------------------------------------------------------
00186 #endif //GDCMCOMMAND_H
```

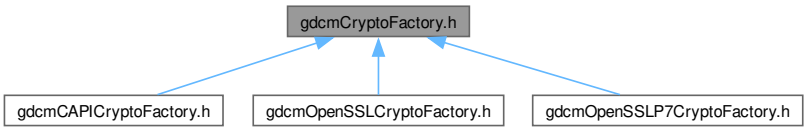
13.17 gdcmCryptoFactory.h File Reference

```
#include "gdcmCryptographicMessageSyntax.h"
#include <map>
```

Include dependency graph for gdcmCryptoFactory.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::CryptoFactory

  Class to do handle the crypto factory.

Namespaces

- namespace gdcm

13.18 gdcmCryptoFactory.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCRYPTOFACTORY_H
00015 #define GDCMCRYPTOFACTORY_H
00016
00017 #include "gdcmCryptographicMessageSyntax.h"
00018 #include <map>
00019
00020 namespace gdcm
00021 {
00022
00035 class GDCM_EXPORT CryptoFactory
00036 {
00037 public:
00038   enum CryptoLib {DEFAULT = 0, OPENSSL = 1, CAPI = 2, OPENSSLP7 = 3};
00039
00040   virtual CryptographicMessageSyntax* CreateCMSProvider() = 0;
00041   static CryptoFactory* GetFactoryInstance(CryptoLib id = DEFAULT);
00042
00043 protected:
00044   CryptoFactory(CryptoLib id)
00045   {
00046     AddLib(id, this);
00047   }
00048
00049 private:
00050   static std::map<CryptoLib, CryptoFactory*>& getInstanceMap()
00051   {
00052     static std::map<CryptoLib, CryptoFactory*> libs;
00053     return libs;
00054   }
00055
00056   static void AddLib(CryptoLib id, CryptoFactory* f)
00057   {
00058     if (getInstanceMap().insert(std::pair<CryptoLib, CryptoFactory*>(id, f)).second == false)
00059       {
00060       gdcmErrorMacro( "Library already registered under id " « (int)id );
00061       }
00062   }
00063
00064 protected:
00065   CryptoFactory()= default;
00066   ~CryptoFactory()= default;
00067 };
00068
00069 } // end namespace gdcm
00070
00071 #endif // GDCMCRYPTOFACTORY_H
```
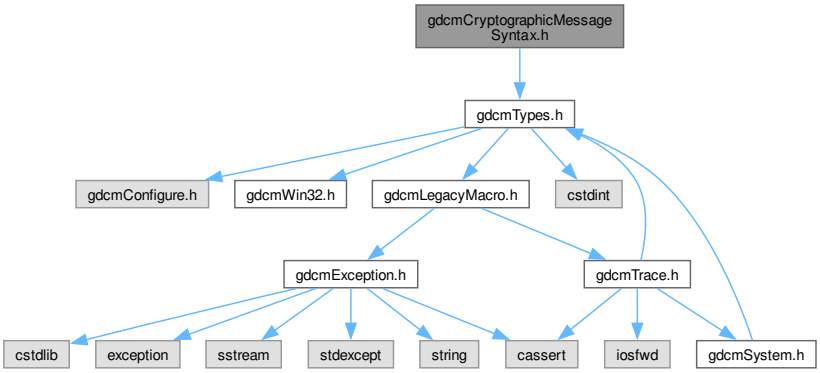
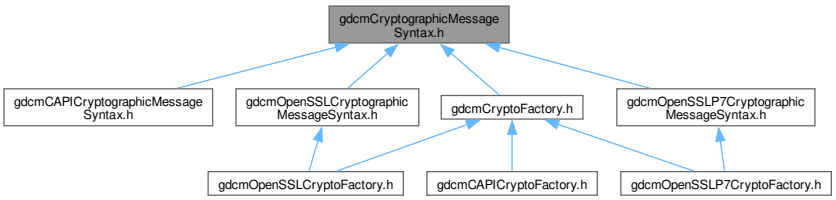

13.19 gdcmCryptographicMessageSyntax.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmCryptographicMessageSyntax.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::CryptographicMessageSyntax

Namespaces

- namespace gdcm

13.20 gdcmCryptographicMessageSyntax.h

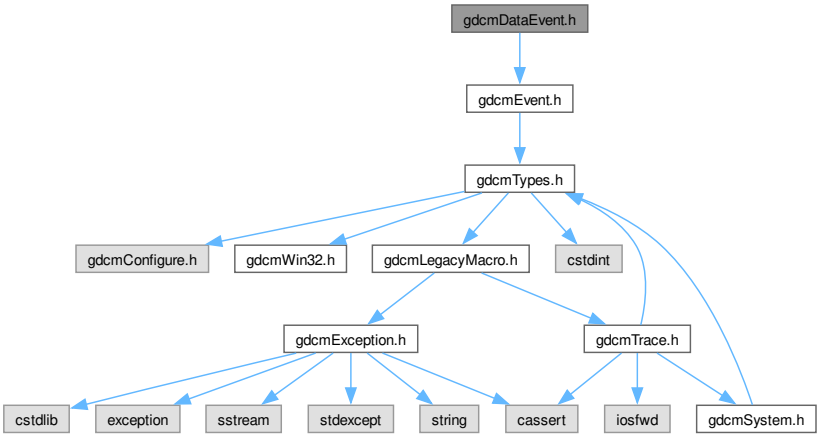
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCRYPTOGRAPHICMESSAGESYNTAX_H
00015 #define GDCMCRYPTOGRAPHICMESSAGESYNTAX_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class GDCM_EXPORT CryptographicMessageSyntax
00023 {
00024 public:
00025   CryptographicMessageSyntax() = default;
00026
00027   virtual ~CryptographicMessageSyntax() = default;
00028   CryptographicMessageSyntax(const CryptographicMessageSyntax&) = delete;
00029   void operator=(const CryptographicMessageSyntax&) = delete;
00030
00031   typedef enum {
00032     DES3_CIPHER,   // Triple DES
00033     AES128_CIPHER, // CBC AES
00034     AES192_CIPHER, // '   '
00035     AES256_CIPHER  // '   '
00036   } CipherTypes;
00037
00038     // X.509
00039   virtual bool ParseCertificateFile( const char *filename ) = 0;
00040   virtual bool ParseKeyFile( const char *filename ) = 0;
00041
00042   // PBE
00043   virtual bool SetPassword(const char * pass, size_t passLen) = 0;
00044
00046   virtual bool Encrypt(char *output, size_t &outlen, const char *array, size_t len) const = 0;
00048   virtual bool Decrypt(char *output, size_t &outlen, const char *array, size_t len) const = 0;
00049
00050   virtual void SetCipherType(CipherTypes type) = 0;
00051
00052   virtual CipherTypes GetCipherType() const = 0;
00053 };
00054
00055 } // end namespace gdcm
00056
00057 #endif //GDCMCRYPTOGRAPHICMESSAGESYNTAX_H
```

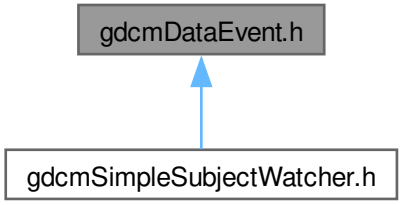
13.21 gdcmDataEvent.h File Reference

```
#include "gdcmEvent.h"
```

Include dependency graph for gdcmDataEvent.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::DataEvent

  DataEvent.

Namespaces

- namespace gdcm

13.22 gdcmDataEvent.h

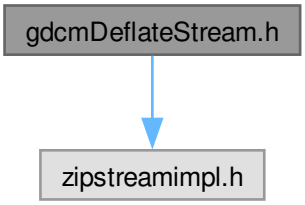
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDATAEVENT_H
00015 #define GDCMDATAEVENT_H
00016
00017 #include "gdcmEvent.h"
00018
00019 namespace gdcm
00020 {
00021
00025 class DataEvent : public AnyEvent
00026 {
00027 public:
00028   typedef DataEvent Self;
00029   typedef AnyEvent Superclass;
00030   DataEvent(const char *bytes = nullptr, size_t len = 0):Bytes(bytes),Length(len) {}
00031   ~DataEvent() override = default;
00032   DataEvent(const Self&s) : AnyEvent(s){};
00033   void operator=(const Self&) = delete;
00034
00035   const char * GetEventName() const override { return "DataEvent"; }
00036   bool CheckEvent(const ::gdcm::Event* e) const override
00037   { return (dynamic_cast<const Self*>(e) == nullptr ? false : true) ; }
00038   ::gdcm::Event* MakeObject() const override
00039     { return new Self; }
00040
00041   void SetData(const char *bytes, size_t len) {
00042     Bytes = bytes;
00043     Length = len;
00044   }
00045   size_t GetDataLength() const { return Length; }
00046   const char *GetData() const { return Bytes; }
00047
00048   //std::string GetValueAsString() const { return; }
00049
00050 private:
00051   const char *Bytes;
00052   size_t Length;
00053 };
00054
00055
00056 } // end namespace gdcm
00057
00058 #endif //GDCMDATAEVENT_H
```

13.23 gdcmDeflateStream.h File Reference

```
#include "zipstreamimpl.h"
```

Include dependency graph for gdcmDeflateStream.h:



13.24 gdcmDeflateStream.h

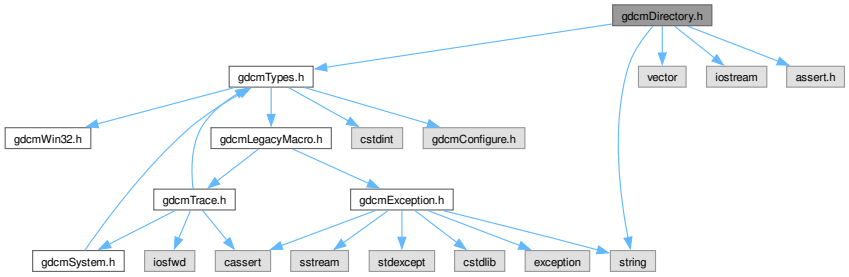
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDEFLATESTREAM_H
00015 #define GDCMDEFLATESTREAM_H
00016
00017 #include "zipstreamimpl.h"
00018
00019 #endif //GDCMDEFLATESTREAM_H
```

13.25 gdcmDirectory.h File Reference

```
#include "gdcmTypes.h"
#include <string>
#include <vector>
#include <iostream>
```

`#include <assert.h>`
Include dependency graph for gdcmDirectory.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Directory

  Class for manipulation directories.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Directory &d)

13.26 gdcmDirectory.h

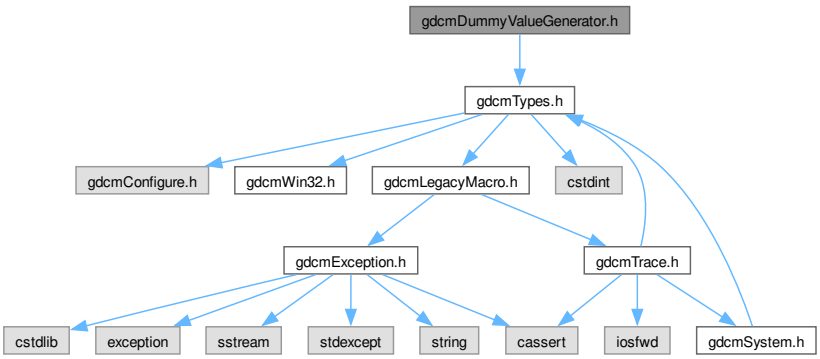
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
```

```
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDIRECTORY_H
00015 #define GDCMDIRECTORY_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <string>
00020 #include <vector>
00021 #include <iostream>
00022 #include <assert.h>
00023
00024 namespace gdcm
00025 {
00041 //-----------------------------------------------------------------------------
00042 class GDCM_EXPORT Directory
00043 {
00044   friend std::ostream& operator<<(std::ostream &_os, const Directory &d);
00045 public :
00046   Directory() = default;
00047   ~Directory() = default;
00048   typedef std::string FilenameType;
00049   typedef std::vector<FilenameType> FilenamesType;
00050
00052   void Print(std::ostream &os = std::cout) const;
00053
00055   FilenameType const &GetToplevel() const { return Toplevel; }
00056
00058   FilenamesType const &GetFilenames() const {
00059     assert( !(Toplevel.empty()) && "Need to call Explore first" );
00060     return Filenames; }
00061
00063   FilenamesType const &GetDirectories() const { return Directories; }
00064
00067   unsigned int Load(FilenameType const &name, bool recursive = false);
00068
00069   // \todo later: GLOB
00070   // The glob() function searches for all the pathnames matching pattern according to
00071   // the rules used by the shell (see glob(7)).  No tilde expansion or parameter
00072   // substitution is done; if you want these, use wordexp(3).
00073   // int Glob(...);
00074
00075 protected:
00077   unsigned int Explore(FilenameType const &name, bool recursive);
00078
00079 private :
00081   FilenamesType Filenames;
00082   FilenamesType Directories;
00083
00085   FilenameType Toplevel;
00086 };
00087 //-----------------------------------------------------------------------------
00088 inline std::ostream& operator<<(std::ostream &os, const Directory &d)
00089 {
00090   d.Print( os );
00091   return os;
00092 }
00093
00094 } // end namespace gdcm
00095 //-----------------------------------------------------------------------------
00096 #endif //GDCMDIRECTORY_H
```

13.27 gdcmDummyValueGenerator.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmDummyValueGenerator.h:



Classes

- class gdcm::DummyValueGenerator

  Class for generating dummy value.

Namespaces

- namespace gdcm

13.28 gdcmDummyValueGenerator.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDUMMYVALUEGENERATOR_H
00015 #define GDCMDUMMYVALUEGENERATOR_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
```
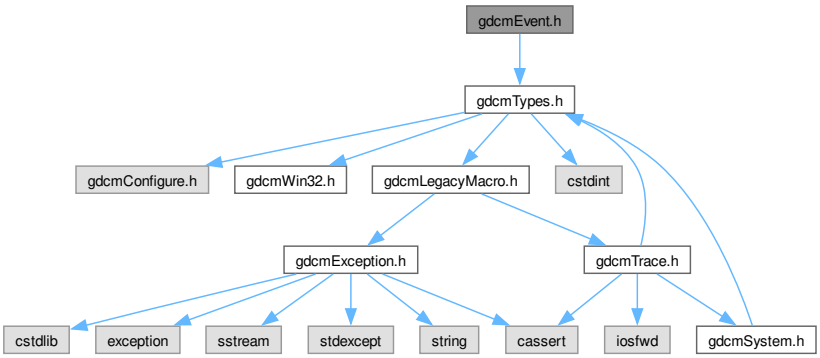
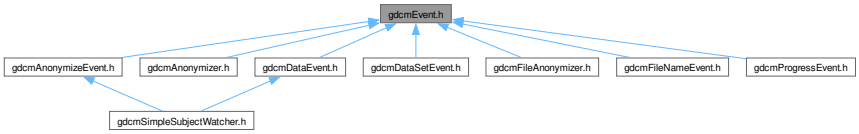

```
00026 class GDCM_EXPORT DummyValueGenerator
00027 {
00028 public:
00029
00035   static const char* Generate(const char *input);
00036
00037 private:
00038 };
00039
00040
00041 } // end namespace gdcm
00042
00043 #endif //GDCMDUMMYVALUEGENERATOR_H
```

13.29 gdcmEvent.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmEvent.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::AbortEvent
- class gdcm::AnyEvent
- class gdcm::EndEvent
- class gdcm::Event

  superclass for callback/observer methods

- class gdcm::ExitEvent
- class gdcm::InitializeEvent
- class gdcm::IterationEvent
- class gdcm::ModifiedEvent
- class gdcm::NoEvent
- class gdcm::StartEvent
- class gdcm::UserEvent

Namespaces

- namespace gdcm

Macros

- #define gdcmEventMacro(classname, super)

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Event &e)

  Generic inserter operator for Event and its subclasses.

13.29.1 Macro Definition Documentation

13.29.1.1 gdcmEventMacro

```
#define gdcmEventMacro(
              classname,
              super)
```

Value:

```
  \
 class  classname : public super { \
   public: \
     typedef classname Self; \
     typedef super Superclass; \
     classname() {} \
     virtual ~classname() override = default; \
     virtual const char * GetEventName() const override { return #classname; } \
     virtual bool CheckEvent(const ::gdcm::Event* e) const override \
       { return dynamic_cast<const Self*>(e) ? true : false; } \
     virtual ::gdcm::Event* MakeObject() const override \
       { return new Self; } \
     classname(const Self&) : super(s){} \
   private: \
     void operator=(const Self&); \
 }
```

13.30 gdcmEvent.h

Go to the documentation of this file.

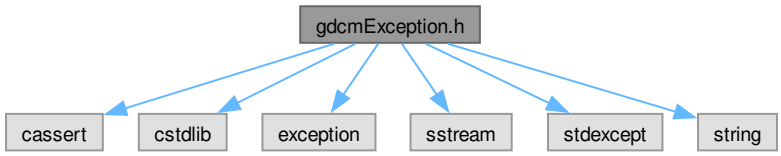
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMEVENT_H
00015 #define GDCMEVENT_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021 //-----------------------------------------------------------------------------
00026 class GDCM_EXPORT Event
00027 {
00028 public :
00029   Event();
00030   virtual ~Event();
00031   Event(const Event&);
00032   void operator=(const Event&) = delete;
00033
00036   virtual Event* MakeObject() const = 0;
00037
00041   virtual void Print(std::ostream& os) const;
00042
00044   virtual const char * GetEventName() const = 0;
00045
00047   virtual bool CheckEvent(const Event*) const = 0;
00048
00049 };
00050
00052 inline std::ostream& operator<<(std::ostream& os, const Event &e)
00053 {
00054   e.Print(os);
00055   return os;
00056 }
00057
00058 /*
00059  *  Macro for creating new Events
00060  */
00061 #define gdcmEventMacro( classname , super ) \
00062   \
00063  class  classname : public super { \
00064    public: \
00065      typedef classname Self; \
00066      typedef super Superclass; \
00067      classname() {} \
00068      virtual ~classname() override = default; \
00069      virtual const char * GetEventName() const override { return #classname; } \
00070      virtual bool CheckEvent(const ::gdcm::Event* e) const override \
00071        { return dynamic_cast<const Self*>(e) ? true : false; } \
00072      virtual ::gdcm::Event* MakeObject() const override \
00073        { return new Self; } \
00074      classname(const Self&s) : super(s){} \
00075    private: \
00076      void operator=(const Self&); \
00077  }
00078
00082 gdcmEventMacro( NoEvent            , Event );
00083 gdcmEventMacro( AnyEvent           , Event );
00084 gdcmEventMacro( StartEvent         , AnyEvent );
00085 gdcmEventMacro( EndEvent           , AnyEvent );
00086 //gdcmEventMacro( ProgressEvent      , AnyEvent );
00087 gdcmEventMacro( ExitEvent          , AnyEvent );
00088 gdcmEventMacro( AbortEvent         , AnyEvent );
00089 gdcmEventMacro( ModifiedEvent      , AnyEvent );
00090 gdcmEventMacro( InitializeEvent    , AnyEvent );
```

```
00091 gdcmEventMacro( IterationEvent     , AnyEvent );
00092 //gdcmEventMacro( AnonymizeEvent     , AnyEvent );
00093 gdcmEventMacro( UserEvent          , AnyEvent );
00094
00095
00096 } // end namespace gdcm
00097 //-----------------------------------------------------------------------------
00098 #endif //GDCMEVENT_H
```

13.31 gdcmException.h File Reference

```
#include <cassert>
#include <cstdlib>
#include <exception>
#include <sstream>
#include <stdexcept>
#include <string>
```

Include dependency graph for gdcmException.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Exception

  Exception.

Namespaces

- namespace gdcm

13.32 gdcmException.h

Go to the documentation of this file.

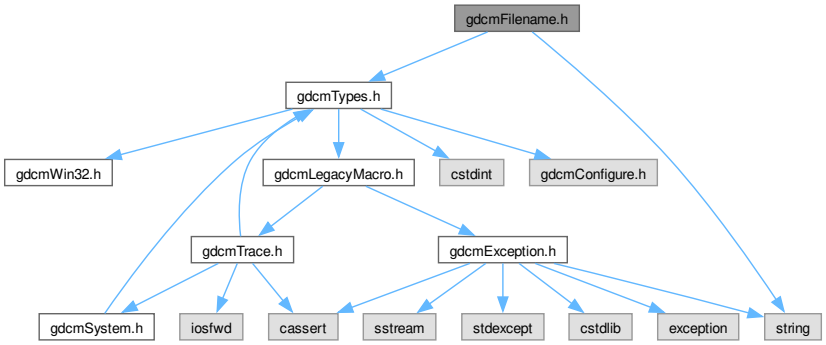
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMEXCEPTION_H
00015 #define GDCMEXCEPTION_H
00016
00017 #include <cassert>
00018 #include <cstdlib> // NULL
00019 #include <exception>
00020 #include <sstream> // ostringstream
00021 #include <stdexcept> // logic_error
00022 #include <string>
00023
00024 // Disable clang warning "dynamic exception specifications are deprecated".
00025 // We need to be C++03 and C++11 compatible, and if we remove the 'throw()'
00026 // specifier we'll get an error in C++03 by not matching the superclass.
00027 #if defined(__clang__) && defined(__has_warning)
00028 # if __has_warning("-Wdeprecated")
00029 #  pragma clang diagnostic push
00030 #  pragma clang diagnostic ignored "-Wdeprecated"
00031 # endif
00032 #endif
00033
00034 namespace gdcm
00035 {
00036
00043 class Exception : public std::exception
00044 {
00049   typedef std::logic_error StringHolder;
00050
00052   static StringHolder CreateWhat(const char* const desc,
00053                                  const char* const file,
00054                                  const unsigned int lineNumber,
00055                                  const char* const func)
00056   {
00057     assert(desc != nullptr);
00058     assert(file != nullptr);
00059     assert(func != nullptr);
00060     std::ostringstream oswhat;
00061     oswhat « file « ":" « lineNumber « " (" « func « "):\n";
00062     oswhat « desc;
00063     return StringHolder( oswhat.str() );
00064   }
00065
00066 public:
00072   explicit Exception(const char *desc = "None",
00073             const char *file = __FILE__,
00074             unsigned int lineNumber = __LINE__,
00075             // FIXME:  __PRETTY_FUNCTION__ is the non-mangled version for __GNUC__ compiler
00076             const char *func = "" /*__FUNCTION__*/)
00077   :
00078   What( CreateWhat(desc, file, lineNumber, func) ),
00079   Description(desc)
00080   {
00081   }
00082
00083   ~Exception() throw() override {}
00084
00086   const char* what() const throw() override
00087     {
00088     return What.what();
00089     }
00090
00092   const char * GetDescription() const { return Description.what(); }
00093
```

```
00094 private:
00095   StringHolder  What;
00096   StringHolder  Description;
00097 };
00098
00099 } // end namespace gdcm
00100
00101 // Undo warning suppression.
00102 #if defined(__clang__) && defined(__has_warning)
00103 # if __has_warning("-Wdeprecated")
00104 #  pragma clang diagnostic pop
00105 # endif
00106 #endif
00107
00108 #endif
```

13.33 gdcmFilename.h File Reference

```
#include "gdcmTypes.h"
#include <string>
```

Include dependency graph for gdcmFilename.h:



Classes

- class gdcm::Filename

  Class to manipulate file name's.

Namespaces

- namespace gdcm

13.34 gdcmFilename.h

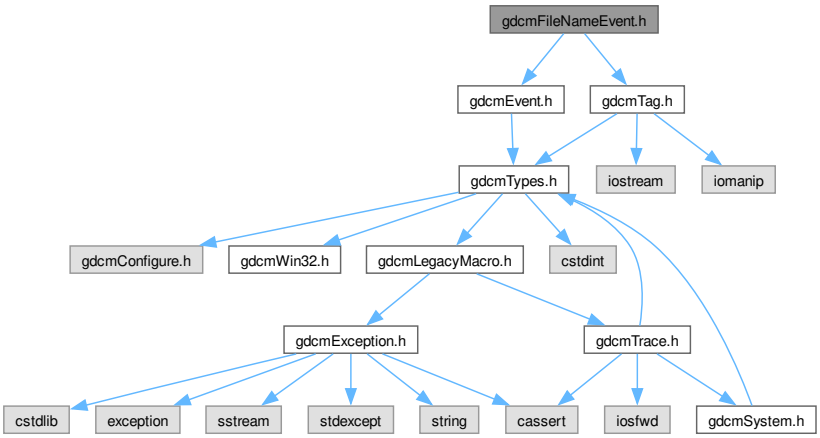
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILENAME_H
00015 #define GDCMFILENAME_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <string>
00020
00021 namespace gdcm
00022 {
00027 class GDCM_EXPORT Filename
00028 {
00029 public:
00030   Filename(const char* filename = ""):FileName(filename ? filename : ""),Path(),Conversion() {}
00031
00033   const char *GetFileName() const { return FileName.c_str(); }
00035   const char *GetPath();
00037   const char *GetName();
00039   const char *GetExtension();
00041   const char *ToUnixSlashes();
00043   const char *ToWindowsSlashes();
00044
00047   static const char *Join(const char *path, const char *filename);
00048
00050   bool IsEmpty() const { return FileName.empty(); }
00051
00055   operator const char * () const { return GetFileName(); }
00056
00057   // FIXME: I don't like this function
00058   // It hides the realpath call (maybe useful)
00059   // and it forces file to exist on the disk whereas Filename
00060   // should be independent from file existence.
00061   bool IsIdentical(Filename const &fn) const;
00062
00064   bool EndWith(const char ending[]) const;
00065
00066 private:
00067   std::string FileName;
00068   std::string Path;
00069   std::string Conversion;
00070 };
00071
00072 } // end namespace gdcm
00073
00074 #endif //GDCMFILENAME_H
```

13.35 gdcmFileNameEvent.h File Reference

```
#include "gdcmEvent.h"
#include "gdcmTag.h"
```

Include dependency graph for gdcmFileNameEvent.h:



Classes

- class gdcm::FileNameEvent

  FileNameEvent.

Namespaces

- namespace gdcm

13.36 gdcmFileNameEvent.h

Go to the documentation of this file.

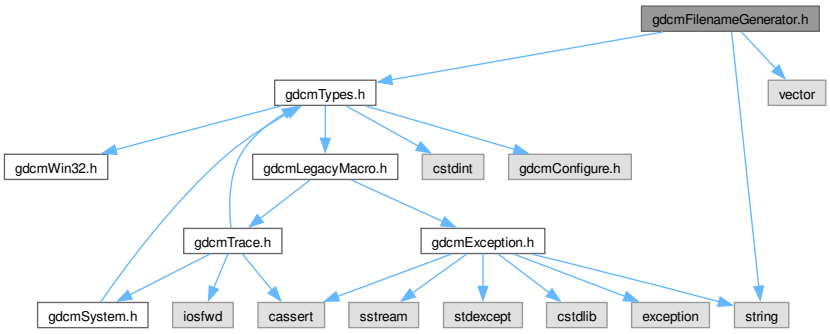
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILENAMEEVENT_H
00015 #define GDCMFILENAMEEVENT_H
00016
00017 #include "gdcmEvent.h"
00018 #include "gdcmTag.h"
00019
00020 namespace gdcm
00021 {
00022
00029 class FileNameEvent : public AnyEvent
```

```
00030 {
00031 public:
00032   typedef FileNameEvent Self;
00033   typedef AnyEvent Superclass;
00034   FileNameEvent(const char *s = ""):m_FileName(s) {}
00035   ~FileNameEvent() override = default;
00036
00037   FileNameEvent(const Self&s) : AnyEvent(s){}
00038   void operator=(const Self&) = delete;
00039
00040
00041   const char * GetEventName() const override { return "FileNameEvent"; }
00042   bool CheckEvent(const ::gdcm::Event* e) const override
00043     { return dynamic_cast<const Self*>(e) ? true : false; }
00044   ::gdcm::Event* MakeObject() const override
00045     { return new Self; }
00046
00047   void SetFileName(const char *f) { m_FileName = f; }
00048   const char *GetFileName() const { return m_FileName.c_str(); }
00049 private:
00050   std::string m_FileName;
00051 };
00052
00053
00054 } // end namespace gdcm
00055
00056 #endif //GDCMFILENAMEEVENT_H
```

13.37 gdcmFilenameGenerator.h File Reference

```
#include "gdcmTypes.h"
#include <string>
#include <vector>
```

Include dependency graph for gdcmFilenameGenerator.h:



Classes

- class gdcm::FilenameGenerator

  FilenameGenerator.

Namespaces

- namespace gdcm

13.38 gdcmFilenameGenerator.h

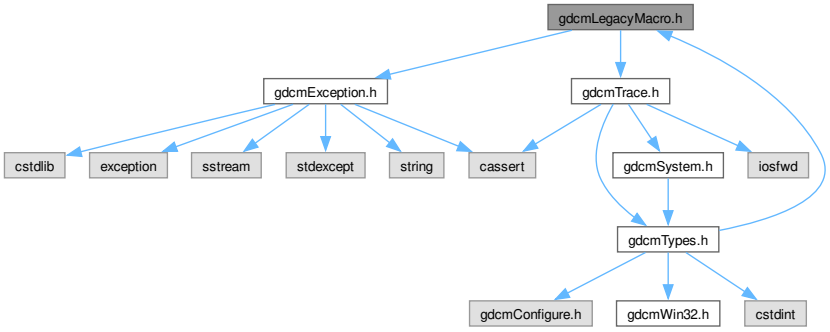
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILENAMEGENERATOR_H
00015 #define GDCMFILENAMEGENERATOR_H
00016
00017 #include "gdcmTypes.h"
00018 #include <string>
00019 #include <vector>
00020
00021
00022 namespace gdcm
00023 {
00035
00036 class GDCM_EXPORT FilenameGenerator
00037 {
00038 public:
00039   FilenameGenerator():Pattern(),Prefix(),Filenames() {}
00040   ~FilenameGenerator() = default;
00041   // FIXME: already defines in gdcm::Directory
00042   typedef std::string FilenameType;
00043   typedef std::vector<FilenameType> FilenamesType;
00044   typedef FilenamesType::size_type  SizeType;
00045
00047   void SetPattern(const char *pattern) { Pattern = pattern; }
00048   const char *GetPattern() const { return Pattern.c_str(); }
00049
00051   void SetPrefix(const char *prefix) { Prefix = prefix; }
00052   const char *GetPrefix() const { return Prefix.c_str(); }
00053
00055   bool Generate();
00056
00058   void SetNumberOfFilenames(SizeType nfiles);
00059   SizeType GetNumberOfFilenames() const;
00060
00062   const char * GetFilename(SizeType n) const;
00063
00065   FilenamesType const & GetFilenames() const { assert( !Pattern.empty() ); return Filenames; }
00066
00067 private:
00068   FilenameType Pattern;
00069   FilenameType Prefix;
00070   FilenamesType Filenames;
00071 };
00072
00073 } // end namespace gdcm
00074
00075 #endif //GDCMFILENAMEGENERATOR_H
```

13.39 gdcmLegacyMacro.h File Reference

```
#include "gdcmException.h"
#include "gdcmTrace.h"
```

Include dependency graph for gdcmLegacyMacro.h:



This graph shows which files directly or indirectly include this file:

Macros

- #define GDCM_LEGACY(method)
- #define GDCM_LEGACY_BODY(method, version)
- #define GDCM_LEGACY_REPLACED_BODY(method, version, replace)
- #define GDCM_NOOP_STATEMENT static_assert(true, "")

13.39.1 Macro Definition Documentation

13.39.1.1 GDCM_LEGACY

```
#define GDCM_LEGACY(
              method)
```

Value:

```
method;
```

13.39.1.2 GDCM_LEGACY_BODY

```
#define GDCM_LEGACY_BODY(
              method,
              version)
```

Value:

```
  gdcmWarningMacro(#method " was deprecated for " version " and will be removed in a future version.")
```

13.39.1.3 GDCM_LEGACY_REPLACED_BODY

```
#define GDCM_LEGACY_REPLACED_BODY(
              method,
              version,
              replace)
```

Value:

```
  gdcmWarningMacro(#method " was deprecated for " version " and will be removed in a future version.  Use "
      #replace " instead.")
```

13.39.1.4 GDCM_NOOP_STATEMENT

```
#define GDCM_NOOP_STATEMENT static_assert(true, "")
```

The `static_assert(true, "")` idiom is commonly employed for C++11 or greater to ensure that it is compile-time only check that can not be part of the binary file. This allows a macro to be used anywhere that a statement is expected, and to enforce consistent use of ; after a macro. The static_assert is a constexpr that can be used in places where raw statements (i.e. 'do{} while(0)') are not allowed (i.e. after class member function definitions).

13.40 gdcmLegacyMacro.h

Go to the documentation of this file.

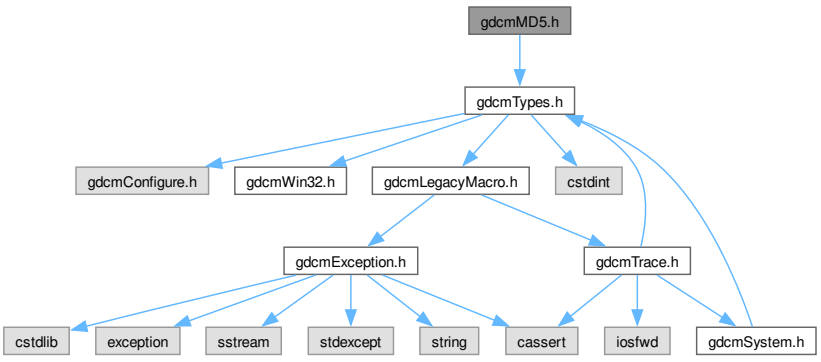
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMLEGACYMACRO_H
00015 #define GDCMLEGACYMACRO_H
00016
00017 #if !defined(GDCMTYPES_H) && !defined(SWIG)
00018 #error you need to include gdcmTypes.h instead
00019 #endif
00020
00021 #include "gdcmException.h"
00022
00023 //-----------------------------------------------------------------------------
00024 // Setup legacy code policy.
00025
00026 // Define GDCM_LEGACY macro to mark legacy methods where they are
00027 // declared in their class.  Example usage:
00028 //
00029 //   // @deprecated Replaced by MyOtherMethod() as of GDCM 2.0.
00030 //   GDCM_LEGACY(void MyMethod());
00031 #if defined(GDCM_LEGACY_REMOVE)
00032 # define GDCM_LEGACY(method)
00033 #elif defined(GDCM_LEGACY_SILENT) || defined(SWIG)
00034   // Provide legacy methods with no warnings.
00035 # define GDCM_LEGACY(method) method;
00036 #else
00037   // Setup compile-time warnings for uses of deprecated methods if
00038   // possible on this compiler.
00039 # if defined(__GNUC__) && !defined(__INTEL_COMPILER) && (__GNUC__ > 3 || (__GNUC__ == 3 && __GNUC_MINOR__
      >= 1))
```

```
00040 #  define GDCM_LEGACY(method) method __attribute__((deprecated));
00041 # elif defined(_MSC_VER) && _MSC_VER >= 1300
00042 #  define GDCM_LEGACY(method) __declspec(deprecated) method;
00043 # else
00044 #  define GDCM_LEGACY(method) method;
00045 # endif
00046 #endif
00047
00057 #  define GDCM_NOOP_STATEMENT static_assert(true, "")
00058
00059 // Macros to create runtime deprecation warning messages in function
00060 // bodies.  Example usage:
00061 //
00062 //   #if !defined(GDCM_LEGACY_REMOVE)
00063 //   void gdcm::MyClass::MyOldMethod()
00064 //   {
00065 //     GDCM_LEGACY_BODY(gdcm::MyClass::MyOldMethod, "GDCM 2.0");
00066 //   }
00067 //   #endif
00068 //
00069 //   #if !defined(GDCM_LEGACY_REMOVE)
00070 //   void gdcm::MyClass::MyMethod()
00071 //   {
00072 //     GDCM_LEGACY_REPLACED_BODY(gdcm::MyClass::MyMethod, "GDCM 2.0",
00073 //                               gdcm::MyClass::MyOtherMethod);
00074 //   }
00075 //   #endif
00076 #if defined(GDCM_LEGACY_REMOVE) || defined(GDCM_LEGACY_SILENT)
00077 # define GDCM_LEGACY_BODY(method, version)
00078 # define GDCM_LEGACY_REPLACED_BODY(method, version, replace)
00079 #else
00080 # define GDCM_LEGACY_BODY(method, version) \
00081   gdcmWarningMacro(#method " was deprecated for " version " and will be removed in a future version.")
00082 # define GDCM_LEGACY_REPLACED_BODY(method, version, replace) \
00083   gdcmWarningMacro(#method " was deprecated for " version " and will be removed in a future version.  Use
     " #replace " instead.")
00084 #endif
00085
00086 #include "gdcmTrace.h"
00087
00088 #endif // GDCMLEGACYMACRO_H
```

13.41 gdcmMD5.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmMD5.h:



Classes

- class gdcm::MD5

  Class for MD5.

Namespaces

- namespace gdcm

13.42 gdcmMD5.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMD5_H
00015 #define GDCMMD5_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021 //-----------------------------------------------------------------------------
00032 class GDCM_EXPORT MD5
00033 {
00034 public :
00035   // Compute md5 from memory pointed by `pointer' of size `buf_len'
00036   static bool Compute(const char *buffer, size_t buf_len, char digest_str[33]);
00037
00039   static bool ComputeFile(const char *filename, char digest_str[33]);
00040 };
00041 } // end namespace gdcm
00042 //-----------------------------------------------------------------------------
00043 #endif //GDCMMD5_H
```
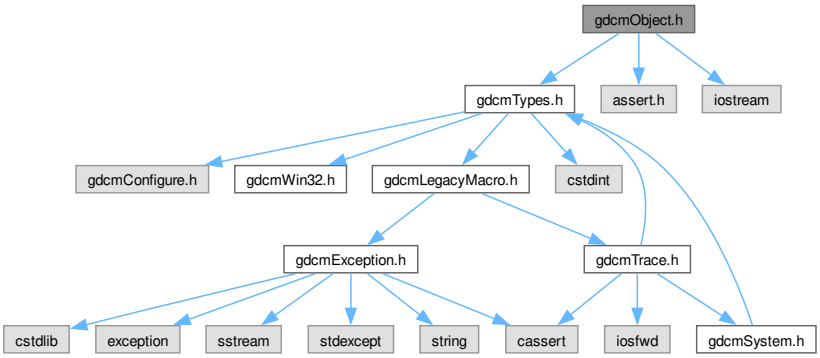

13.43 gdcmObject.h File Reference

```
#include "gdcmTypes.h"
#include <assert.h>
```

`#include <iostream>`
Include dependency graph for gdcmObject.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Object
  Object.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Object &obj)

13.44 gdcmObject.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
```

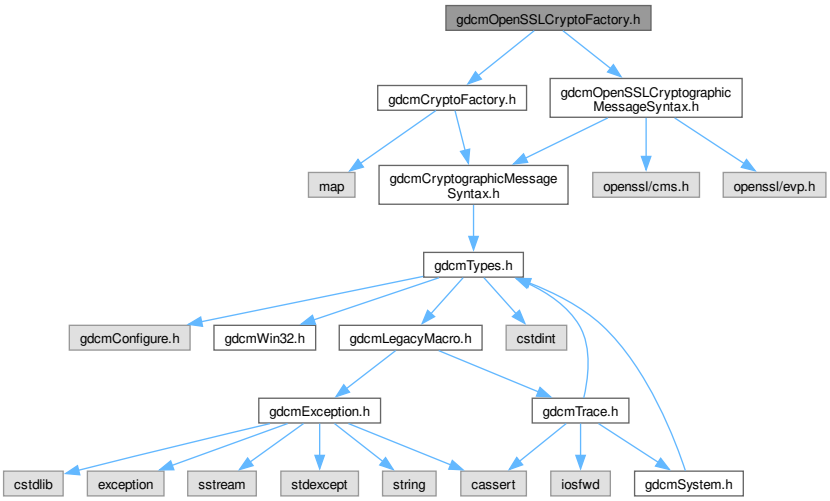
```
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMOBJECT_H
00015 #define GDCMOBJECT_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <assert.h>
00020 #include <iostream> // grrrr
00021
00022 //namespace std { class ostream; }
00023 namespace gdcm
00024 {
00025
00026 template<class ObjectType> class SmartPointer;
00027
00036 class GDCM_EXPORT Object
00037 {
00038   template <class ObjectType> friend class SmartPointer;
00039   friend std::ostream& operator«(std::ostream &os, const Object &obj);
00040
00041 public:
00042   Object():ReferenceCount(0) {}
00043
00044   // Implementation note:
00045   // If I move ~Object in the protected section I can prevent people
00046   // from writing:
00047   // SmartPointer<Object> p = new Object;
00048   // delete p; // due to SmartPointer::operator ObjectType * () const
00049   // but on the other hand one could not define an Object on the stack
00050   // Object obj;
00051   // Furthermore it would not prevent anyone from doing:
00052   // class MyObject : public Object {};
00053   // SmartPointer<MyObject> o = new MyObject;
00054   // delete o; // grrrrrr
00055   virtual ~Object() {
00056     // If your debugger reach here it means you are doing something silly
00057     // like using SmartPointer on object allocated on the stack (vs heap)
00058     assert(ReferenceCount == 0);
00059     }
00060
00061   // http://www.parashift.com/c++-faq-lite/freestore-mgmt.html#faq-16.24
00062   // Set the ref count to 0
00063   // Do NOT copy the reference count !
00065   Object(const Object&):ReferenceCount(0){}
00066   void operator=(const Object&){}
00067
00068   //static Object* New() { return new Object; }
00069
00070 protected:
00071   // For the purpose of the invasive SmartPointer implementation
00072   void Register() {
00073     ReferenceCount++;
00074     assert( ReferenceCount > 0 );
00075   }
00076   void UnRegister() {
00077     assert( ReferenceCount > 0 );
00078     ReferenceCount--;
00079     if(!ReferenceCount)
00080       {
00081       delete this;
00082       }
00083     }
00084
00085 public:
00086   // For dealing with printing of object and polymorphism
00087   virtual void Print(std::ostream &) const {}
00088
00089 private:
00090   long ReferenceCount;
00091 };
00092
00093 //-----------------------------------------------------------------------------
00094 // function do not carry vtable. Thus define in the base class the operator
00095 // and use the member function ->Print() to call the appropriate function
00096 // NOTE: All subclass of Object needs to implement the Print function
```

```
00097 inline std::ostream& operator«(std::ostream &os, const Object &obj)
00098 {
00099   obj.Print(os);
00100   return os;
00101 }
00102
00103 } // end namespace gdcm
00104
00105 #endif //GDCMOBJECT_H
```

13.45 gdcmOpenSSLCryptoFactory.h File Reference

```
#include "gdcmCryptoFactory.h"
#include "gdcmOpenSSLCryptographicMessageSyntax.h"
```

Include dependency graph for gdcmOpenSSLCryptoFactory.h:



Classes

- class gdcm::OpenSSLCryptoFactory

Namespaces

- namespace gdcm

13.46 gdcmOpenSSLCryptoFactory.h

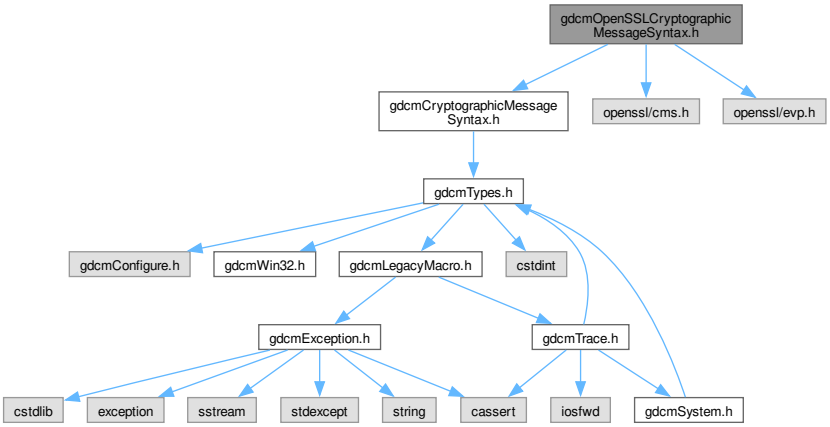
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMOPENSSLCRYPTOFACTORY_H
00015 #define GDCMOPENSSLCRYPTOFACTORY_H
00016
00017 #include "gdcmCryptoFactory.h"
00018 #include "gdcmOpenSSLCryptographicMessageSyntax.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class GDCM_EXPORT OpenSSLCryptoFactory : public CryptoFactory
00024 {
00025 public:
00026   OpenSSLCryptoFactory(CryptoLib id) : CryptoFactory(id)
00027   {
00028     gdcmDebugMacro( "OpenSSL Factory registered." );
00029   }
00030
00031 public:
00032   CryptographicMessageSyntax* CreateCMSProvider()
00033   {
00034     InitOpenSSL();
00035     return new OpenSSLCryptographicMessageSyntax();
00036   }
00037
00038 protected:
00039   void InitOpenSSL();
00040
00041 private:
00042   OpenSSLCryptoFactory(){}
00043 };
00044
00045 } // end namespace gdcm
00046
00047 #endif //GDCMOPENSSLCRYPTOFACTORY_H
```

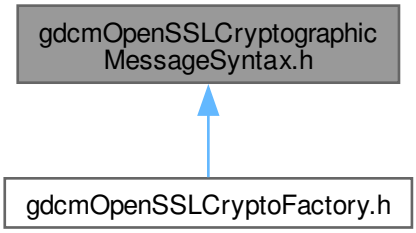
13.47 gdcmOpenSSLCryptographicMessageSyntax.h File Reference

```
#include "gdcmCryptographicMessageSyntax.h"
#include <openssl/cms.h>
#include <openssl/evp.h>
```

Include dependency graph for gdcmOpenSSLCryptographicMessageSyntax.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::OpenSSLCryptographicMessageSyntax

Namespaces

- namespace gdcm

13.48 gdcmOpenSSLCryptographicMessageSyntax.h

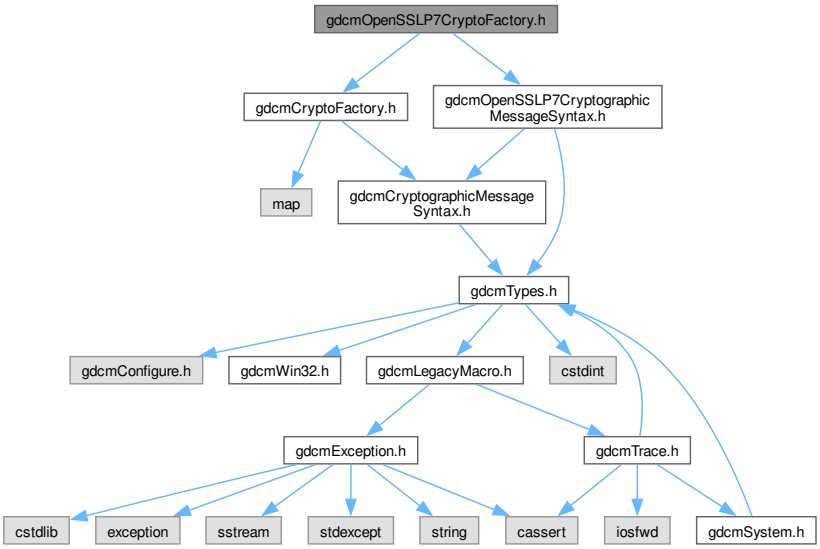
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMOPENSSLCRYPTOGRAPHICMESSAGESYNTAX_H
00015 #define GDCMOPENSSLCRYPTOGRAPHICMESSAGESYNTAX_H
00016
00017 #include "gdcmCryptographicMessageSyntax.h"
00018 #include <openssl/cms.h>
00019 #include <openssl/evp.h>
00020
00021 namespace gdcm
00022 {
00023
00024 class GDCM_EXPORT OpenSSLCryptographicMessageSyntax : public CryptographicMessageSyntax
00025 {
00026 public:
00027   OpenSSLCryptographicMessageSyntax();
00028   ~OpenSSLCryptographicMessageSyntax();
00029
00030   // X.509
00031   bool ParseCertificateFile( const char *filename );
00032   bool ParseKeyFile( const char *filename );
00033
00034   // PBE
00035   bool SetPassword(const char * pass, size_t passLen);
00036
00039   void SetCipherType(CipherTypes type);
00040   CipherTypes GetCipherType() const;
00042   bool Encrypt(char *output, size_t &outlen, const char *array, size_t len) const;
00044   bool Decrypt(char *output, size_t &outlen, const char *array, size_t len) const;
00045
00046 private:
00047 //#ifdef GDCM_HAVE_CMS_RECIPIENT_PASSWORD
00048 //  ::stack_st_X509 *recips;
00049 //#else
00050   STACK_OF(X509) *recips;
00051 //#endif
00052   ::EVP_PKEY *pkey;
00053   const EVP_CIPHER *internalCipherType;
00054   char * password;
00055   size_t passwordLength;
00056   CipherTypes cipherType;
00057
00058 private:
00059   OpenSSLCryptographicMessageSyntax(const OpenSSLCryptographicMessageSyntax&);  // Not implemented.
00060   void operator=(const OpenSSLCryptographicMessageSyntax&);  // Not implemented.
00061   const EVP_CIPHER *CreateCipher( CryptographicMessageSyntax::CipherTypes ciphertype);
00062
00063 };
00064
00065 } // end namespace gdcm
00066
00067 #endif //GDCMOPENSSLCRYPTOGRAPHICMESSAGESYNTAX_H
```

13.49 gdcmOpenSSLP7CryptoFactory.h File Reference

```
#include "gdcmCryptoFactory.h"
#include "gdcmOpenSSLP7CryptographicMessageSyntax.h"
```

Include dependency graph for gdcmOpenSSLP7CryptoFactory.h:



Classes

- class gdcm::OpenSSLP7CryptoFactory

Namespaces

- namespace gdcm

13.50 gdcmOpenSSLP7CryptoFactory.h

Go to the documentation of this file.

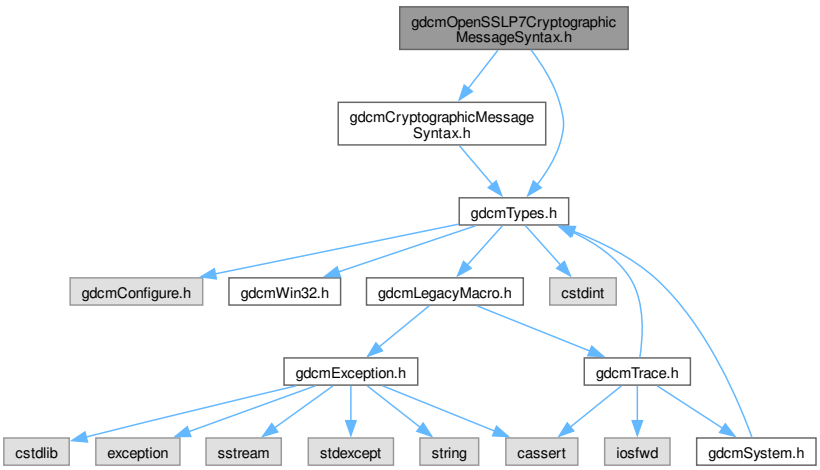
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMOPENSSLP7CRYPTOFACTORY_H
00015 #define GDCMOPENSSLP7CRYPTOFACTORY_H
00016
00017 #include "gdcmCryptoFactory.h"
00018 #include "gdcmOpenSSLP7CryptographicMessageSyntax.h"
00019
00020 namespace gdcm
```

```
00021 {
00022 class GDCM_EXPORT OpenSSLP7CryptoFactory : public CryptoFactory
00023 {
00024 public:
00025   OpenSSLP7CryptoFactory(CryptoLib id) : CryptoFactory(id)
00026   {
00027     gdcmDebugMacro( "OpenSSL (PKCS7) Factory registered." );
00028   }
00029
00030 public:
00031   CryptographicMessageSyntax* CreateCMSProvider()
00032   {
00033     return new OpenSSLP7CryptographicMessageSyntax();
00034   }
00035
00036 private:
00037   OpenSSLP7CryptoFactory(){}
00038 };
00039 }
00040
00041 #endif //GDCMOPENSSLP7CRYPTOFACTORY_H
```

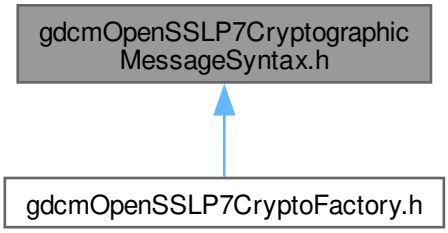
13.51 gdcmOpenSSLP7CryptographicMessageSyntax.h File Reference

```
#include "gdcmCryptographicMessageSyntax.h"
#include "gdcmTypes.h"
```

Include dependency graph for gdcmOpenSSLP7CryptographicMessageSyntax.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::OpenSSLP7CryptographicMessageSyntax

Namespaces

- namespace gdcm

13.52 gdcmOpenSSLP7CryptographicMessageSyntax.h

Go to the documentation of this file.

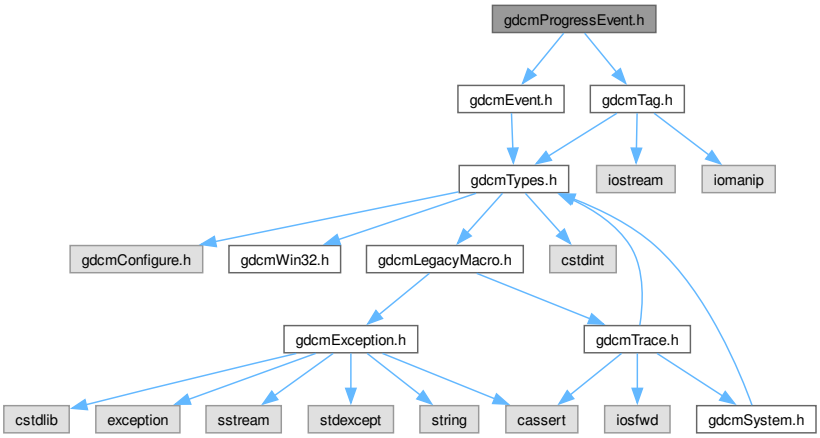
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMOPENSSLP7CRYPTOGRAPHICMESSAGESYNTAX_H
00015 #define GDCMOPENSSLP7CRYPTOGRAPHICMESSAGESYNTAX_H
00016
00017 #include "gdcmCryptographicMessageSyntax.h"
00018 #include "gdcmTypes.h"
00019
00020 namespace gdcm
00021 {
00022 class CryptographicMessageSyntaxInternals;
00023 //-----------------------------------------------------------------------------
00024
00034 class GDCM_EXPORT OpenSSLP7CryptographicMessageSyntax : public CryptographicMessageSyntax
00035 {
00036 public:
00037   OpenSSLP7CryptographicMessageSyntax();
00038   ~OpenSSLP7CryptographicMessageSyntax();
00039
```

```
00040     // X.509
00041   bool ParseCertificateFile( const char *filename );
00042   bool ParseKeyFile( const char *filename );
00043
00044   // PBE
00045   bool SetPassword(const char * /*pass*/, size_t /*passLen*/)
00046   {
00047     gdcmWarningMacro( "Openssl using PKCS7 does not support Password Based Encryption." );
00048     return false;
00049   }
00050
00053   void SetCipherType(CipherTypes type);
00054   CipherTypes GetCipherType() const;
00055
00057   bool Encrypt(char *output, size_t &outlen, const char *array, size_t len) const;
00058
00060   bool Decrypt(char *output, size_t &outlen, const char *array, size_t len) const;
00061
00062 private:
00063   CryptographicMessageSyntaxInternals *Internals;
00064 private:
00065   OpenSSLP7CryptographicMessageSyntax(const OpenSSLP7CryptographicMessageSyntax&);  // Not implemented.
00066   void operator=(const OpenSSLP7CryptographicMessageSyntax&);  // Not implemented.
00067 };
00068 } // end namespace gdcm
00069 //-----------------------------------------------------------------------------
00070 #endif //GDCMOPENSSLP7CRYPTOGRAPHICMESSAGESYNTAX_H
```

13.53 gdcmProgressEvent.h File Reference

```
#include "gdcmEvent.h"
#include "gdcmTag.h"
```

Include dependency graph for gdcmProgressEvent.h:



Classes

- class gdcm::ProgressEvent

  ProgressEvent.

Namespaces

- namespace gdcm

13.54 gdcmProgressEvent.h

Go to the documentation of this file.

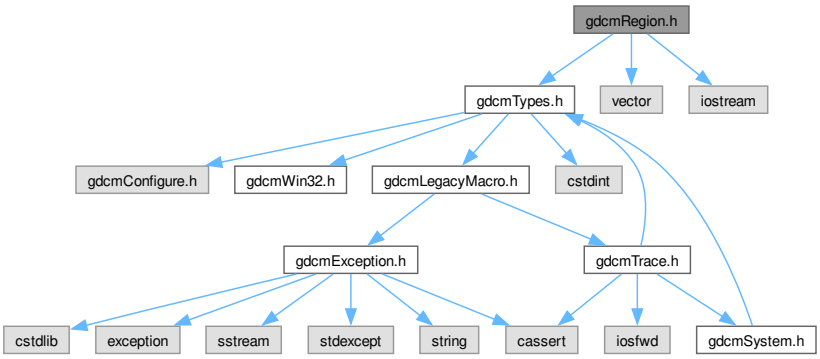
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPROGRESSEVENT_H
00015 #define GDCMPROGRESSEVENT_H
00016
00017 #include "gdcmEvent.h"
00018 #include "gdcmTag.h"
00019
00020 namespace gdcm
00021 {
00022
00029 class ProgressEvent : public AnyEvent
00030 {
00031 public:
00032   typedef ProgressEvent Self;
00033   typedef AnyEvent Superclass;
00034   ProgressEvent(double p = 0):m_Progress(p) {}
00035   ~ProgressEvent() override = default;
00036
00037   ProgressEvent(const Self&s) : AnyEvent(s){};
00038   void operator=(const Self&) = delete;
00039
00040   const char * GetEventName() const override { return "ProgressEvent"; }
00041   bool CheckEvent(const ::gdcm::Event* e) const override
00042     { return dynamic_cast<const Self*>(e) ? true : false; }
00043   ::gdcm::Event* MakeObject() const override
00044     { return new Self; }
00045
00046   void SetProgress(double p) { m_Progress = p; }
00047   double GetProgress() const { return m_Progress; }
00048 private:
00049   double m_Progress;
00050 };
00051
00052
00053 } // end namespace gdcm
00054
00055 #endif //GDCMPROGRESSEVENT_H
```

13.55 gdcmRegion.h File Reference

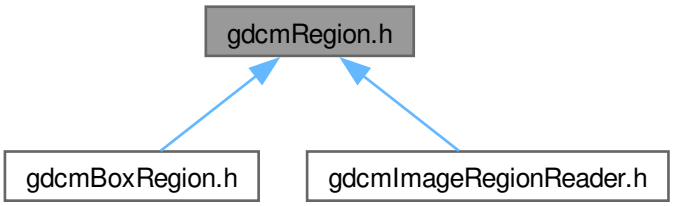
```
#include "gdcmTypes.h"
#include <vector>
```

```
#include <iostream>
```

Include dependency graph for gdcmRegion.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Region

  Class for manipulation region.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Region &r)

13.56 gdcmRegion.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMREGION_H
00015 #define GDCMREGION_H
00016
00017 #include "gdcmTypes.h"
00018 #include <vector>
00019 #include <iostream>
00020
00021 namespace gdcm
00022 {
00023 class BoxRegion;
00027 //-----------------------------------------------------------------------------
00028 class GDCM_EXPORT Region
00029 {
00030 public :
00031   Region();
00032   virtual ~Region();
00033
00035   virtual void Print(std::ostream &os = std::cout) const;
00036
00038   virtual bool Empty() const = 0;
00039
00041   virtual bool IsValid() const = 0;
00042
00044   virtual size_t Area() const = 0;
00045
00046   // implementation detail of heterogeneous container in C++
00047   virtual Region *Clone() const = 0;
00048
00050   virtual BoxRegion ComputeBoundingBox() = 0;
00051 private:
00052 };
00053 //-----------------------------------------------------------------------------
00054 inline std::ostream& operator<<(std::ostream &os, const Region&r)
00055 {
00056   r.Print( os );
00057   return os;
00058 }
00059
00060 } // end namespace gdcm
00061 //-----------------------------------------------------------------------------
00062 #endif //GDCMREGION_H
```
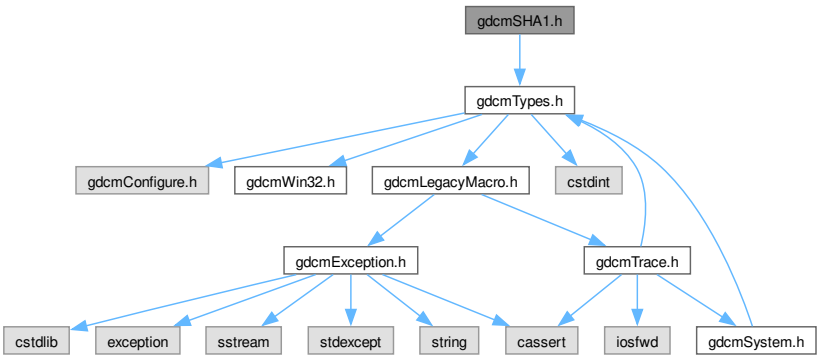

13.57 gdcmSHA1.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmSHA1.h:



Classes

- class gdcm::SHA1
  Class for SHA1.

Namespaces

- namespace gdcm

13.58 gdcmSHA1.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSHA1_H
00015 #define GDCMSHA1_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021 //-----------------------------------------------------------------------------
```
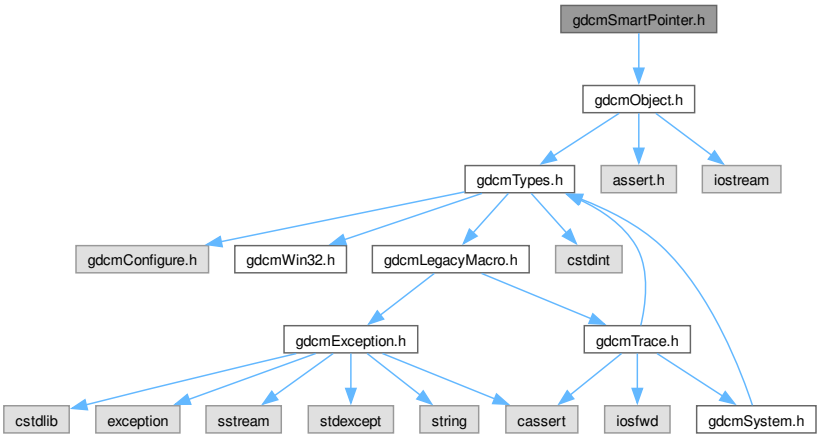
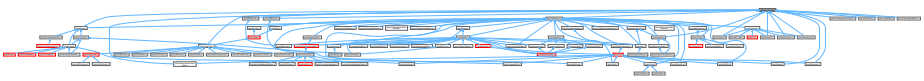

```
00022 class SHA1Internals;
00032 class GDCM_EXPORT SHA1
00033 {
00034 public :
00035   SHA1();
00036   ~SHA1();
00037   SHA1(const SHA1&) = delete;
00038   void operator=(const SHA1&) = delete;
00039
00040   static bool Compute(const char *buffer, unsigned long buf_len, char digest_str[20*2+1]);
00041
00042   static bool ComputeFile(const char *filename, char digest_str[20*2+1]);
00043
00044 private:
00045   SHA1Internals *Internals;
00046 };
00047 } // end namespace gdcm
00048 //-----------------------------------------------------------------------------
00049 #endif //GDCMSHA1_H
```

13.59 gdcmSmartPointer.h File Reference

`#include "gdcmObject.h"`
Include dependency graph for gdcmSmartPointer.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::SmartPointer< ObjectType >

  Class for Smart Pointer.

Namespaces

- namespace gdcm

13.60 gdcmSmartPointer.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSMARTPOINTER_H
00015 #define GDCMSMARTPOINTER_H
00016
00017 #include "gdcmObject.h"
00018
00019 namespace gdcm
00020 {
00038 template<class ObjectType>
00039 class SmartPointer
00040 {
00041 public:
00042   SmartPointer():Pointer(nullptr) {}
00043   SmartPointer(const SmartPointer<ObjectType>& p):Pointer(p.Pointer)
00044     { Register(); }
00045   SmartPointer(ObjectType* p):Pointer(p)
00046     { Register(); }
00047   SmartPointer(ObjectType const & p)
00048     {
00049     Pointer = const_cast<ObjectType*>(&p);
00050     Register();
00051     }
00052   ~SmartPointer() {
00053     UnRegister();
00054     Pointer = nullptr;
00055   }
00056
00058   ObjectType *operator -> () const
00059     { return Pointer; }
00060
00061   ObjectType& operator * () const
00062     {
00063     assert( Pointer );
00064     return *Pointer;
00065     }
00066
00068   operator ObjectType * () const
00069     { return Pointer; }
00070
00072   SmartPointer &operator = (SmartPointer const &r)
00073     { return operator = (r.Pointer); }
00074
00076   SmartPointer &operator = (ObjectType *r)
00077     {
00078     // http://www.parashift.com/c++-faq-lite/freestore-mgmt.html#faq-16.22
00079     // DO NOT CHANGE THE ORDER OF THESE STATEMENTS!
00080     // (This order properly handles self-assignment)
00081     // (This order also properly handles recursion, e.g., if a ObjectType contains
      SmartPointer<ObjectType>s)
00082     if( Pointer != r )
00083       {
00084       ObjectType* old = Pointer;
00085       Pointer = r;
00086       Register();
```

```
00087       if ( old ) { old->UnRegister(); }
00088       }
00089     return *this;
00090     }
00091
00092   SmartPointer &operator = (ObjectType const &r)
00093     {
00094     ObjectType* tmp = const_cast<ObjectType*>(&r);
00095     return operator = (tmp);
00096     }
00097
00099   ObjectType *GetPointer() const
00100     { return Pointer; }
00101
00102 private:
00103   void Register()
00104     {
00105     if(Pointer) Pointer->Register();
00106     }
00107
00108   void UnRegister()
00109     {
00110     if(Pointer) Pointer->UnRegister();
00111     }
00112
00113   ObjectType* Pointer;
00114 };
00115
00116 } // end namespace gdcm
00117
00118 #endif //GDCMSMARTPOINTER_H
```

13.61 gdcmStaticAssert.h File Reference

This graph shows which files directly or indirectly include this file:

Classes

- struct gdcm::static_assert_test< x >
- struct gdcm::STATIC_ASSERTION_FAILURE< true >

Namespaces

- namespace gdcm

Macros

- #define GDCM_DO_JOIN(X, Y)
- #define GDCM_DO_JOIN2(X, Y)
- #define GDCM_JOIN(X, Y)
- #define GDCM_STATIC_ASSERT(B)

  *The GDCM_JOIN + **LINE** is needed to create a uniq identifier.*

13.61.1 Macro Definition Documentation

13.61.1.1 GDCM_DO_JOIN

```
#define GDCM_DO_JOIN(
                X,
                Y)
```

Value:

```
GDCM_DO_JOIN2(X,Y)
```

13.61.1.2 GDCM_DO_JOIN2

```
#define GDCM_DO_JOIN2(
                X,
                Y)
```

Value:

```
X##Y
```

13.61.1.3 GDCM_JOIN

```
#define GDCM_JOIN(
                X,
                Y)
```

Value:

```
GDCM_DO_JOIN( X, Y )
```

13.61.1.4 GDCM_STATIC_ASSERT

```
#define GDCM_STATIC_ASSERT(
                B)
```

Value:

```
  typedef ::gdcm::static_assert_test<\
    sizeof(::gdcm::STATIC_ASSERTION_FAILURE< (bool)( B ) >)>\
      GDCM_JOIN(gdcm_static_assert_typedef_, __LINE__)
```

The GDCM_JOIN + **LINE** is needed to create a uniq identifier.

13.62 gdcmStaticAssert.h

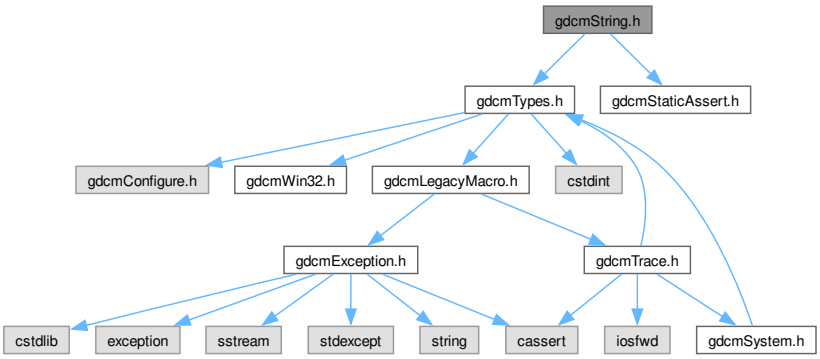
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSTATICASSERT_H
00015 #define GDCMSTATICASSERT_H
00016
00017
00018 // the following was shamelessly borowed from BOOST static assert:
00019 namespace gdcm
00020 {
00021   template <bool x>
00022   struct STATIC_ASSERTION_FAILURE;
00023
00024   template <>
00025   struct STATIC_ASSERTION_FAILURE<true> { enum { value = 1 }; };
00026
00027   template <int x>
00028   struct static_assert_test {};
00029 }
00030
00031 #define GDCM_JOIN( X, Y ) GDCM_DO_JOIN( X, Y )
00032 #define GDCM_DO_JOIN( X, Y ) GDCM_DO_JOIN2(X,Y)
00033 #define GDCM_DO_JOIN2( X, Y ) X##Y
00034
00036 #define GDCM_STATIC_ASSERT( B ) \
00037   typedef ::gdcm::static_assert_test<\
00038     sizeof(::gdcm::STATIC_ASSERTION_FAILURE< (bool)( B ) >)>\
00039       GDCM_JOIN(gdcm_static_assert_typedef_, __LINE__)
00040
00041
00042 /* Example of use:
00043  *
00044  * template <class T>
00045  * struct must_not_be_instantiated
00046  * {
00047  * // this will be triggered if this type is instantiated
00048  * GDCM_STATIC_ASSERT(sizeof(T) == 0);
00049  * };
00050  *
00051  */
00052 #endif // GDCMSTATICASSERT_H
```

13.63 gdcmString.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmStaticAssert.h"
```

Include dependency graph for gdcmString.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::String< TDelimiter, TMaxLength, TPadChar >
  String.

Namespaces

- namespace gdcm

Functions

- template<char TDelimiter, unsigned int TMaxLength, char TPadChar>
  std::istream & gdcm::operator>> (std::istream &is, String< TDelimiter, TMaxLength, TPadChar > &ms)

13.64 gdcmString.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSTRING_H
00015 #define GDCMSTRING_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmStaticAssert.h"
00019
00020 namespace gdcm
00021 {
00022
00030 template <char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
00031 class /*GDCM_EXPORT*/ String : public std::string /* PLEASE do not export me */
00032 {
00033   // UI wants \0 for pad character, while ASCII ones wants space char... do not allow anything else
00034   GDCM_STATIC_ASSERT( TPadChar == ' ' || TPadChar == 0 );
00035
00036 public:
00037   // typedef are not inherited:
00038   typedef std::string::value_type             value_type;
00039   typedef std::string::pointer                pointer;
00040   typedef std::string::reference              reference;
00041   typedef std::string::const_reference        const_reference;
00042   typedef std::string::size_type              size_type;
00043   typedef std::string::difference_type        difference_type;
00044   typedef std::string::iterator               iterator;
00045   typedef std::string::const_iterator         const_iterator;
00046   typedef std::string::reverse_iterator       reverse_iterator;
00047   typedef std::string::const_reverse_iterator const_reverse_iterator;
00048
00050   String(): std::string() {}
00051   String(const value_type* s): std::string(s)
00052   {
00053   if( size() % 2 )
00054     {
00055     push_back( TPadChar );
00056     }
00057   }
00058   String(const value_type* s, size_type n): std::string(s, n)
00059   {
00060   // We are being passed a const char* pointer, so s[n] == 0 (guaranteed!)
00061   if( n % 2 )
00062     {
00063     push_back( TPadChar );
00064     }
00065   }
00066   String(const std::string& s, size_type pos=0, size_type n=npos):
00067     std::string(s, pos, n)
00068   {
00069   // FIXME: some users might already have padded the string 's' with a trailing \0...
00070   if( size() % 2 )
00071     {
00072     push_back( TPadChar );
00073     }
00074   }
00075
00077   operator const char *() const { return this->c_str(); }
00078
00080   bool IsValid() const {
00081     // Check Length:
00082     size_type l = size();
00083     if( l > TMaxLength ) return false;
00084     return true;
00085   }
```
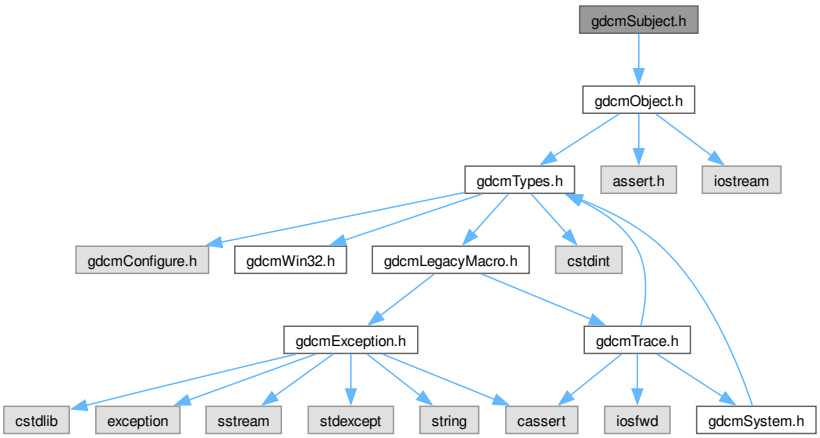

```
00086
00087   gdcm::String<TDelimiter, TMaxLength, TPadChar> Truncate() const {
00088     if( IsValid() ) return *this;
00089     std::string str = *this; // copy
00090     str.resize( TMaxLength );
00091     return str;
00092   }
00093
00096   std::string Trim() const {
00097     std::string str = *this; // copy
00098     std::string::size_type pos1 = str.find_first_not_of(' ');
00099     std::string::size_type pos2 = str.find_last_not_of(' ');
00100     str = str.substr( (pos1 == std::string::npos) ? 0 : pos1,
00101       (pos2 == std::string::npos) ? (str.size() - 1) : (pos2 - pos1 + 1));
00102     return str;
00103   }
00104
00105   static std::string Trim(const char *input) {
00106     if( !input ) return "";
00107     std::string str = input;
00108     std::string::size_type pos1 = str.find_first_not_of(' ');
00109     std::string::size_type pos2 = str.find_last_not_of(' ');
00110     str = str.substr( (pos1 == std::string::npos) ? 0 : pos1,
00111       (pos2 == std::string::npos) ? (str.size() - 1) : (pos2 - pos1 + 1));
00112     return str;
00113   }
00114 };
00115 template <char TDelimiter, unsigned int TMaxLength, char TPadChar>
00116 inline std::istream& operator»(std::istream &is, String<TDelimiter,TMaxLength,TPadChar> &ms)
00117 {
00118   if(is)
00119     {
00120     std::getline(is, ms, TDelimiter);
00121     // no such thing as std::get where the delim char would be left, so I need to manually add it back...
00122     // hopefully this is the right thing to do (no overhead)
00123     if( !is.eof() ) is.putback( TDelimiter );
00124     }
00125   return is;
00126 }
00127 //template <char TDelimiter = EOF, unsigned int TMaxLength = 64, char TPadChar = ' '>
00128 //String String::Trim() const
00129 //{
00130 //  String s;
00131 //  return s;
00132 //}
00133
00134 } // end namespace gdcm
00135
00136 #endif //GDCMSTRING_H
```

13.65 gdcmSubject.h File Reference

```
#include "gdcmObject.h"
```

Include dependency graph for gdcmSubject.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Subject
  Subject.

Namespaces

- namespace gdcm

13.66 gdcmSubject.h

Go to the documentation of this file.

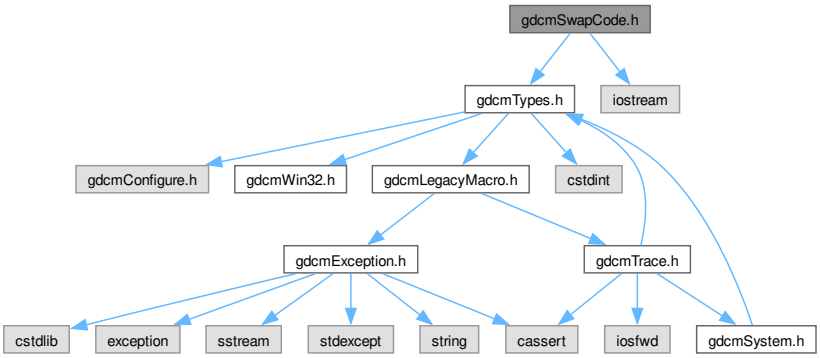
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
```

```
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSUBJECT_H
00015 #define GDCMSUBJECT_H
00016
00017 #include "gdcmObject.h"
00018
00019 namespace gdcm
00020 {
00021 class Event;
00022 class Command;
00023 class SubjectInternals;
00028 class GDCM_EXPORT Subject : public Object
00029 {
00030 public:
00031   Subject();
00032   ~Subject() override;
00033
00042   unsigned long AddObserver(const Event & event, Command *);
00043   unsigned long AddObserver(const Event & event, Command *) const;
00044
00050   Command* GetCommand(unsigned long tag);
00051
00053   void InvokeEvent( const Event & );
00054
00057   void InvokeEvent( const Event & ) const;
00058
00060   void RemoveObserver(unsigned long tag);
00061
00063   void RemoveAllObservers();
00064
00066   bool HasObserver( const Event & event ) const;
00067
00068 protected:
00069
00070 private:
00071   SubjectInternals *Internals;
00072 private:
00073 };
00074
00075 } // end namespace gdcm
00076
00077 #endif //GDCMSUBJECT_H
```

13.67 gdcmSwapCode.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmSwapCode.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::SwapCode

  SwapCode representation.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const SwapCode &sc)

13.68 gdcmSwapCode.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```
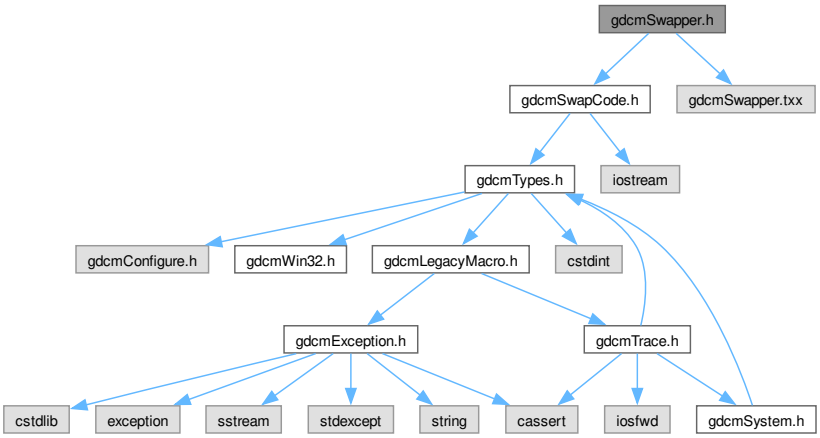

```
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSWAPCODE_H
00015 #define GDCMSWAPCODE_H
00016
00017 #include "gdcmTypes.h"
00018 #include <iostream>
00019
00020 namespace gdcm
00021 {
00022
00026 class GDCM_EXPORT SwapCode
00027 {
00028 public:
00029   typedef enum {
00030     Unknown         = 0,
00031     LittleEndian    = 1234,
00032     BigEndian       = 4321,
00033     BadLittleEndian = 3412,
00034     BadBigEndian    = 2143
00035   } SwapCodeType;
00036
00037   operator SwapCode::SwapCodeType() const { return SwapCodeValue; }
00038   SwapCode(SwapCodeType sc = Unknown):SwapCodeValue(sc) { }
00039   static const char* GetSwapCodeString(SwapCode const & sc);
00040
00041   friend std::ostream& operator<<(std::ostream& os, const SwapCode& sc);
00042 protected:
00043   static int GetIndex(SwapCode const & sc);
00044
00045 private:
00046   SwapCodeType SwapCodeValue;
00047 };
00048 //-----------------------------------------------------------------------------
00049 inline std::ostream& operator<<(std::ostream& os, const SwapCode& sc)
00050 {
00051   os << SwapCode::GetSwapCodeString(sc);
00052   return os;
00053 }
00054
00055 } // end namespace gdcm
00056
00057 #endif //GDCMSWAPCODE_H
```

13.69 gdcmSwapper.h File Reference

```
#include "gdcmSwapCode.h"
#include "gdcmSwapper.txx"
```

Include dependency graph for gdcmSwapper.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::SwapperDoOp
- class gdcm::SwapperNoOp

Namespaces

- namespace gdcm

13.70 gdcmSwapper.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
```
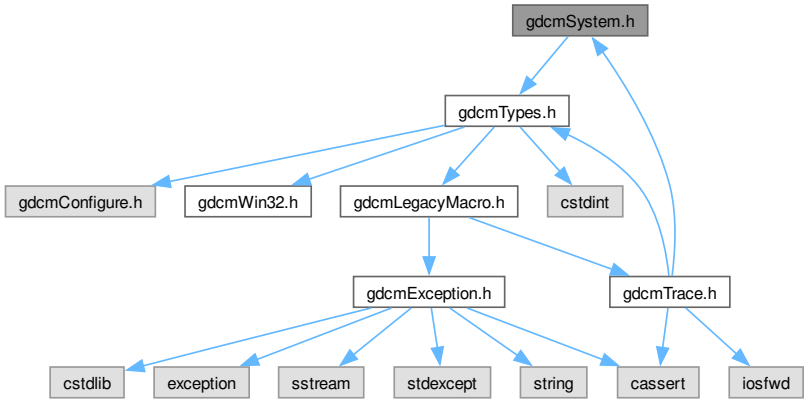

```
00013 =========================================================================*/
00014 #ifndef GDCMSWAPPER_H
00015 #define GDCMSWAPPER_H
00016
00017 #include "gdcmSwapCode.h"
00018
00019 namespace gdcm
00020 {
00021
00022
00023 #ifdef GDCM_WORDS_BIGENDIAN
00024 class SwapperDoOp
00025 {
00026 public:
00027   template <typename T> static T Swap(T val) {return val;}
00028   template <typename T> static void SwapArray(T *, size_t ) {}
00029 };
00030
00031 class SwapperNoOp
00032 {
00033 public:
00034   template <typename T> static T Swap(T val);
00035   template <typename T>
00036   static void SwapArray(T *array, size_t n)
00037   {
00038     // TODO: need to unroll loop:
00039     for(size_t i = 0; i < n; ++i)
00040     {
00041       array[i] = Swap<T>(array[i]);
00042     }
00043   }
00044 };
00045 #else
00046 class SwapperNoOp
00047 {
00048 public:
00049   template <typename T> static T Swap(T val) {return val;}
00050   template <typename T> static void SwapArray(T *, size_t ) {}
00051 };
00052
00053 class SwapperDoOp
00054 {
00055 public:
00056   template <typename T> static T Swap(T val);
00057   template <typename T>
00058   static void SwapArray(T *array, size_t n)
00059   {
00060     // TODO: need to unroll loop:
00061     for(size_t i = 0; i < n; ++i)
00062     {
00063       array[i] = Swap<T>(array[i]);
00064     }
00065   }
00066 };
00067 #endif
00068
00069
00070 } // end namespace gdcm
00071
00072 #include "gdcmSwapper.txx"
00073
00074 #endif //GDCMSWAPPER_H
```

13.71 gdcmSystem.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmSystem.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::System

  Class to do system operation.

Namespaces

- namespace gdcm

13.72 gdcmSystem.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00008
```
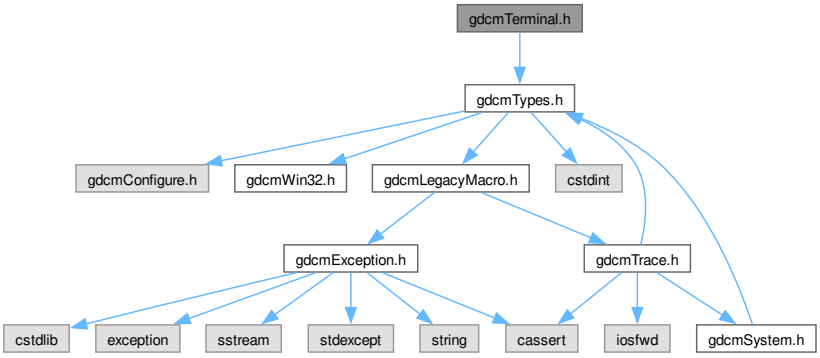

```
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSYSTEM_H
00015 #define GDCMSYSTEM_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00026 class GDCM_EXPORT System
00027 {
00028 public:
00030   static bool MakeDirectory(const char *path);
00032   static bool FileExists(const char* filename);
00034   static bool FileIsDirectory(const char* name);
00036   static bool FileIsSymlink(const char* name);
00038   static bool RemoveFile(const char* source);
00040   static bool DeleteDirectory(const char *source);
00041
00045   static std::wstring ConvertToUNC(const char *utf8path);
00046
00048   static const char *GetLastSystemError();
00049
00054   static size_t FileSize(const char* filename);
00055
00058   static time_t FileTime(const char* filename);
00059
00062   static const char *GetCurrentProcessFileName();
00063
00066   static const char *GetCurrentModuleFileName();
00067
00070   static const char *GetCurrentResourcesDirectory();
00071
00072   // TODO some system calls
00073   // Chdir
00074   // copy a file
00075
00078   static bool GetHostName(char hostname[255]);
00079
00080   // In the following the size '22' is explicitly listed. You need to pass in
00081   // at least 22bytes of array. If the string is an output it will be
00082   // automatically padded ( array[21] == 0 ) for you.
00083   // Those functions: GetCurrentDateTime / FormatDateTime / ParseDateTime do
00084   // not return the &YYZZ part of the DT structure as defined in DICOM PS 3.5 -
00085   // 2008 In this case it is simple to split the date[22] into a DA and TM
00086   // structure
00087
00092   static bool GetCurrentDateTime(char date[22]);
00093
00097   static bool FormatDateTime(char date[22], time_t t, long milliseconds = 0);
00098
00100   static bool ParseDateTime(time_t &timep, const char date[22]);
00101
00104   static bool ParseDateTime(time_t &timep, long &milliseconds, const char date[22]);
00105
00108   static const char *GetTimezoneOffsetFromUTC();
00109
00112   static size_t EncodeBytes(char *out, const unsigned char *data, int size);
00113
00115   static int StrCaseCmp(const char *s1, const char *s2);
00117   static int StrNCaseCmp(const char *s1, const char *s2, size_t n);
00118
00123   static const char * GetCWD();
00124
00126   static char *StrTokR(char *ptr, const char *sep, char **end);
00127
00131   static char *StrSep(char **stringp, const char *delim);
00132
00134   static const char *GetLocaleCharset();
00135
00137 /*
00138   static void SetArgv0(const char *);
00139   static const char* GetArgv0();
00140 */
00141
00142 protected:
00143   static bool GetPermissions(const char* file, unsigned short& mode);
```

```
00144   static bool SetPermissions(const char* file, unsigned short mode);
00145
00146 private:
00147 };
00148
00149 } // end namespace gdcm
00150
00151 #endif //GDCMSYSTEM_H
```

13.73 gdcmTerminal.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmTerminal.h:



Namespaces

- namespace gdcm
- namespace gdcm::terminal

  Class for Terminal.

Enumerations

- enum gdcm::terminal::Attribute {
  gdcm::terminal::reset = 0 ,
  gdcm::terminal::bright = 1 ,
  gdcm::terminal::dim = 2 ,
  gdcm::terminal::underline = 3 ,
  gdcm::terminal::blink = 5 ,
  gdcm::terminal::reverse = 7 ,
  gdcm::terminal::hidden = 8 }

- enum gdcm::terminal::Color {
  gdcm::terminal::black = 0 ,
  gdcm::terminal::red ,
  gdcm::terminal::green ,
  gdcm::terminal::yellow ,
  gdcm::terminal::blue ,
  gdcm::terminal::magenta ,
  gdcm::terminal::cyan ,
  gdcm::terminal::white }
- enum gdcm::terminal::Mode {
  gdcm::terminal::CONSOLE = 0 ,
  gdcm::terminal::VT100 }

Functions

- GDCM_EXPORT std::string gdcm::terminal::setattribute (Attribute att)
- GDCM_EXPORT std::string gdcm::terminal::setbgcolor (Color c)
- GDCM_EXPORT std::string gdcm::terminal::setfgcolor (Color c)
- GDCM_EXPORT void gdcm::terminal::setmode (Mode m)

13.74 gdcmTerminal.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTERMINAL_H
00015 #define GDCMTERMINAL_H
00016
00017 #include "gdcmTypes.h"
00018
00019
00020 namespace gdcm
00021 {
00028 //-----------------------------------------------------------------------------
00029
00030 namespace terminal
00031 {
00032   typedef enum
00033     {
00034     CONSOLE = 0,
00035     VT100
00036     } Mode;
00037   typedef enum
00038     {
00039     black = 0,
00040     red,
00041     green,
00042     yellow, // brown ??
00043     blue,
00044     magenta,
00045     cyan,
00046     white
```
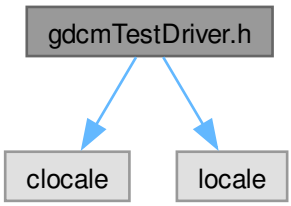

```
00047     } Color;
00048   typedef enum
00049     {
00050     reset     = 0,
00051     bright    = 1, // bold
00052     dim       = 2,
00053     underline = 3,
00054     blink     = 5,
00055     reverse   = 7,
00056     hidden    = 8
00057     } Attribute;
00058   GDCM_EXPORT std::string setattribute( Attribute att );
00059   GDCM_EXPORT std::string setfgcolor( Color c );
00060   GDCM_EXPORT std::string setbgcolor( Color c );
00061   GDCM_EXPORT void setmode( Mode m);
00062 }
00063
00064 } // end namespace gdcm
00065 //-----------------------------------------------------------------------------
00066 #endif //GDCMTERMINAL_H
```

13.75 gdcmTestDriver.h File Reference

```
#include <clocale>
#include <locale>
```

Include dependency graph for gdcmTestDriver.h:



13.76 gdcmTestDriver.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // This header is included by all the C++ test drivers in GDCM.
00015 #ifndef GDCMTESTDRIVER_H
```
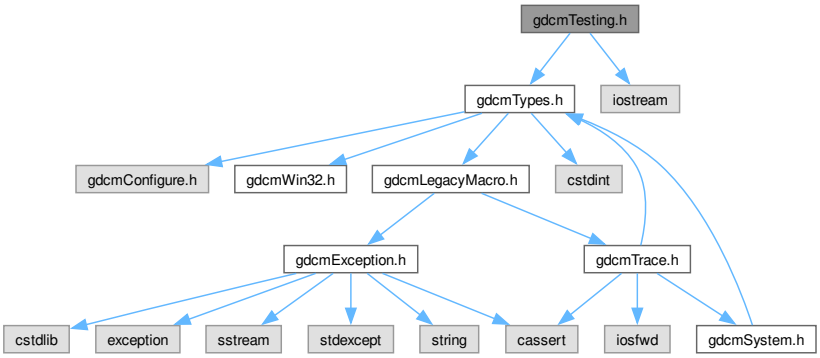

```
00016 #define GDCMTESTDRIVER_H
00017
00018 // CREATE_TEST_SOURCELIST supports the flag EXTRA_INCLUDE but only one per call.
00019 // So there is no way to specify we want to include two files... instead
00020 // gather the #include in a single file and include that one...
00021 #include <clocale> // C setlocale()
00022 #include <locale> // C++ locale
00023
00024 #endif // GDCMTESTDRIVER_H
```

13.77 gdcmTesting.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmTesting.h:



Classes

- class gdcm::Testing

  class for testing

Namespaces

- namespace gdcm

13.78 gdcmTesting.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00006   All rights reserved.
```

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTESTING_H
00015 #define GDCMTESTING_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <iostream>
00020
00021 namespace gdcm
00022 {
00030 //-----------------------------------------------------------------------------
00031 class GDCM_EXPORT Testing
00032 {
00033 public :
00034   Testing() = default;
00035   ~Testing() = default;
00036
00042   static bool ComputeMD5(const char *buffer, size_t buf_len,
00043     char digest_str[33]);
00044   static bool ComputeFileMD5(const char *filename, char digest_str[33]);
00045
00047   void Print(std::ostream &os = std::cout);
00048
00050   static const char * const * GetFileNames();
00051   static unsigned int GetNumberOfFileNames();
00052   static const char * GetFileName(unsigned int file);
00053
00055   typedef const char* const (*MediaStorageDataFilesType)[2];
00056   static MediaStorageDataFilesType GetMediaStorageDataFiles();
00057   static unsigned int GetNumberOfMediaStorageDataFiles();
00058   static const char * const * GetMediaStorageDataFile(unsigned int file);
00059   static const char * GetMediaStorageFromFile(const char *filepath);
00060
00063   typedef const char* const (*MD5DataImagesType)[2];
00064   static MD5DataImagesType GetMD5DataImages();
00065   static unsigned int GetNumberOfMD5DataImages();
00066   static const char * const * GetMD5DataImage(unsigned int file);
00067   static const char * GetMD5FromFile(const char *filepath);
00068
00071   static const char * GetMD5FromBrokenFile(const char *filepath);
00072
00075   static std::streamoff GetStreamOffsetFromFile(const char *filepath);
00076
00080   static std::streamoff GetSelectedTagsOffsetFromFile(const char *filepath);
00081
00085   static std::streamoff GetSelectedPrivateGroupOffsetFromFile(const char *filepath);
00086
00091   static int GetLossyFlagFromFile(const char *filepath);
00092
00094   static const char * GetDataRoot();
00095
00097   static const char * GetDataExtraRoot();
00098
00100   static const char * GetPixelSpacingDataRoot();
00101
00104   static const char * GetTempDirectory(const char * subdir = nullptr);
00105
00107   static const wchar_t *GetTempDirectoryW(const wchar_t * subdir = nullptr);
00108
00110   static const char * GetTempFilename(const char *filename, const char * subdir = nullptr);
00111
00113   static const wchar_t* GetTempFilenameW(const wchar_t *filename, const wchar_t* subdir = nullptr);
00114
00115   static const char *GetSourceDirectory();
00116 };
00117 } // end namespace gdcm
00118 //-----------------------------------------------------------------------------
00119 #endif //GDCMTESTING_H
```
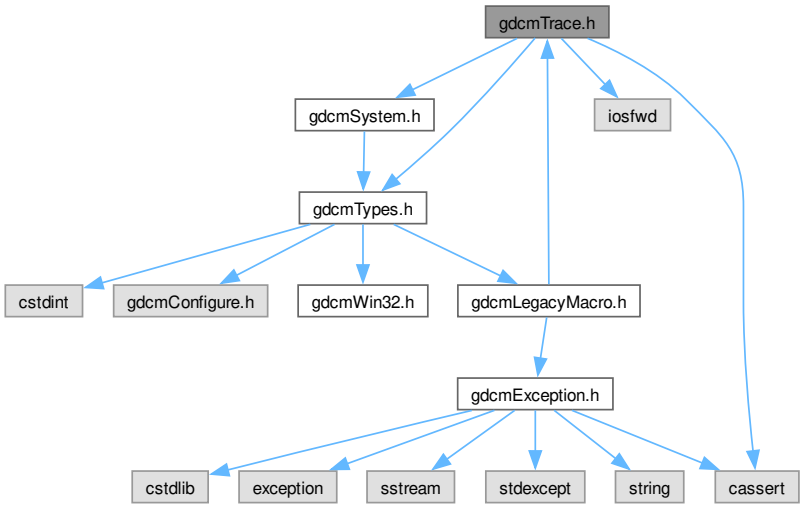

13.79 gdcmTrace.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmSystem.h"
#include <iosfwd>
#include <cassert>
```

Include dependency graph for gdcmTrace.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Trace
  Trace.

Namespaces

- namespace gdcm

Macros

- #define GDCM_FUNCTION "<unknown>"
- #define gdcmAssertAlwaysMacro(arg)

  AssertAlways.
- #define gdcmAssertMacro(arg)

  Assert.
- #define gdcmDebugMacro(msg)

  Debug.
- #define gdcmErrorMacro(msg)

  Error this is pretty bad, more than just warning It could mean lost of data, something not handle...
- #define gdcmWarningMacro(msg)

  Warning.

13.79.1 Macro Definition Documentation

13.79.1.1 GDCM_FUNCTION

```
#define GDCM_FUNCTION "<unknown>"
```

13.79.1.2 gdcmAssertAlwaysMacro

```
#define gdcmAssertAlwaysMacro(
              arg)
```

Value:

```
gdcmAssertMacro(arg)
```

AssertAlways.

Parameters

arg	argument to test An easy solution to pass also a message is to do: gdcmAssertMacro("my message" && 2 < 3)

Referenced by gdcm::DataElement::GetValue(), gdcm::DataElement::GetValue(), gdcm::BasicOffsetTable::Read(), gdcm::SequenceOfFragments::ReadValue(), gdcm::DataSet::Replace(), gdcm::DataSet::ReplaceEmpty(), and gdcm::VR::Write().

13.79.1.3 gdcmAssertMacro

```
#define gdcmAssertMacro(
              arg)
```

Value:

```
{                                                                    \
   if( !(arg) )                                                      \
   {                                                                 \
   std::ostringstream osmacro;                                       \
   osmacro « "Assert: In " __FILE__ ", line " « __LINE__          \
           « ", function " « GDCM_FUNCTION                          \
           « "\n\n";                                                 \
   std::ostream &_os = gdcm::Trace::GetErrorStream();                \
   _os « osmacro.str() « std::endl;                                 \
   assert ( arg );                                                   \
   }                                                                 \
}                                                                    \
GDCM_NOOP_STATEMENT
```

Assert.

Parameters

arg	argument to test An easy solution to pass also a message is to do: gdcmAssertMacro("my message" && 2 < 3)

Referenced by gdcm::PixelFormat::SetSamplesPerPixel().

13.79.1.4 gdcmDebugMacro

```
#define gdcmDebugMacro(
              msg)
```

Value:

```
{                                                                    \
   if( gdcm::Trace::GetDebugFlag() )                                 \
   {                                                                 \
   std::ostringstream osmacro;                                       \
   osmacro « "Debug: In " __FILE__ ", line " « __LINE__           \
           « ", function " « GDCM_FUNCTION « '\n'                  \
           « "Last system error was: "                               \
           « gdcm::System::GetLastSystemError() « '\n' « msg;   \
   std::ostream &_os = gdcm::Trace::GetDebugStream();                \
   _os « osmacro.str() « "\n\n" « std::endl;                        \
   }                                                                 \
}                                                                    \
GDCM_NOOP_STATEMENT
```

Debug.

Parameters

msg	message part

Referenced by gdcm::OpenSSLCryptoFactory::OpenSSLCryptoFactory(), gdcm::OpenSSLP7CryptoFactory::OpenSSLP7CryptoFactory(), gdcm::Item::Read(), gdcm::SequenceOfItems::Read(), gdcm::VR::Read(), gdcm::SequenceOfFragments::ReadPreValue(), and gdcm::SequenceOfFragments::ReadValue().

13.79.1.5 gdcmErrorMacro

```
#define gdcmErrorMacro(
              msg)
```

Value:

```
{                                                                    \
   if( gdcm::Trace::GetErrorFlag() )                                 \
   {                                                                 \
   std::ostringstream osmacro;                                       \
   osmacro « "Error: In " __FILE__ ", line " « __LINE__          \
           « ", function " « GDCM_FUNCTION « '\n'                \
           « msg « "\n\n";                                         \
   std::ostream &_os = gdcm::Trace::GetErrorStream();                \
   _os « osmacro.str() « std::endl;                                \
   }                                                                 \
}                                                                    \
GDCM_NOOP_STATEMENT
```

Error this is pretty bad, more than just warning It could mean lost of data, something not handle...

Parameters

msg	second message part

Referenced by gdcm::CommandDataSet::Insert(), gdcm::DataSet::Insert(), gdcm::FileMetaInformation::Insert(), gdcm::Item::Read(), and gdcm::Fragment::ReadBacktrack().

13.79.1.6 gdcmWarningMacro

```
#define gdcmWarningMacro(
              msg)
```

Value:

```
{                                                                    \
   if( gdcm::Trace::GetWarningFlag() )                               \
   {                                                                 \
   std::ostringstream osmacro;                                       \
   osmacro « "Warning: In " __FILE__ ", line " « __LINE__        \
           « ", function " « GDCM_FUNCTION « "\n"                \
           « msg « "\n\n";                                         \
   std::ostream &_os = gdcm::Trace::GetWarningStream();              \
   _os « osmacro.str() « std::endl;                                \
   }                                                                 \
}                                                                    \
GDCM_NOOP_STATEMENT
```

Warning.

Parameters

msg	message part

Referenced by gdcm::DataSet::InsertDataElement(), gdcm::Item::Read(), gdcm::SequenceOfItems::Read(), gdcm::Fragment::ReadBacktr
gdcm::Fragment::ReadValue(), gdcm::SequenceOfFragments::ReadValue(), gdcm::OpenSSLP7CryptographicMessageSyntax::SetPassw
and gdcm::Item::Write().

13.80 gdcmTrace.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTRACE_H
00015 #define GDCMTRACE_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmSystem.h"
00019
00020 #include <iosfwd>
00021 #include <cassert>
00022
00023 namespace gdcm
00024 {
00025
00041 class GDCM_EXPORT Trace
00042 {
00043 public :
00044   Trace();
00045   ~Trace();
00046
00049   static void SetStream(std::ostream &os);
00050   static std::ostream &GetStream();
00051
00053   static void SetDebugStream(std::ostream &os);
00054   static std::ostream &GetDebugStream();
00055
00057   static void SetWarningStream(std::ostream &os);
00058   static std::ostream &GetWarningStream();
00059
00061   static void SetErrorStream(std::ostream &os);
00062   static std::ostream &GetErrorStream();
00063
00066   static void SetStreamToFile( const char *filename );
00067
00069   static void SetDebug(bool debug);
00070   static void DebugOn();
00071   static void DebugOff();
00072   static bool GetDebugFlag();
00073
00075   static void SetWarning(bool debug);
00076   static void WarningOn();
00077   static void WarningOff();
00078   static bool GetWarningFlag();
00079
00081   static void SetError(bool debug);
00082   static void ErrorOn();
00083   static void ErrorOff();
00084   static bool GetErrorFlag();
00085
00086 protected:
00087 private:
00088 };
00089
00090 // Here we define function this is the only way to be able to pass
00091 // stuff with indirection like:
00092 // gdcmDebug( "my message:" « i « '\t' );
00093 // You cannot use function unless you use vnsprintf ...
00094
00095 // __FUNCTION is not always defined by preprocessor
00096 // In c++ we should use __PRETTY_FUNCTION__ instead...
00097 #ifdef GDCM_CXX_HAS_FUNCTION
00098 // Handle particular case for GNU C++ which also defines __PRETTY_FUNCTION__
00099 // which is a lot nice in C++
00100 #ifdef __BORLANDC__
```

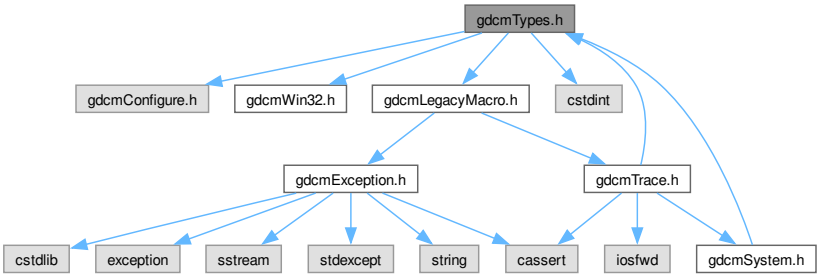
```
00101 #  define __FUNCTION__ __FUNC__
00102 #endif
00103 #ifdef __GNUC__
00104 #  define GDCM_FUNCTION __PRETTY_FUNCTION__
00105 #else
00106 #  define GDCM_FUNCTION __FUNCTION__
00107 #endif //__GNUC__
00108 #else
00109 #  define GDCM_FUNCTION "<unknown>"
00110 #endif //GDCM_CXX_HAS_FUNCTION
00111
00116 #if defined(NDEBUG) && !defined(GDCM_ALWAYS_TRACE_MACRO)
00117 #define gdcmDebugMacro(msg) GDCM_NOOP_STATEMENT
00118 #else
00119 #define gdcmDebugMacro(msg)                                          \
00120 {                                                                    \
00121    if( gdcm::Trace::GetDebugFlag() )                                 \
00122    {                                                                 \
00123    std::ostringstream osmacro;                                       \
00124    osmacro « "Debug: In " __FILE__ ", line " « __LINE__          \
00125            « ", function " « GDCM_FUNCTION « '\n'                \
00126            « "Last system error was: "                             \
00127            « gdcm::System::GetLastSystemError() « '\n' « msg;   \
00128    std::ostream &_os = gdcm::Trace::GetDebugStream();                \
00129    _os « osmacro.str() « "\n\n" « std::endl;                      \
00130    }                                                                 \
00131 }                                                                    \
00132 GDCM_NOOP_STATEMENT
00133 #endif //NDEBUG
00134
00139 #if defined(NDEBUG) && !defined(GDCM_ALWAYS_TRACE_MACRO)
00140 #define gdcmWarningMacro(msg) GDCM_NOOP_STATEMENT
00141 #else
00142 #define gdcmWarningMacro(msg)                                        \
00143 {                                                                    \
00144    if( gdcm::Trace::GetWarningFlag() )                               \
00145    {                                                                 \
00146    std::ostringstream osmacro;                                       \
00147    osmacro « "Warning: In " __FILE__ ", line " « __LINE__       \
00148            « ", function " « GDCM_FUNCTION « "\n"                \
00149            « msg « "\n\n";                                         \
00150    std::ostream &_os = gdcm::Trace::GetWarningStream();              \
00151    _os « osmacro.str() « std::endl;                               \
00152    }                                                                 \
00153 }                                                                    \
00154 GDCM_NOOP_STATEMENT
00155 #endif //NDEBUG
00156
00162 #if defined(NDEBUG) && !defined(GDCM_ALWAYS_TRACE_MACRO)
00163 #define gdcmErrorMacro(msg) GDCM_NOOP_STATEMENT
00164 #else
00165 #define gdcmErrorMacro(msg)                                          \
00166 {                                                                    \
00167    if( gdcm::Trace::GetErrorFlag() )                                 \
00168    {                                                                 \
00169    std::ostringstream osmacro;                                       \
00170    osmacro « "Error: In " __FILE__ ", line " « __LINE__          \
00171            « ", function " « GDCM_FUNCTION « '\n'                \
00172            « msg « "\n\n";                                         \
00173    std::ostream &_os = gdcm::Trace::GetErrorStream();                \
00174    _os « osmacro.str() « std::endl;                               \
00175    }                                                                 \
00176 }                                                                    \
00177 GDCM_NOOP_STATEMENT
00178 #endif //NDEBUG
00179
00186 #if defined(NDEBUG) && !defined(GDCM_ALWAYS_TRACE_MACRO)
00187 #define gdcmAssertMacro(arg) GDCM_NOOP_STATEMENT
00188 #else
00189 #define gdcmAssertMacro(arg)                                         \
00190 {                                                                    \
00191    if( !(arg) )                                                      \
00192    {                                                                 \
00193    std::ostringstream osmacro;                                       \
00194    osmacro « "Assert: In " __FILE__ ", line " « __LINE__          \
00195            « ", function " « GDCM_FUNCTION                        \
00196            « "\n\n";                                               \
00197    std::ostream &_os = gdcm::Trace::GetErrorStream();                \
00198    _os « osmacro.str() « std::endl;                               \
00199    assert ( arg );                                                   \
00200    }                                                                 \
```

```
00201 }                                                                    \
00202 GDCM_NOOP_STATEMENT
00203 #endif //NDEBUG
00204
00211 #if defined(NDEBUG)
00212 // User asked for release compilation, but still need to report
00213 // if grave issue.
00214 #define gdcmAssertAlwaysMacro(arg) \
00215 {                                                                    \
00216   if( !(arg) )                                                       \
00217   {                                                                  \
00218   std::ostringstream osmacro;                                        \
00219   osmacro « "Assert: In " __FILE__ ", line " « __LINE__             \
00220           « ", function " « GDCM_FUNCTION                           \
00221           « "\n\n";                                                  \
00222   throw osmacro.str();                                               \
00223   }                                                                  \
00224 }                                                                    \
00225 GDCM_NOOP_STATEMENT
00226 #else
00227 // Simply reproduce gdcmAssertMacro behavior:
00228 #define gdcmAssertAlwaysMacro(arg) gdcmAssertMacro(arg)
00229 #endif //NDEBUG
00230
00231 } // end namespace gdcm
00232 //-----------------------------------------------------------------------------
00233 #endif //GDCMTRACE_H
```

13.81 gdcmTypes.h File Reference

```
#include "gdcmConfigure.h"
#include "gdcmWin32.h"
#include "gdcmLegacyMacro.h"
#include <cstdint>
```

Include dependency graph for gdcmTypes.h:



13.82 gdcmTypes.h

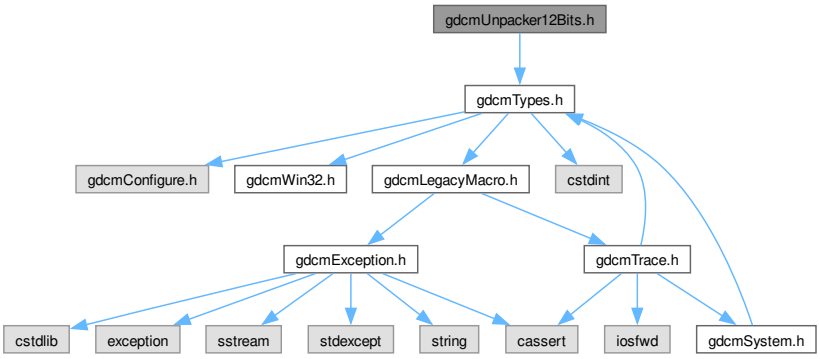
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
```

```
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTYPES_H
00015 #define GDCMTYPES_H
00016
00017 #include "gdcmConfigure.h"
00018 #include "gdcmWin32.h"
00019 #include "gdcmLegacyMacro.h"
00020
00021 //-----------------------------------------------------------------------------
00022 #include <cstdint>
00023
00024 //-----------------------------------------------------------------------------
00025 #endif //GDCMTYPES_H
```

13.83 gdcmUnpacker12Bits.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmUnpacker12Bits.h:



Classes

- class gdcm::Unpacker12Bits

  Pack/Unpack 12 bits pixel into 16bits.

Namespaces

- namespace gdcm

13.84 gdcmUnpacker12Bits.h

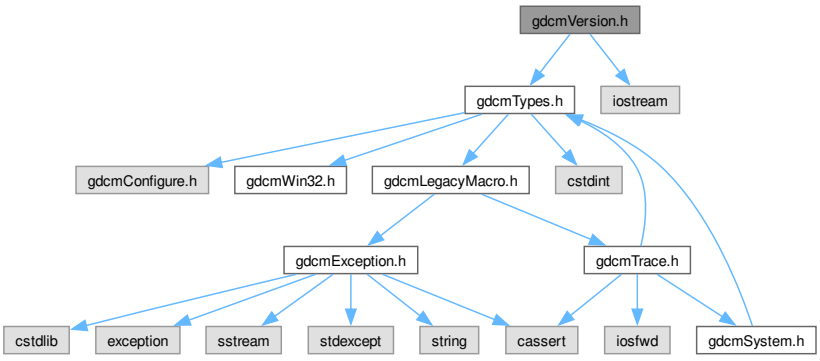
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMUNPACKER12BITS_H
00015 #define GDCMUNPACKER12BITS_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00034 class GDCM_EXPORT Unpacker12Bits
00035 {
00036 public:
00040   static bool Pack(char *out, const char *in, size_t n);
00041
00045   static bool Unpack(char *out, const char *in, size_t n);
00046 };
00047
00048 } // end namespace gdcm
00049
00050 #endif //GDCMUNPACKER12BITS_H
```

13.85 gdcmVersion.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmVersion.h:



Classes

- class gdcm::Version

  major/minor and build version

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Version &v)

13.86 gdcmVersion.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMVERSION_H
00015 #define GDCMVERSION_H
00016
00017 #include "gdcmTypes.h"
00018 #include <iostream>
00019
00020 namespace gdcm
00021 {
00026 //-----------------------------------------------------------------------------
00027 class GDCM_EXPORT Version
00028 {
00029   friend std::ostream& operator<<(std::ostream &_os, const Version &v);
00030 public :
00031   static const char *GetVersion();
00032   static int GetMajorVersion();
00033   static int GetMinorVersion();
00034   static int GetBuildVersion();
00035
00036   void Print(std::ostream &os = std::cout) const;
00037
00038 //protected:
00039   Version() = default;
00040   ~Version() = default;
00041 };
00042 //-----------------------------------------------------------------------------
00043 inline std::ostream& operator<<(std::ostream &os, const Version &v)
00044 {
00045   v.Print( os );
00046   return os;
00047 }
00048
00049 } // end namespace gdcm
00050 //-----------------------------------------------------------------------------
00051 #endif //GDCMVERSION_H
```

13.87 gdcmWin32.h File Reference

This graph shows which files directly or indirectly include this file:

Macros

- #define GDCM_EXPORT

13.87.1 Macro Definition Documentation

13.87.1.1 GDCM_EXPORT

```
#define GDCM_EXPORT
```

Referenced by gdcm::terminal::setattribute(), gdcm::terminal::setbgcolor(), gdcm::terminal::setfgcolor(), and gdcm::terminal::setmode().

13.88 gdcmWin32.h

Go to the documentation of this file.

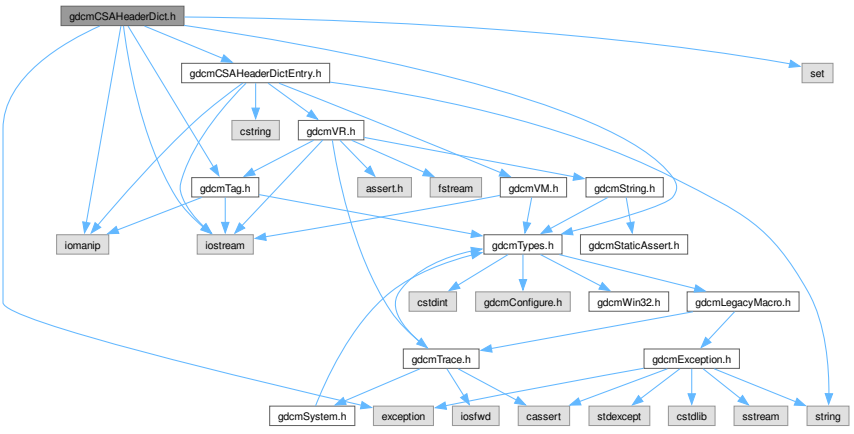
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMWIN32_H
00016 #define GDCMWIN32_H
00017
00018 #if !defined(GDCMTYPES_H)
00019 #error you need to include gdcmTypes.h instead
00020 #endif
00021 //-----------------------------------------------------------------------------
00022 // http://gcc.gnu.org/wiki/Visibility
00023 #if defined(_WIN32) && defined(GDCM_BUILD_SHARED_LIBS)
00024   #if (defined(gdcmCommon_EXPORTS) || defined(gdcmDICT_EXPORTS) || defined(gdcmDSED_EXPORTS) ||
      defined(gdcmIOD_EXPORTS) || defined(gdcmMSFF_EXPORTS) || defined(gdcmMEXD_EXPORTS)||
      defined(_gdcmswig_EXPORTS)) || defined(vtkgdcm_EXPORTS)
00025     #define GDCM_EXPORT __declspec( dllexport )
00026   #else
00027     #define GDCM_EXPORT __declspec( dllimport )
00028   #endif
00029 #else
00030   #if __GNUC__ >= 4 && defined(GDCM_BUILD_SHARED_LIBS)
00031     #define GDCM_EXPORT __attribute__ ((visibility ("default")))
00032     #define GDCM_LOCAL  __attribute__ ((visibility ("hidden")))
00033   #else
00034     #define GDCM_EXPORT
00035   #endif
00036 #endif
00037
00038 #if defined(GDCM_OVERRIDE_BROKEN_IMPLEMENTATION) && !defined(GDCM_FORCE_EXPORT)
00039 #undef GDCM_EXPORT
00040 #define GDCM_EXPORT
00041 #endif
00042
00043 // In VTK 4.2 vtkWrapPython does not like anything other than VTK_*EXPORT
00044 // [ 86%] Generating vtkGDCMImageReaderPython.cxx
00045 // syntax error
```

```
00046 // *** SYNTAX ERROR found in parsing the header file
      /usr/local/src/gdcm2/tags/gdcm-2-0-11/Utilities/VTK/vtkGDCMImageReader.h before line 128***
00047 // make[2]: *** [Utilities/VTK/vtkGDCMImageReaderPython.cxx] Error 1
00048 // make[1]: *** [Utilities/VTK/CMakeFiles/vtkgdcmPythonD.dir/all] Error 2
00049 // make: *** [all] Error 2
00050
00051 #if defined(VTK_MAJOR_VERSION) && ( VTK_MAJOR_VERSION == 4 )
00052 #undef VTK_EXPORT
00053 #define VTK_EXPORT GDCM_EXPORT
00054 #endif
00055
00056 //----------------------------------------------------------------------------
00057 //This is needed when compiling in debug mode
00058 #ifdef _MSC_VER
00059 // to allow construct such as: std::numeric_limits<int>::max() we need the following:
00060 // warning C4003: not enough actual parameters for macro 'max'
00061 #ifndef NOMINMAX
00062   #define NOMINMAX
00063 #endif
00064 # pragma warning ( default : 4263 ) /* no override, call convention differs */
00065 // 'identifier' : class 'type' needs to have dll-interface to be used by
00066 // clients of class 'type2'
00067 #pragma warning ( disable : 4251 )
00068 // non dll-interface class 'type' used as base for dll-interface class 'type2'
00069 #pragma warning ( disable : 4275 )
00070 // 'identifier' : identifier was truncated to 'number' characters in the
00071 // debug information
00072 #pragma warning ( disable : 4786 )
00073 //'identifier' : decorated name length exceeded, name was truncated
00074 #pragma warning ( disable : 4503 )
00075 #endif //_MSC_VER
00076
00077 //----------------------------------------------------------------------------
00078 #endif //GDCMWIN32_H
```

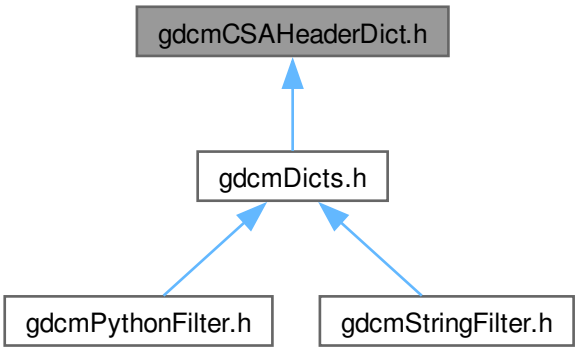
13.89 gdcmCSAHeaderDict.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmCSAHeaderDictEntry.h"
#include <iostream>
#include <iomanip>
#include <set>
#include <exception>
```

Include dependency graph for gdcmCSAHeaderDict.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::CSAHeaderDict

  Class to represent a map of CSAHeaderDictEntry.
- class gdcm::CSAHeaderDictException

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const CSAHeaderDict &val)

13.90 gdcmCSAHeaderDict.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCSAHEADERDICT_H
```

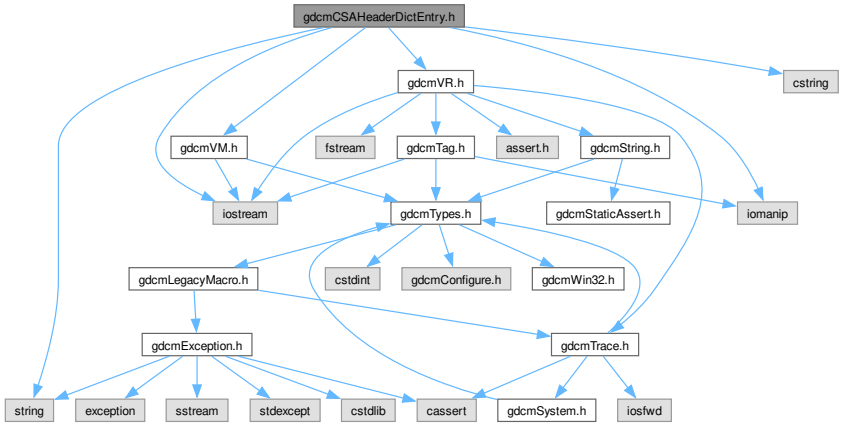
```
00015 #define GDCMCSAHEADERDICT_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmTag.h"
00019 #include "gdcmCSAHeaderDictEntry.h"
00020
00021 #include <iostream>
00022 #include <iomanip>
00023 #include <set>
00024 #include <exception>
00025
00026 namespace gdcm
00027 {
00028
00029 class GDCM_EXPORT CSAHeaderDictException : public std::exception {};
00030
00034 class GDCM_EXPORT CSAHeaderDict
00035 {
00036 public:
00037   typedef std::set<CSAHeaderDictEntry> MapCSAHeaderDictEntry;
00038   typedef MapCSAHeaderDictEntry::iterator Iterator;
00039   typedef MapCSAHeaderDictEntry::const_iterator ConstIterator;
00040   //static CSAHeaderDictEntry GroupLengthCSAHeaderDictEntry; // = CSAHeaderDictEntry("Group
      Length",VR::UL,VM::VM1);
00041
00042   CSAHeaderDict():CSAHeaderDictInternal() {
00043     assert( CSAHeaderDictInternal.empty() );
00044   }
00045   CSAHeaderDict &operator=(const CSAHeaderDict &_val) = delete;
00046   CSAHeaderDict(const CSAHeaderDict &_val) = delete;
00047
00048   friend std::ostream& operator«(std::ostream& _os, const CSAHeaderDict &_val);
00049
00050   ConstIterator Begin() const { return CSAHeaderDictInternal.begin(); }
00051   ConstIterator End() const { return CSAHeaderDictInternal.end(); }
00052
00053   bool IsEmpty() const { return CSAHeaderDictInternal.empty(); }
00054   void AddCSAHeaderDictEntry(const CSAHeaderDictEntry &de)
00055     {
00056 #ifndef NDEBUG
00057     MapCSAHeaderDictEntry::size_type s = CSAHeaderDictInternal.size();
00058 #endif
00059     CSAHeaderDictInternal.insert( de );
00060     assert( s < CSAHeaderDictInternal.size() );
00061     }
00062
00063   const CSAHeaderDictEntry &GetCSAHeaderDictEntry(const char *name) const
00064     {
00065     MapCSAHeaderDictEntry::const_iterator it = CSAHeaderDictInternal.find( name );
00066     if( it != CSAHeaderDictInternal.end() )
00067       {
00068       return *it;
00069       }
00070     throw CSAHeaderDictException();
00071     }
00072
00073 protected:
00074   friend class Dicts;
00075   void LoadDefault();
00076
00077 private:
00078
00079   MapCSAHeaderDictEntry CSAHeaderDictInternal;
00080 };
00081 //-----------------------------------------------------------------------------
00082 inline std::ostream& operator«(std::ostream& os, const CSAHeaderDict &val)
00083 {
00084   CSAHeaderDict::MapCSAHeaderDictEntry::const_iterator it = val.CSAHeaderDictInternal.begin();
00085   for(;it != val.CSAHeaderDictInternal.end(); ++it)
00086     {
00087     const CSAHeaderDictEntry &de = *it;
00088     os « de « '\n';
00089     }
00090
00091
00092   return os;
00093 }
00094
00095
00096 } // end namespace gdcm
00097
```

```
00098 #endif //GDCMCSAHEADERDICT_H
```

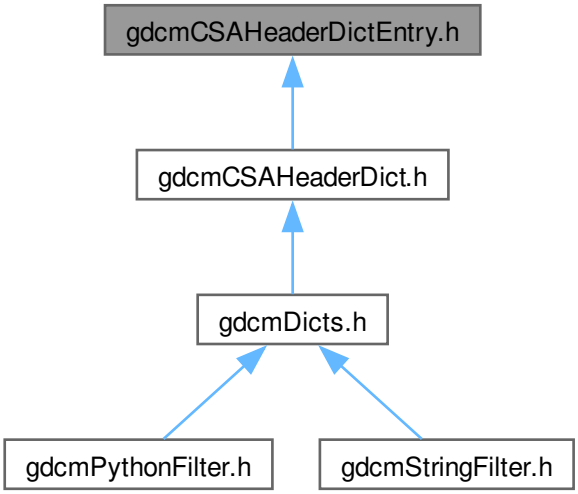
13.91 gdcmCSAHeaderDictEntry.h File Reference

```
#include "gdcmVR.h"
#include "gdcmVM.h"
#include <string>
#include <iostream>
#include <iomanip>
#include <cstring>
```

Include dependency graph for gdcmCSAHeaderDictEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::CSAHeaderDictEntry

  Class to represent an Entry in the Dict.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const CSAHeaderDictEntry &val)

13.92 gdcmCSAHeaderDictEntry.h

Go to the documentation of this file.

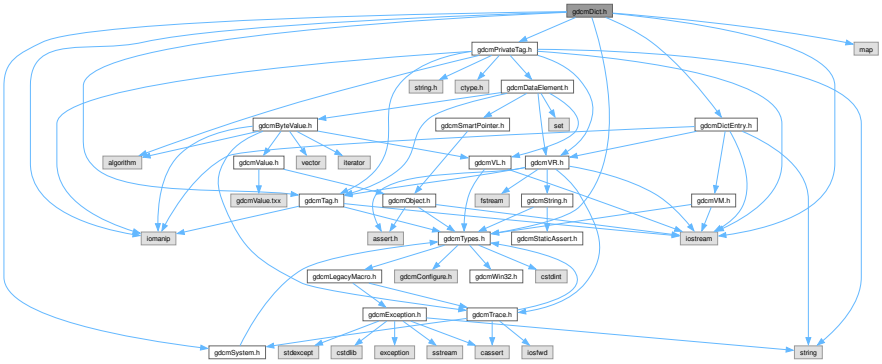
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
```

```
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCSAHEADERDICTENTRY_H
00015 #define GDCMCSAHEADERDICTENTRY_H
00016
00017 #include "gdcmVR.h"
00018 #include "gdcmVM.h"
00019
00020 #include <string>
00021 #include <iostream>
00022 #include <iomanip>
00023
00024 #include <cstring>
00025
00026 namespace gdcm
00027 {
00038 class GDCM_EXPORT CSAHeaderDictEntry
00039 {
00040 public:
00041   CSAHeaderDictEntry(const char *name = "", VR const &vr = VR::INVALID, VM const &vm = VM::VM0, const char
      *desc = ""):Name(name),ValueRepresentation(vr),ValueMultiplicity(vm),Description(desc) {
00042   }
00043
00044   friend std::ostream& operator«(std::ostream& _os, const CSAHeaderDictEntry &_val);
00045
00047   const VR &GetVR() const { return ValueRepresentation; }
00048   void SetVR(const VR & vr) { ValueRepresentation = vr; }
00049
00051   const VM &GetVM() const { return ValueMultiplicity; }
00052   void SetVM(VM const & vm) { ValueMultiplicity = vm; }
00053
00055   const char *GetName() const { return Name.c_str(); }
00056   void SetName(const char* name) { Name = name; }
00057
00059   const char *GetDescription() const { return Description.c_str(); }
00060   void SetDescription(const char* desc) { Description = desc; }
00061
00062   bool operator<(const CSAHeaderDictEntry &entry) const
00063     {
00064     return strcmp(GetName(),entry.GetName()) < 0;
00065     }
00066
00067 private:
00068   std::string Name;
00069   VR ValueRepresentation;
00070   VM ValueMultiplicity;
00071   std::string Description;
00072   std::string Type; // TODO
00073 };
00074
00075
00076 //-----------------------------------------------------------------------------
00077 inline std::ostream& operator«(std::ostream& os, const CSAHeaderDictEntry &val)
00078 {
00079   if( val.Name.empty() )
00080     {
00081     os « "[No name]";
00082     }
00083   else
00084     {
00085     os « val.Name;
00086     }
00087   os « "\t" « val.ValueRepresentation « "\t" « val.ValueMultiplicity;
00088   if( !val.Description.empty() )
00089     {
00090     os « "\t" « val.Description;
00091     }
00092   return os;
00093 }
00094
00095 } // end namespace gdcm
00096
00097 #endif //GDCMCSAHEADERDICTENTRY_H
```

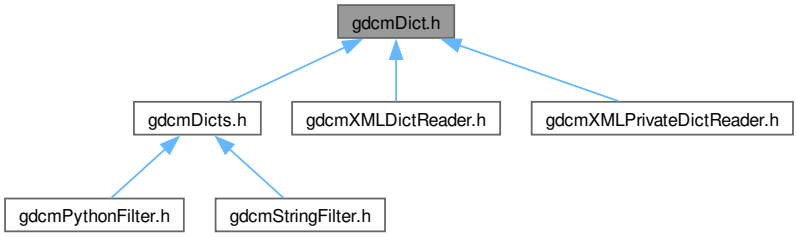
13.93 gdcmDict.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmPrivateTag.h"
#include "gdcmDictEntry.h"
#include "gdcmSystem.h"
#include <iostream>
#include <iomanip>
#include <map>
```

Include dependency graph for gdcmDict.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Dict

  Class to represent a map of DictEntry.
- class gdcm::PrivateDict

  Private Dict.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Dict &val)
- std::ostream & gdcm::operator<< (std::ostream &os, const PrivateDict &val)

13.94 gdcmDict.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDICT_H
00015 #define GDCMDICT_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmTag.h"
00019 #include "gdcmPrivateTag.h"
00020 #include "gdcmDictEntry.h"
00021 #include "gdcmSystem.h"
00022
00023 #include <iostream>
00024 #include <iomanip>
00025 #include <map>
00026
00027 /*
00028  * FIXME / TODO
00029  * I need to seriously rewrite this mess. a class template should work for both a public
00030  * and a private dict
00031  */
00032
00033 namespace gdcm
00034 {
00035 // Data Element Tag
00044 class GDCM_EXPORT Dict
00045 {
00046 public:
00047   typedef std::map<Tag, DictEntry> MapDictEntry;
00048   typedef MapDictEntry::iterator Iterator;
00049   typedef MapDictEntry::const_iterator ConstIterator;
00050   //static DictEntry GroupLengthDictEntry; // = DictEntry("Group Length",VR::UL,VM::VM1);
00051
00052   Dict():DictInternal() {
00053     assert( DictInternal.empty() );
00054   }
00055   Dict &operator=(const Dict &_val) = delete;
00056   Dict(const Dict &_val) = delete;
00057
00058
00059   friend std::ostream& operator«(std::ostream& _os, const Dict &_val);
00060
00061   ConstIterator Begin() const { return DictInternal.begin(); }
00062   ConstIterator End() const { return DictInternal.end(); }
00063
00064   bool IsEmpty() const { return DictInternal.empty(); }
00065   void AddDictEntry(const Tag &tag, const DictEntry &de)
```

```
00066     {
00067 #ifndef NDEBUG
00068     MapDictEntry::size_type s = DictInternal.size();
00069 #endif
00070     DictInternal.insert(
00071       MapDictEntry::value_type(tag, de));
00072     assert( s < DictInternal.size() );
00073     }
00074
00075   const DictEntry &GetDictEntry(const Tag &tag) const
00076     {
00077     MapDictEntry::const_iterator it =
00078       DictInternal.find(tag);
00079     if (it == DictInternal.end())
00080       {
00081 #ifdef UNKNOWNPUBLICTAG
00082       // test.acr
00083       if( tag != Tag(0x28,0x15)
00084         && tag != Tag(0x28,0x16)
00085         && tag != Tag(0x28,0x199)
00086         // gdcmData/TheralysGDCM1.dcm
00087         && tag != Tag(0x20,0x1)
00088         // gdcmData/0019004_Baseline_IMG1.dcm
00089         && tag != Tag(0x8348,0x339)
00090         && tag != Tag(0xb5e8,0x338)
00091         // gdcmData/dicomdir_Acusson_WithPrivate_WithSR
00092         && tag != Tag(0x40,0xa125)
00093       )
00094         {
00095         assert( 0 && "Impossible" );
00096         }
00097 #endif
00098       it = DictInternal.find( Tag(0xffff,0xffff) );
00099       return it->second;
00100       }
00101     assert( DictInternal.count(tag) == 1 );
00102     return it->second;
00103     }
00104
00106   const char *GetKeywordFromTag(Tag const & tag) const
00107     {
00108     MapDictEntry::const_iterator it =
00109       DictInternal.find(tag);
00110     if (it == DictInternal.end())
00111       {
00112       return nullptr;
00113       }
00114     assert( DictInternal.count(tag) == 1 );
00115     return it->second.GetKeyword();
00116     }
00117
00122   const DictEntry &GetDictEntryByKeyword(const char *keyword, Tag & tag) const
00123     {
00124     MapDictEntry::const_iterator it =
00125       DictInternal.begin();
00126     if( keyword )
00127       {
00128       for(; it != DictInternal.end(); ++it)
00129         {
00130         if( strcmp( keyword, it->second.GetKeyword() ) == 0 )
00131           {
00132           // Found a match !
00133           tag = it->first;
00134           break;
00135           }
00136         }
00137       }
00138     else
00139       {
00140       it = DictInternal.end();
00141       }
00142     if (it == DictInternal.end())
00143       {
00144       tag = Tag(0xffff,0xffff);
00145       it = DictInternal.find( tag );
00146       return it->second;
00147       }
00148     assert( DictInternal.count(tag) == 1 );
00149     return it->second;
00150     }
00151
```

```
00155   const DictEntry &GetDictEntryByName(const char *name, Tag & tag) const
00156     {
00157     MapDictEntry::const_iterator it =
00158       DictInternal.begin();
00159     if( name )
00160       {
00161       for(; it != DictInternal.end(); ++it)
00162         {
00163         if( strcmp( name, it->second.GetName() ) == 0 )
00164           {
00165           // Found a match !
00166           tag = it->first;
00167           break;
00168           }
00169         }
00170       }
00171     else
00172       {
00173       it = DictInternal.end();
00174       }
00175     if (it == DictInternal.end())
00176       {
00177       tag = Tag(0xffff,0xffff);
00178       it = DictInternal.find( tag );
00179       return it->second;
00180       }
00181     assert( DictInternal.count(tag) == 1 );
00182     return it->second;
00183     }
00184
00185 protected:
00186   friend class Dicts;
00187   void LoadDefault();
00188
00189 private:
00190   MapDictEntry DictInternal;
00191 };
00192 //-----------------------------------------------------------------------------
00193 inline std::ostream& operator<<(std::ostream& os, const Dict &val)
00194 {
00195   Dict::MapDictEntry::const_iterator it = val.DictInternal.begin();
00196   for(;it != val.DictInternal.end(); ++it)
00197     {
00198     const Tag &t = it->first;
00199     const DictEntry &de = it->second;
00200     os << t << " " << de << '\n';
00201     }
00202
00203   return os;
00204 }
00205
00206 // TODO
00207 // For private dict, element < 0x10 should automatically defined:
00208 // Name = "Private Creator"
00209 // ValueRepresentation = LO
00210 // ValueMultiplicity = 1
00211 // Owner = ""
00212
00216 class GDCM_EXPORT PrivateDict
00217 {
00218   typedef std::map<PrivateTag, DictEntry> MapDictEntry;
00219   friend std::ostream& operator<<(std::ostream& os, const PrivateDict &val);
00220 public:
00221   PrivateDict() = default;
00222   ~PrivateDict() = default;
00223   void AddDictEntry(const PrivateTag &tag, const DictEntry &de)
00224     {
00225 #ifndef NDEBUG
00226     MapDictEntry::size_type s = DictInternal.size();
00227 #endif
00228     DictInternal.insert(
00229       MapDictEntry::value_type(tag, de));
00230 // The following code should only be used when manually constructing a Private.xml file by hand
00231 // it will get rid of VR::UN duplicate (ie. if a VR != VR::Un can be found)
00232 #if defined(NDEBUG) && 0
00233     if( s == DictInternal.size() )
00234       {
00235       MapDictEntry::iterator it =
00236         DictInternal.find(tag);
00237       assert( it != DictInternal.end() );
00238       DictEntry &duplicate = it->second;
```

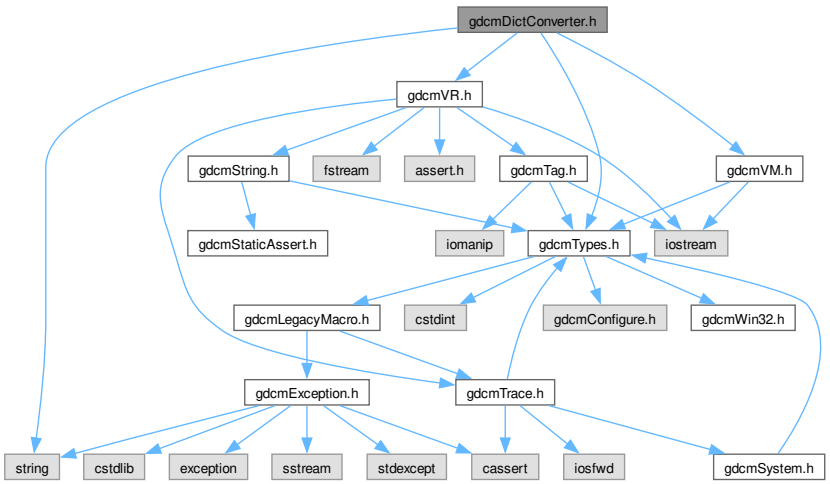
```
00239       assert( de.GetVR() == VR::UN || duplicate.GetVR() == VR::UN );
00240       assert( de.GetVR() != duplicate.GetVR() );
00241       if( duplicate.GetVR() == VR::UN )
00242         {
00243         assert( de.GetVR() != VR::UN );
00244         duplicate.SetVR( de.GetVR() );
00245         duplicate.SetVM( de.GetVM() );
00246         assert( GetDictEntry(tag).GetVR() != VR::UN );
00247         assert( GetDictEntry(tag).GetVR() == de.GetVR() );
00248         assert( GetDictEntry(tag).GetVM() == de.GetVM() );
00249         }
00250       return;
00251       }
00252 #endif
00253     assert( s < DictInternal.size() /*&& std::cout << tag << "," << de << std::endl*/ );
00254     }
00257   bool RemoveDictEntry(const PrivateTag &tag)
00258     {
00259     MapDictEntry::size_type s =
00260       DictInternal.erase(tag);
00261     assert( s == 1 || s == 0 );
00262     return s == 1;
00263     }
00264   bool FindDictEntry(const PrivateTag &tag) const
00265     {
00266     MapDictEntry::const_iterator it =
00267       DictInternal.find(tag);
00268     if (it == DictInternal.end())
00269       {
00270       return false;
00271       }
00272     return true;
00273     }
00274   const DictEntry &GetDictEntry(const PrivateTag &tag) const
00275     {
00276     // if 0x10 -> return Private Creator
00277     MapDictEntry::const_iterator it =
00278       DictInternal.find(tag);
00279     if (it == DictInternal.end())
00280       {
00281       //assert( 0 && "Impossible" );
00282       it = DictInternal.find( PrivateTag(0xffff,0xffff,"GDCM Private Sentinel" ) );
00283       assert (it != DictInternal.end());
00284       return it->second;
00285       }
00286     assert( DictInternal.count(tag) == 1 );
00287     return it->second;
00288     }
00289
00290
00291   void PrintXML() const
00292     {
00293     MapDictEntry::const_iterator it = DictInternal.begin();
00294     std::cout << "<dict edition=\"2008\">\n";
00295     for(;it != DictInternal.end(); ++it)
00296       {
00297       const PrivateTag &t = it->first;
00298       const DictEntry &de = it->second;
00299       std::cout << "  <entry group=\"" << std::hex << std::setw(4)
00300         << std::setfill('0') << t.GetGroup() << "\"" <<
00301         " element=\"xx" << std::setw(2) << std::setfill('0')<< t.GetElement() << "\"" << " vr=\""
00302         << de.GetVR() << "\" vm=\"" << de.GetVM() << "\" owner=\""
00303         << t.GetOwner();
00304       const char *name = de.GetName();
00305       if( *name == 0 )
00306         {
00307         std::cout << "\"/>\n";
00308         }
00309       else
00310         {
00311         std::cout << "\" name=\"" << de.GetName() << "\"/>\n";
00312         }
00313       }
00314     std::cout << "</dict>\n";
00315     }
00316
00317   bool IsEmpty() const { return DictInternal.empty(); }
00318 protected:
00319   friend class Dicts;
00320   void LoadDefault();
00321
```

```
00322 private:
00323   PrivateDict &operator=(const PrivateDict &_val) = delete;
00324   PrivateDict(const PrivateDict &_val) = delete;
00325
00326   MapDictEntry DictInternal;
00327 };
00328 //-----------------------------------------------------------------------------
00329 inline std::ostream& operator«(std::ostream& os, const PrivateDict &val)
00330 {
00331   PrivateDict::MapDictEntry::const_iterator it = val.DictInternal.begin();
00332   for(;it != val.DictInternal.end(); ++it)
00333     {
00334     const PrivateTag &t = it->first;
00335     const DictEntry &de = it->second;
00336     os « t « " " « de « '\n';
00337     }
00338
00339   return os;
00340 }
00341
00342 } // end namespace gdcm
00343
00344 #endif //GDCMDICT_H
```

13.95 gdcmDictConverter.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVR.h"
#include "gdcmVM.h"
#include <string>
```

Include dependency graph for gdcmDictConverter.h:



Classes

- class gdcm::DictConverter

  Class to convert a .dic file into something else:

Namespaces

- namespace gdcm

13.96 gdcmDictConverter.h

Go to the documentation of this file.

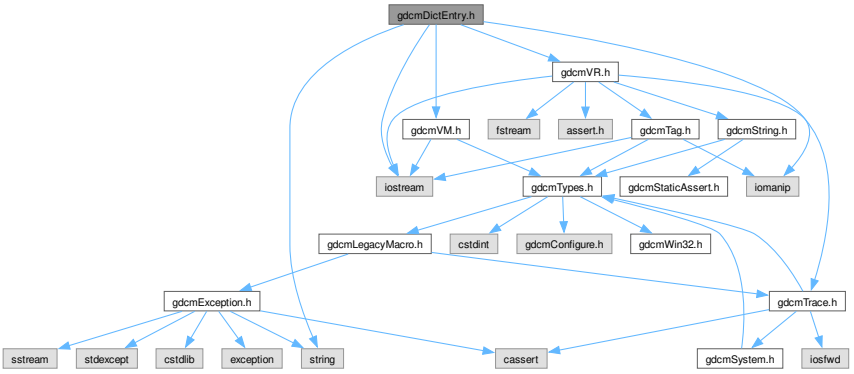
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMDICTCONVERTER_H
00016 #define GDCMDICTCONVERTER_H
00017
00018 #include "gdcmTypes.h"
00019 #include "gdcmVR.h"
00020 #include "gdcmVM.h"
00021
00022 #include <string>
00023
00024 namespace gdcm
00025 {
00026
00027 class DictConverterInternal;
00036 class GDCM_EXPORT DictConverter
00037 {
00038 public:
00039   DictConverter();
00040   ~DictConverter();
00041   void SetInputFileName(const char* filename);
00042   const std::string &GetInputFilename() const;
00043   void SetOutputFileName(const char* filename);
00044   const std::string &GetOutputFilename() const;
00045
00046   int GetOutputType() const {
00047     return OutputType;
00048   }
00049   void SetOutputType(int type) {
00050     OutputType = type;
00051   }
00052   const std::string &GetDictName() const;
00053   void SetDictName(const char *name);
00054
00055   void Convert();
00056
00057   // Leaving them public for now. Not really user oriented but may be
00058   // useful
00059   static bool ReadVR(const char *raw, VR::VRType &type);
00060   static bool ReadVM(const char *raw, VM::VMType &type);
00061   static bool Readuint16(const char *raw, uint16_t &ov);
00062
00063   enum OutputTypes {
00064     DICT_DEFAULT = 0,
00065     DICT_DEBUG,
00066     DICT_XML
00067   };
00068
00069 protected:
00070   void WriteHeader();
00071   void WriteFooter();
00072   bool ConvertToXML(const char *raw, std::string &cxx);
00073   bool ConvertToCXX(const char *raw, std::string &cxx);
00074   void AddGroupLength();
```

```
00075
00076 private:
00077   DictConverterInternal *Internal;
00078
00079   int OutputType;
00080 };
00081
00082 } // end namespace gdcm
00083
00084 #endif //GDCMDICTCONVERTER_H
```

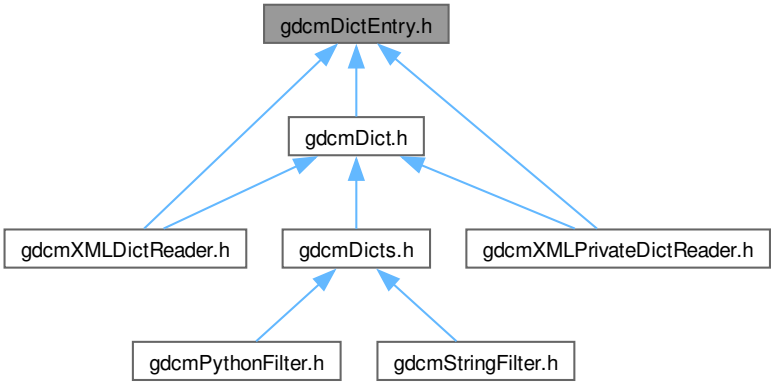
13.97 gdcmDictEntry.h File Reference

```
#include "gdcmVR.h"
#include "gdcmVM.h"
#include <string>
#include <iostream>
#include <iomanip>
```

Include dependency graph for gdcmDictEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::DictEntry

  Class to represent an Entry in the Dict.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const DictEntry &val)

13.98 gdcmDictEntry.h

Go to the documentation of this file.

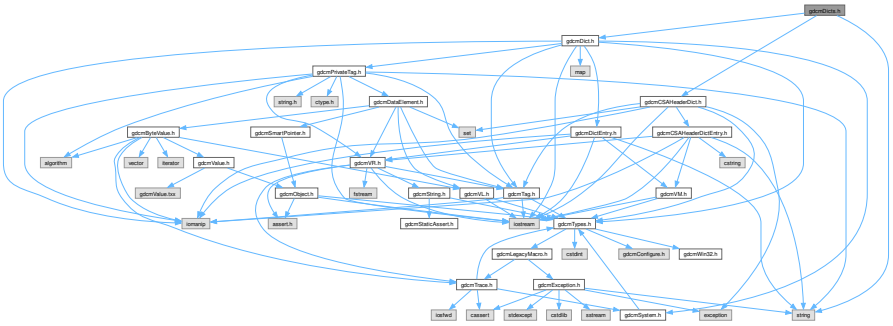
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDICTENTRY_H
00015 #define GDCMDICTENTRY_H
00016
00017 #include "gdcmVR.h"
00018 #include "gdcmVM.h"
00019
00020 #include <string>
00021 #include <iostream>
00022 #include <iomanip>
00023
00024 namespace gdcm
00025 {
00036 class GDCM_EXPORT DictEntry
00037 {
00038 public:
00039   DictEntry(const char *name = "", const char *keyword = "", VR const &vr = VR::INVALID, VM const &vm =
      VM::VM0, bool ret = false):
00040     Name(name),
00041     Keyword(keyword),
00042     ValueRepresentation(vr),
00043     ValueMultiplicity(vm),
00044     Retired(ret),
00045     GroupXX(false),
00046     ElementXX(false)
00047   {
00048   }
00049
00050   friend std::ostream& operator«(std::ostream& _os, const DictEntry &_val);
00051
00053   const VR &GetVR() const { return ValueRepresentation; }
00054   void SetVR(const VR & vr) { ValueRepresentation = vr; }
00055 //  bool IsValid() const { return ValueRepresentation != VR::VR_END; }
00056 //    !Name.empty() /*&& ValueRepresentation && ValueMultiplicity*/; }
00057
00059   const VM &GetVM() const { return ValueMultiplicity; }
00060   void SetVM(VM const & vm) { ValueMultiplicity = vm; }
```

```
00061
00063   const char *GetName() const { return Name.c_str(); }
00064   void SetName(const char* name) { Name = name; }
00065
00067   const char *GetKeyword() const { return Keyword.c_str(); }
00068   void SetKeyword(const char* keyword) { Keyword = keyword; }
00069
00071   bool GetRetired() const { return Retired; }
00072   void SetRetired(bool retired) { Retired = retired; }
00073
00074   // <entry group="50xx" element="0005" vr="US" vm="1" retired="true" version="3">
00076   void SetGroupXX(bool v) { GroupXX = v; }
00077
00078   // <entry group="0020" element="31xx" vr="CS" vm="1-n" retired="true" version="2">
00080   void SetElementXX(bool v) { ElementXX = v; }
00081
00084   bool IsUnique() const { return ElementXX == false && GroupXX == false; }
00085
00086 private:
00087   //
00088   friend class Dict;
00089   static bool CheckKeywordAgainstName(const char *name, const char *keyword);
00090
00091 private:
00092   std::string Name;
00093   std::string Keyword;
00094   VR ValueRepresentation;
00095   VM ValueMultiplicity;
00096   bool Retired : 1;
00097   bool GroupXX : 1;
00098   bool ElementXX : 1;
00099 };
00100
00101 #if 0
00102 class GDCM_EXPORT PrivateDictEntry : public DictEntry
00103 {
00104 public:
00105   PrivateDictEntry(const char *name = "", VR::VRType const &vr = VR::INVALID, VM::VMType const &vm =
      VM::VM0 , bool ret = false, const char *owner = ""):DictEntry(name,vr,vm,ret),Owner(owner) {}
00106   PrivateDictEntry(const char *name, const char *vr, const char *vm):DictEntry(name,vr,vm) {}
00107
00108   const char *GetOwner() const { return Owner.c_str(); }
00109   void SetOwner(const char *owner) { Owner = owner; }
00110
00111 private:
00112   // SIEMENS MED, GEMS_PETD_01 ...
00113   std::string Owner;
00114 };
00115 #endif
00116
00117 //-----------------------------------------------------------------------------
00118 inline std::ostream& operator<<(std::ostream& os, const DictEntry &val)
00119 {
00120   if( val.Name.empty() )
00121     {
00122     os << "[No name]";
00123     }
00124   else
00125     {
00126     os << val.Name;
00127     }
00128   if( val.Keyword.empty() )
00129     {
00130     os << "[No keyword]";
00131     }
00132   else
00133     {
00134     os << val.Keyword;
00135     }
00136   os << "\t" << val.ValueRepresentation << "\t" << val.ValueMultiplicity;
00137   if( val.Retired )
00138     {
00139     os << "\t(RET)";
00140     }
00141   return os;
00142 }
00143
00144 } // end namespace gdcm
00145
00146 #endif //GDCMDICTENTRY_H
```

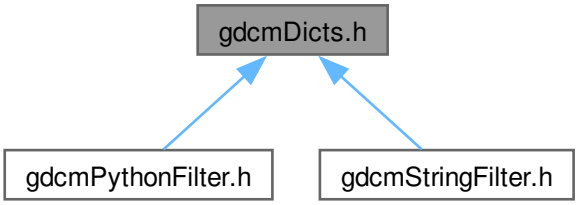
13.99 gdcmDicts.h File Reference

```
#include "gdcmDict.h"
#include "gdcmCSAHeaderDict.h"
#include <string>
```

Include dependency graph for gdcmDicts.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Dicts

  Class to manipulate the sum of knowledge (all the dict user load).

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Dicts &d)

13.100 gdcmDicts.h

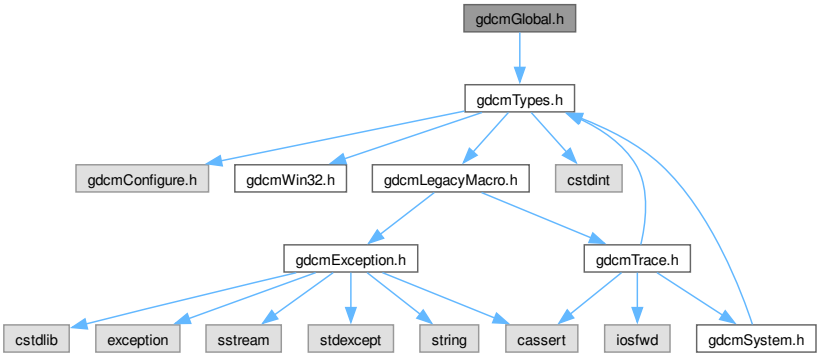
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDICTS_H
00015 #define GDCMDICTS_H
00016
00017 #include "gdcmDict.h"
00018 #include "gdcmCSAHeaderDict.h"
00019
00020 #include <string>
00021
00022 namespace gdcm
00023 {
00028 class GDCM_EXPORT Dicts
00029 {
00030   friend std::ostream& operator<<(std::ostream &_os, const Dicts &d);
00031 public:
00032   Dicts();
00033   ~Dicts();
00034   Dicts &operator=(const Dicts &_val) = delete;
00035   Dicts(const Dicts &_val) = delete;
00036
00040   // DataSet::GetPrivateCreator
00042   const DictEntry &GetDictEntry(const Tag& tag, const char *owner = nullptr) const;
00043
00044   const DictEntry &GetDictEntry(const PrivateTag& tag) const;
00045
00046   //enum PublicTypes {
00047   //  DICOMV3_DICT,
00048   //  ACRNEMA_DICT,
00049   //  NIH_DICT
00050   //};
00051   const Dict &GetPublicDict() const;
00052
00053   const PrivateDict &GetPrivateDict() const;
00054   PrivateDict &GetPrivateDict();
00055
00056   const CSAHeaderDict &GetCSAHeaderDict() const;
00057
00058   bool IsEmpty() const { return GetPublicDict().IsEmpty(); }
00059
00060 protected:
00061   typedef enum {
00062     PHILIPS,
00063     GEMS,
00064     SIEMENS
00065   //  ...
00066   } ConstructorType;
00067   static const char *GetConstructorString(ConstructorType type);
00068
00069   friend class Global;
00070   void LoadDefaults();
00071
00072 private:
00073   // Public dict:
00074   Dict PublicDict;
00075
00076   // Private Dicts:
00077   PrivateDict ShadowDict;
00078
00079   CSAHeaderDict CSADict;
00080 };
00081 //-----------------------------------------------------------------------------
00082 inline std::ostream& operator<<(std::ostream &os, const Dicts &d)
00083 {
```

```
00084   (void)d;
00085   return os;
00086 }
00087
00088
00089 } // end namespace gdcm
00090
00091 #endif //GDCMDICTS_H
```

13.101 gdcmGlobal.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmGlobal.h:



Classes

- class gdcm::Global
  Global.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Global &g)

Variables

- static Global gdcm::GlobalInstance

13.102 gdcmGlobal.h

Go to the documentation of this file.

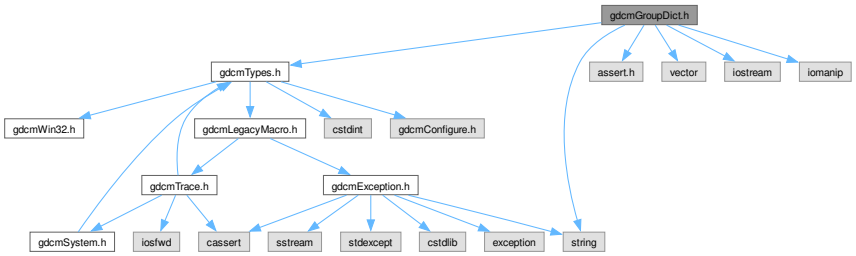
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // Implementation detail was shamelessly borowed from the VTK excellent
00015 // implementation of debug leak manager singleton:
00016 /*=========================================================================
00017
00018   Program:   Visualization Toolkit
00019   Module:    $RCSfile: vtkDebugLeaks.cxx,v $
00020
00021   Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
00022   All rights reserved.
00023   See Copyright.txt or http://www.kitware.com/Copyright.htm for details.
00024
00025      This software is distributed WITHOUT ANY WARRANTY; without even
00026      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00027      PURPOSE.  See the above copyright notice for more information.
00028
00029 =========================================================================*/
00030 #ifndef GDCMGLOBAL_H
00031 #define GDCMGLOBAL_H
00032
00033 #include "gdcmTypes.h"
00034
00035 namespace gdcm
00036 {
00037 class GlobalInternal;
00038 class Dicts;
00039 class Defs;
00049 class GDCM_EXPORT Global // why expose the symbol I think I only need to expose the instance...
00050 {
00051   friend std::ostream& operator<<(std::ostream &_os, const Global &g);
00052 public:
00053   Global();
00054   ~Global();
00055   Global &operator=(const Global &_val) = delete;
00056   Global(const Global &_val) = delete;
00057
00060   Dicts const &GetDicts() const;
00061   Dicts &GetDicts();
00062
00065   Defs const &GetDefs() const;
00066
00068   static Global& GetInstance();
00069
00073   bool LoadResourcesFiles();
00074
00077   bool Append(const char *path);
00078
00081   bool Prepend(const char *path);
00082
00083 protected:
00085   const char *Locate(const char *resfile) const;
00086
00087 private:
00088   // PIMPL:
00089   // but we could have also directly exposed a Dicts *Internals;
00090   static GlobalInternal *Internals;
00091 };
00092 //-----------------------------------------------------------------------------
00093 inline std::ostream& operator<<(std::ostream &os, const Global &g)
00094 {
00095   (void)g;
00096   return os;
00097 }
```

```
00098
00099 // This instance will show up in any translation unit that uses
00100 // Global or that has a singleton.  It will make sure
00101 // Global is initialized before it is used and is the last
00102 // static object destroyed.
00103 static Global GlobalInstance;
00104
00105 } // end namespace gdcm
00106
00107 #endif //GDCMGLOBAL_H
```

13.103 gdcmGroupDict.h File Reference

```
#include "gdcmTypes.h"
#include <assert.h>
#include <vector>
#include <string>
#include <iostream>
#include <iomanip>
```

Include dependency graph for gdcmGroupDict.h:



Classes

- class gdcm::GroupDict

  Class to represent the mapping from group number to its abbreviation and name.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const GroupDict &_val)

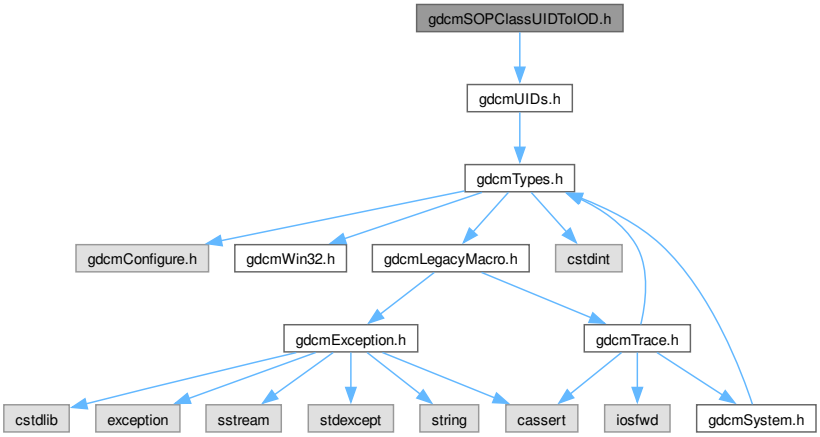
13.104 gdcmGroupDict.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMGROUPDICT_H
00016 #define GDCMGROUPDICT_H
00017
00018 #include "gdcmTypes.h"
00019
00020 #include <assert.h>
00021 #include <vector>
00022 #include <string>
00023 #include <iostream>
00024 #include <iomanip>
00025
00026 namespace gdcm
00027 {
00033 class GDCM_EXPORT GroupDict
00034 {
00035 public:
00036   typedef std::vector<std::string> GroupStringVector;
00037   GroupDict() { FillDefaultGroupName(); }
00038   ~GroupDict() = default;
00039
00040   friend std::ostream& operator<<(std::ostream& _os, const GroupDict &_val);
00041
00042   size_t Size() const
00043     {
00044     assert( Names.size() == Abbreviations.size() );
00045     return Names.size(); }
00046
00047   std::string const &GetAbbreviation(uint16_t num) const;
00048
00049   std::string const &GetName(uint16_t num) const;
00050
00051 protected:
00052   void Add(std::string const &abbreviation, std::string const &name);
00053   void Insert(uint16_t num, std::string const &abbreviation, std::string const &name);
00054
00055 private:
00056   // Generated implementation, see gdcmDefaultGroupNames
00057   void FillDefaultGroupName();
00058
00059   GroupDict &operator=(const GroupDict &_val); // purposely not implemented
00060   GroupDict(const GroupDict &_val); // purposely not implemented
00061
00062   GroupStringVector Abbreviations;
00063   GroupStringVector Names;
00064 };
00065 //-----------------------------------------------------------------------------
00066 inline std::ostream& operator<<(std::ostream& _os, const GroupDict &_val)
00067 {
00068   size_t size = _val.Size();
00069   for(size_t i=0; i<size; ++i)
00070     {
00071     _os << std::hex << std::setw(4) << std::setfill( '0' ) << i << ","
00072       << _val.GetAbbreviation((uint16_t)i) << "," << _val.GetName((uint16_t)i) << "\n";
00073     }
00074   return _os;
00075 }
00076
00077 } // end namespace gdcm
00078
00079 #endif //GDCMGROUPDICT_H
```

13.105 gdcmSOPClassUIDToIOD.h File Reference

`#include "gdcmUIDs.h"`
Include dependency graph for gdcmSOPClassUIDToIOD.h:



Classes

- class gdcm::SOPClassUIDToIOD

  Class convert a class SOP Class UID into IOD.

Namespaces

- namespace gdcm

13.106 gdcmSOPClassUIDToIOD.h

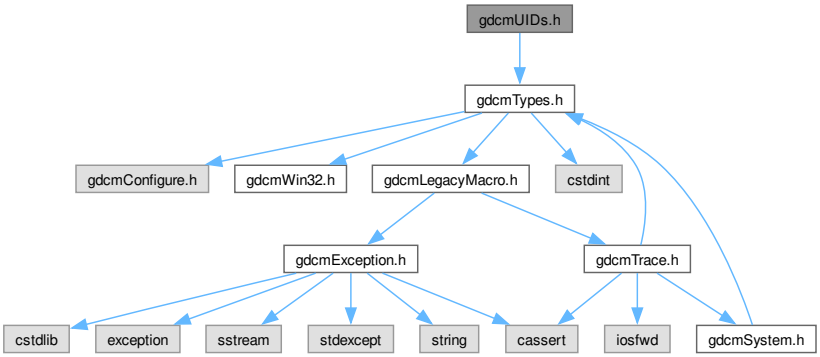
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMSOPCLASSUIDTOIOD_H
00016 #define GDCMSOPCLASSUIDTOIOD_H
00017
```

```
00018 #include "gdcmUIDs.h"
00019
00020 namespace gdcm
00021 {
00022
00028 class GDCM_EXPORT SOPClassUIDToIOD
00029 {
00030 public:
00033   static const char *GetIOD(UIDs const & uid);
00034
00036   static unsigned int GetNumberOfSOPClassToIOD();
00037
00038   typedef const char* const (SOPClassUIDToIODType)[2];
00039   static SOPClassUIDToIODType* GetSOPClassUIDToIODs();
00040
00041   static SOPClassUIDToIODType& GetSOPClassUIDToIOD(unsigned int i);
00042
00043   static const char *GetSOPClassUIDFromIOD(const char *iod);
00044   static const char *GetIODFromSOPClassUID(const char *sopclassuid);
00045 };
00046
00047 } // end namespace gdcm
00048
00049 #endif //GDCMSOPCLASSUIDTOIOD_H
```

13.107 gdcmUIDs.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmUIDs.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::UIDs

  all known uids

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const UIDs &uid)

13.108 gdcmUIDs.h

Go to the documentation of this file.

```
00001
00002 // GENERATED FILE DO NOT EDIT
00003 // $ xsltproc UIDToC++.xsl Part6.xml > gdcmUIDs.h
00004
00005 /*=========================================================================
00006
00007   Program: GDCM (Grassroots DICOM). A DICOM library
00008
00009   Copyright (c) 2006-2011 Mathieu Malaterre
00010   All rights reserved.
00011   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00012
00013      This software is distributed WITHOUT ANY WARRANTY; without even
00014      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00015      PURPOSE.  See the above copyright notice for more information.
00016
00017 =========================================================================*/
00018
00019 #ifndef GDCMUIDS_H
00020 #define GDCMUIDS_H
00021
00022 #include "gdcmTypes.h"
00023
00024 namespace gdcm
00025 {
00026
00030 class GDCM_EXPORT UIDs
00031 {
00032 public:
00033   typedef enum {
00034 uid_1_2_840_10008_1_1 = 1, // Verification SOP Class
00035 uid_1_2_840_10008_1_2 = 2, // Implicit VR Little Endian: Default Transfer Syntax for DICOM
00036 uid_1_2_840_10008_1_2_1 = 3, // Explicit VR Little Endian
00037 uid_1_2_840_10008_1_2_1_99 = 4, // Deflated Explicit VR Little Endian
00038 uid_1_2_840_10008_1_2_2 = 5, // Explicit VR Big Endian
00039 uid_1_2_840_10008_1_2_4_50 = 6, // JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8 Bit
      Image Compression
00040 uid_1_2_840_10008_1_2_4_51 = 7, // JPEG Extended (Process 2 & 4): Default Transfer Syntax for Lossy JPEG
      12 Bit Image Compression (Process 4 only)
00041 uid_1_2_840_10008_1_2_4_52 = 8, // JPEG Extended (Process 3 & 5)
00042 uid_1_2_840_10008_1_2_4_53 = 9, // JPEG Spectral Selection, Non-Hierarchical (Process 6 & 8)
00043 uid_1_2_840_10008_1_2_4_54 = 10, // JPEG Spectral Selection, Non-Hierarchical (Process 7 & 9)
00044 uid_1_2_840_10008_1_2_4_55 = 11, // JPEG Full Progression, Non-Hierarchical (Process 10 & 12)
00045 uid_1_2_840_10008_1_2_4_56 = 12, // JPEG Full Progression, Non-Hierarchical (Process 11 & 13)
00046 uid_1_2_840_10008_1_2_4_57 = 13, // JPEG Lossless, Non-Hierarchical (Process 14)
00047 uid_1_2_840_10008_1_2_4_58 = 14, // JPEG Lossless, Non-Hierarchical (Process 15)
00048 uid_1_2_840_10008_1_2_4_59 = 15, // JPEG Extended, Hierarchical (Process 16 & 18)
00049 uid_1_2_840_10008_1_2_4_60 = 16, // JPEG Extended, Hierarchical (Process 17 & 19)
00050 uid_1_2_840_10008_1_2_4_61 = 17, // JPEG Spectral Selection, Hierarchical (Process 20 & 22)
00051 uid_1_2_840_10008_1_2_4_62 = 18, // JPEG Spectral Selection, Hierarchical (Process 21 & 23)
00052 uid_1_2_840_10008_1_2_4_63 = 19, // JPEG Full Progression, Hierarchical (Process 24 & 26)
00053 uid_1_2_840_10008_1_2_4_64 = 20, // JPEG Full Progression, Hierarchical (Process 25 & 27)
00054 uid_1_2_840_10008_1_2_4_65 = 21, // JPEG Lossless, Hierarchical (Process 28)
00055 uid_1_2_840_10008_1_2_4_66 = 22, // JPEG Lossless, Hierarchical (Process 29)
00056 uid_1_2_840_10008_1_2_4_70 = 23, // JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14
      [Selection Value 1]): Default Transfer Syntax for Lossless JPEG Image Compression
00057 uid_1_2_840_10008_1_2_4_80 = 24, // JPEG-LS Lossless Image Compression
00058 uid_1_2_840_10008_1_2_4_81 = 25, // JPEG-LS Lossy (Near-Lossless) Image Compression
00059 uid_1_2_840_10008_1_2_4_90 = 26, // JPEG 2000 Image Compression (Lossless Only)
```

```
00060 uid_1_2_840_10008_1_2_4_91 = 27, // JPEG 2000 Image Compression
00061 uid_1_2_840_10008_1_2_4_92 = 28, // JPEG 2000 Part 2 Multi-component Image Compression (Lossless Only)
00062 uid_1_2_840_10008_1_2_4_93 = 29, // JPEG 2000 Part 2 Multi-component Image Compression
00063 uid_1_2_840_10008_1_2_4_94 = 30, // JPIP Referenced
00064 uid_1_2_840_10008_1_2_4_95 = 31, // JPIP Referenced Deflate
00065 uid_1_2_840_10008_1_2_4_100 = 32, // MPEG2 Main Profile @ Main Level
00066 uid_1_2_840_10008_1_2_5 = 33, // RLE Lossless
00067 uid_1_2_840_10008_1_2_6_1 = 34, // RFC 2557 MIME encapsulation
00068 uid_1_2_840_10008_1_2_6_2 = 35, // XML Encoding
00069 uid_1_2_840_10008_1_3_10 = 36, // Media Storage Directory Storage
00070 uid_1_2_840_10008_1_4_1_1 = 37, // Talairach Brain Atlas Frame of Reference
00071 uid_1_2_840_10008_1_4_1_2 = 38, // SPM2 T1 Frame of Reference
00072 uid_1_2_840_10008_1_4_1_3 = 39, // SPM2 T2 Frame of Reference
00073 uid_1_2_840_10008_1_4_1_4 = 40, // SPM2 PD Frame of Reference
00074 uid_1_2_840_10008_1_4_1_5 = 41, // SPM2 EPI Frame of Reference
00075 uid_1_2_840_10008_1_4_1_6 = 42, // SPM2 FIL T1 Frame of Reference
00076 uid_1_2_840_10008_1_4_1_7 = 43, // SPM2 PET Frame of Reference
00077 uid_1_2_840_10008_1_4_1_8 = 44, // SPM2 TRANSM Frame of Reference
00078 uid_1_2_840_10008_1_4_1_9 = 45, // SPM2 SPECT Frame of Reference
00079 uid_1_2_840_10008_1_4_1_10 = 46, // SPM2 GRAY Frame of Reference
00080 uid_1_2_840_10008_1_4_1_11 = 47, // SPM2 WHITE Frame of Reference
00081 uid_1_2_840_10008_1_4_1_12 = 48, // SPM2 CSF Frame of Reference
00082 uid_1_2_840_10008_1_4_1_13 = 49, // SPM2 BRAINMASK Frame of Reference
00083 uid_1_2_840_10008_1_4_1_14 = 50, // SPM2 AVG305T1 Frame of Reference
00084 uid_1_2_840_10008_1_4_1_15 = 51, // SPM2 AVG152T1 Frame of Reference
00085 uid_1_2_840_10008_1_4_1_16 = 52, // SPM2 AVG152T2 Frame of Reference
00086 uid_1_2_840_10008_1_4_1_17 = 53, // SPM2 AVG152PD Frame of Reference
00087 uid_1_2_840_10008_1_4_1_18 = 54, // SPM2 SINGLESUBJT1 Frame of Reference
00088 uid_1_2_840_10008_1_4_2_1 = 55, // ICBM 452 T1 Frame of Reference
00089 uid_1_2_840_10008_1_4_2_2 = 56, // ICBM Single Subject MRI Frame of Reference
00090 uid_1_2_840_10008_1_9 = 57, // Basic Study Content Notification SOP Class
00091 uid_1_2_840_10008_1_20_1 = 58, // Storage Commitment Push Model SOP Class
00092 uid_1_2_840_10008_1_20_1_1 = 59, // Storage Commitment Push Model SOP Instance
00093 uid_1_2_840_10008_1_20_2 = 60, // Storage Commitment Pull Model SOP Class
00094 uid_1_2_840_10008_1_20_2_1 = 61, // Storage Commitment Pull Model SOP Instance
00095 uid_1_2_840_10008_1_40 = 62, // Procedural Event Logging SOP Class
00096 uid_1_2_840_10008_1_40_1 = 63, // Procedural Event Logging SOP Instance
00097 uid_1_2_840_10008_1_42 = 64, // Substance Administration Logging SOP Class
00098 uid_1_2_840_10008_1_42_1 = 65, // Substance Administration Logging SOP Instance
00099 uid_1_2_840_10008_2_6_1 = 66, // DICOM UID Registry
00100 uid_1_2_840_10008_2_16_4 = 67, // DICOM Controlled Terminology
00101 uid_1_2_840_10008_3_1_1_1 = 68, // DICOM Application Context Name
00102 uid_1_2_840_10008_3_1_2_1_1 = 69, // Detached Patient Management SOP Class
00103 uid_1_2_840_10008_3_1_2_1_4 = 70, // Detached Patient Management Meta SOP Class
00104 uid_1_2_840_10008_3_1_2_2_1 = 71, // Detached Visit Management SOP Class
00105 uid_1_2_840_10008_3_1_2_3_1 = 72, // Detached Study Management SOP Class
00106 uid_1_2_840_10008_3_1_2_3_2 = 73, // Study Component Management SOP Class
00107 uid_1_2_840_10008_3_1_2_3_3 = 74, // Modality Performed Procedure Step SOP Class
00108 uid_1_2_840_10008_3_1_2_3_4 = 75, // Modality Performed Procedure Step Retrieve SOP Class
00109 uid_1_2_840_10008_3_1_2_3_5 = 76, // Modality Performed Procedure Step Notification SOP Class
00110 uid_1_2_840_10008_3_1_2_5_1 = 77, // Detached Results Management SOP Class
00111 uid_1_2_840_10008_3_1_2_5_4 = 78, // Detached Results Management Meta SOP Class
00112 uid_1_2_840_10008_3_1_2_5_5 = 79, // Detached Study Management Meta SOP Class
00113 uid_1_2_840_10008_3_1_2_6_1 = 80, // Detached Interpretation Management SOP Class
00114 uid_1_2_840_10008_4_2 = 81, // Storage Service Class
00115 uid_1_2_840_10008_5_1_1_1 = 82, // Basic Film Session SOP Class
00116 uid_1_2_840_10008_5_1_1_2 = 83, // Basic Film Box SOP Class
00117 uid_1_2_840_10008_5_1_1_4 = 84, // Basic Grayscale Image Box SOP Class
00118 uid_1_2_840_10008_5_1_1_4_1 = 85, // Basic Color Image Box SOP Class
00119 uid_1_2_840_10008_5_1_1_4_2 = 86, // Referenced Image Box SOP Class
00120 uid_1_2_840_10008_5_1_1_9 = 87, // Basic Grayscale Print Management Meta SOP Class
00121 uid_1_2_840_10008_5_1_1_9_1 = 88, // Referenced Grayscale Print Management Meta SOP Class
00122 uid_1_2_840_10008_5_1_1_14 = 89, // Print Job SOP Class
00123 uid_1_2_840_10008_5_1_1_15 = 90, // Basic Annotation Box SOP Class
00124 uid_1_2_840_10008_5_1_1_16 = 91, // Printer SOP Class
00125 uid_1_2_840_10008_5_1_1_16_376 = 92, // Printer Configuration Retrieval SOP Class
00126 uid_1_2_840_10008_5_1_1_17 = 93, // Printer SOP Instance
00127 uid_1_2_840_10008_5_1_1_17_376 = 94, // Printer Configuration Retrieval SOP Instance
00128 uid_1_2_840_10008_5_1_1_18 = 95, // Basic Color Print Management Meta SOP Class
00129 uid_1_2_840_10008_5_1_1_18_1 = 96, // Referenced Color Print Management Meta SOP Class
00130 uid_1_2_840_10008_5_1_1_22 = 97, // VOI LUT Box SOP Class
00131 uid_1_2_840_10008_5_1_1_23 = 98, // Presentation LUT SOP Class
00132 uid_1_2_840_10008_5_1_1_24 = 99, // Image Overlay Box SOP Class
00133 uid_1_2_840_10008_5_1_1_24_1 = 100, // Basic Print Image Overlay Box SOP Class
00134 uid_1_2_840_10008_5_1_1_25 = 101, // Print Queue SOP Instance
00135 uid_1_2_840_10008_5_1_1_26 = 102, // Print Queue Management SOP Class
00136 uid_1_2_840_10008_5_1_1_27 = 103, // Stored Print Storage SOP Class
00137 uid_1_2_840_10008_5_1_1_29 = 104, // Hardcopy Grayscale Image Storage SOP Class
00138 uid_1_2_840_10008_5_1_1_30 = 105, // Hardcopy Color Image Storage SOP Class
00139 uid_1_2_840_10008_5_1_1_31 = 106, // Pull Print Request SOP Class
00140 uid_1_2_840_10008_5_1_1_32 = 107, // Pull Stored Print Management Meta SOP Class
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00141 uid_1_2_840_10008_5_1_1_33 = 108, // Media Creation Management SOP Class UID
00142 uid_1_2_840_10008_5_1_4_1_1_1 = 109, // Computed Radiography Image Storage
00143 uid_1_2_840_10008_5_1_4_1_1_1_1 = 110, // Digital X-Ray Image Storage - For Presentation
00144 uid_1_2_840_10008_5_1_4_1_1_1_1_1 = 111, // Digital X-Ray Image Storage - For Processing
00145 uid_1_2_840_10008_5_1_4_1_1_1_2 = 112, // Digital Mammography X-Ray Image Storage - For Presentation
00146 uid_1_2_840_10008_5_1_4_1_1_1_2_1 = 113, // Digital Mammography X-Ray Image Storage - For Processing
00147 uid_1_2_840_10008_5_1_4_1_1_1_3 = 114, // Digital Intra-oral X-Ray Image Storage - For Presentation
00148 uid_1_2_840_10008_5_1_4_1_1_1_3_1 = 115, // Digital Intra-oral X-Ray Image Storage - For Processing
00149 uid_1_2_840_10008_5_1_4_1_1_2 = 116, // CT Image Storage
00150 uid_1_2_840_10008_5_1_4_1_1_2_1 = 117, // Enhanced CT Image Storage
00151 uid_1_2_840_10008_5_1_4_1_1_3 = 118, // Ultrasound Multi-frame Image Storage
00152 uid_1_2_840_10008_5_1_4_1_1_3_1 = 119, // Ultrasound Multi-frame Image Storage
00153 uid_1_2_840_10008_5_1_4_1_1_4 = 120, // MR Image Storage
00154 uid_1_2_840_10008_5_1_4_1_1_4_1 = 121, // Enhanced MR Image Storage
00155 uid_1_2_840_10008_5_1_4_1_1_4_2 = 122, // MR Spectroscopy Storage
00156 uid_1_2_840_10008_5_1_4_1_1_5 = 123, // Nuclear Medicine Image Storage
00157 uid_1_2_840_10008_5_1_4_1_1_6 = 124, // Ultrasound Image Storage
00158 uid_1_2_840_10008_5_1_4_1_1_6_1 = 125, // Ultrasound Image Storage
00159 uid_1_2_840_10008_5_1_4_1_1_7 = 126, // Secondary Capture Image Storage
00160 uid_1_2_840_10008_5_1_4_1_1_7_1 = 127, // Multi-frame Single Bit Secondary Capture Image Storage
00161 uid_1_2_840_10008_5_1_4_1_1_7_2 = 128, // Multi-frame Grayscale Byte Secondary Capture Image Storage
00162 uid_1_2_840_10008_5_1_4_1_1_7_3 = 129, // Multi-frame Grayscale Word Secondary Capture Image Storage
00163 uid_1_2_840_10008_5_1_4_1_1_7_4 = 130, // Multi-frame True Color Secondary Capture Image Storage
00164 uid_1_2_840_10008_5_1_4_1_1_8 = 131, // Standalone Overlay Storage
00165 uid_1_2_840_10008_5_1_4_1_1_9 = 132, // Standalone Curve Storage
00166 uid_1_2_840_10008_5_1_4_1_1_9_1 = 133, // Waveform Storage - Trial
00167 uid_1_2_840_10008_5_1_4_1_1_9_1_1 = 134, // 12-lead ECG Waveform Storage
00168 uid_1_2_840_10008_5_1_4_1_1_9_1_2 = 135, // General ECG Waveform Storage
00169 uid_1_2_840_10008_5_1_4_1_1_9_1_3 = 136, // Ambulatory ECG Waveform Storage
00170 uid_1_2_840_10008_5_1_4_1_1_9_2_1 = 137, // Hemodynamic Waveform Storage
00171 uid_1_2_840_10008_5_1_4_1_1_9_3_1 = 138, // Cardiac Electrophysiology Waveform Storage
00172 uid_1_2_840_10008_5_1_4_1_1_9_4_1 = 139, // Basic Voice Audio Waveform Storage
00173 uid_1_2_840_10008_5_1_4_1_1_10 = 140, // Standalone Modality LUT Storage
00174 uid_1_2_840_10008_5_1_4_1_1_11 = 141, // Standalone VOI LUT Storage
00175 uid_1_2_840_10008_5_1_4_1_1_11_1 = 142, // Grayscale Softcopy Presentation State Storage SOP Class
00176 uid_1_2_840_10008_5_1_4_1_1_11_2 = 143, // Color Softcopy Presentation State Storage SOP Class
00177 uid_1_2_840_10008_5_1_4_1_1_11_3 = 144, // Pseudo-Color Softcopy Presentation State Storage SOP Class
00178 uid_1_2_840_10008_5_1_4_1_1_11_4 = 145, // Blending Softcopy Presentation State Storage SOP Class
00179 uid_1_2_840_10008_5_1_4_1_1_12_1 = 146, // X-Ray Angiographic Image Storage
00180 uid_1_2_840_10008_5_1_4_1_1_12_1_1 = 147, // Enhanced XA Image Storage
00181 uid_1_2_840_10008_5_1_4_1_1_12_2 = 148, // X-Ray Radiofluoroscopic Image Storage
00182 uid_1_2_840_10008_5_1_4_1_1_12_2_1 = 149, // Enhanced XRF Image Storage
00183 uid_1_2_840_10008_5_1_4_1_1_13_1_1 = 150, // X-Ray 3D Angiographic Image Storage
00184 uid_1_2_840_10008_5_1_4_1_1_13_1_2 = 151, // X-Ray 3D Craniofacial Image Storage
00185 uid_1_2_840_10008_5_1_4_1_1_12_3 = 152, // X-Ray Angiographic Bi-Plane Image Storage
00186 uid_1_2_840_10008_5_1_4_1_1_20 = 153, // Nuclear Medicine Image Storage
00187 uid_1_2_840_10008_5_1_4_1_1_66 = 154, // Raw Data Storage
00188 uid_1_2_840_10008_5_1_4_1_1_66_1 = 155, // Spatial Registration Storage
00189 uid_1_2_840_10008_5_1_4_1_1_66_2 = 156, // Spatial Fiducials Storage
00190 uid_1_2_840_10008_5_1_4_1_1_66_3 = 157, // Deformable Spatial Registration Storage
00191 uid_1_2_840_10008_5_1_4_1_1_66_4 = 158, // Segmentation Storage
00192 uid_1_2_840_10008_5_1_4_1_1_67 = 159, // Real World Value Mapping Storage
00193 uid_1_2_840_10008_5_1_4_1_1_77_1 = 160, // VL Image Storage - Trial
00194 uid_1_2_840_10008_5_1_4_1_1_77_2 = 161, // VL Multi-frame Image Storage - Trial
00195 uid_1_2_840_10008_5_1_4_1_1_77_1_1 = 162, // VL Endoscopic Image Storage
00196 uid_1_2_840_10008_5_1_4_1_1_77_1_1_1 = 163, // Video Endoscopic Image Storage
00197 uid_1_2_840_10008_5_1_4_1_1_77_1_2 = 164, // VL Microscopic Image Storage
00198 uid_1_2_840_10008_5_1_4_1_1_77_1_2_1 = 165, // Video Microscopic Image Storage
00199 uid_1_2_840_10008_5_1_4_1_1_77_1_3 = 166, // VL Slide-Coordinates Microscopic Image Storage
00200 uid_1_2_840_10008_5_1_4_1_1_77_1_4 = 167, // VL Photographic Image Storage
00201 uid_1_2_840_10008_5_1_4_1_1_77_1_4_1 = 168, // Video Photographic Image Storage
00202 uid_1_2_840_10008_5_1_4_1_1_77_1_5_1 = 169, // Ophthalmic Photography 8 Bit Image Storage
00203 uid_1_2_840_10008_5_1_4_1_1_77_1_5_2 = 170, // Ophthalmic Photography 16 Bit Image Storage
00204 uid_1_2_840_10008_5_1_4_1_1_77_1_5_3 = 171, // Stereometric Relationship Storage
00205 uid_1_2_840_10008_5_1_4_1_1_77_1_5_4 = 172, // Ophthalmic Tomography Image Storage
00206 uid_1_2_840_10008_5_1_4_1_1_88_1 = 173, // Text SR Storage - Trial
00207 uid_1_2_840_10008_5_1_4_1_1_88_2 = 174, // Audio SR Storage - Trial
00208 uid_1_2_840_10008_5_1_4_1_1_88_3 = 175, // Detail SR Storage - Trial
00209 uid_1_2_840_10008_5_1_4_1_1_88_4 = 176, // Comprehensive SR Storage - Trial
00210 uid_1_2_840_10008_5_1_4_1_1_88_11 = 177, // Basic Text SR Storage
00211 uid_1_2_840_10008_5_1_4_1_1_88_22 = 178, // Enhanced SR Storage
00212 uid_1_2_840_10008_5_1_4_1_1_88_33 = 179, // Comprehensive SR Storage
00213 uid_1_2_840_10008_5_1_4_1_1_88_40 = 180, // Procedure Log Storage
00214 uid_1_2_840_10008_5_1_4_1_1_88_50 = 181, // Mammography CAD SR Storage
00215 uid_1_2_840_10008_5_1_4_1_1_88_59 = 182, // Key Object Selection Document Storage
00216 uid_1_2_840_10008_5_1_4_1_1_88_65 = 183, // Chest CAD SR Storage
00217 uid_1_2_840_10008_5_1_4_1_1_88_67 = 184, // X-Ray Radiation Dose SR Storage
00218 uid_1_2_840_10008_5_1_4_1_1_104_1 = 185, // Encapsulated PDF Storage
00219 uid_1_2_840_10008_5_1_4_1_1_104_2 = 186, // Encapsulated CDA Storage
00220 uid_1_2_840_10008_5_1_4_1_1_128 = 187, // Positron Emission Tomography Image Storage
00221 uid_1_2_840_10008_5_1_4_1_1_129 = 188, // Standalone PET Curve Storage
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00222 uid_1_2_840_10008_5_1_4_1_1_481_1 = 189, // RT Image Storage
00223 uid_1_2_840_10008_5_1_4_1_1_481_2 = 190, // RT Dose Storage
00224 uid_1_2_840_10008_5_1_4_1_1_481_3 = 191, // RT Structure Set Storage
00225 uid_1_2_840_10008_5_1_4_1_1_481_4 = 192, // RT Beams Treatment Record Storage
00226 uid_1_2_840_10008_5_1_4_1_1_481_5 = 193, // RT Plan Storage
00227 uid_1_2_840_10008_5_1_4_1_1_481_6 = 194, // RT Brachy Treatment Record Storage
00228 uid_1_2_840_10008_5_1_4_1_1_481_7 = 195, // RT Treatment Summary Record Storage
00229 uid_1_2_840_10008_5_1_4_1_1_481_8 = 196, // RT Ion Plan Storage
00230 uid_1_2_840_10008_5_1_4_1_1_481_9 = 197, // RT Ion Beams Treatment Record Storage
00231 uid_1_2_840_10008_5_1_4_1_2_1_1 = 198, // Patient Root Query/Retrieve Information Model - FIND
00232 uid_1_2_840_10008_5_1_4_1_2_1_2 = 199, // Patient Root Query/Retrieve Information Model - MOVE
00233 uid_1_2_840_10008_5_1_4_1_2_1_3 = 200, // Patient Root Query/Retrieve Information Model - GET
00234 uid_1_2_840_10008_5_1_4_1_2_2_1 = 201, // Study Root Query/Retrieve Information Model - FIND
00235 uid_1_2_840_10008_5_1_4_1_2_2_2 = 202, // Study Root Query/Retrieve Information Model - MOVE
00236 uid_1_2_840_10008_5_1_4_1_2_2_3 = 203, // Study Root Query/Retrieve Information Model - GET
00237 uid_1_2_840_10008_5_1_4_1_2_3_1 = 204, // Patient/Study Only Query/Retrieve Information Model - FIND
00238 uid_1_2_840_10008_5_1_4_1_2_3_2 = 205, // Patient/Study Only Query/Retrieve Information Model - MOVE
00239 uid_1_2_840_10008_5_1_4_1_2_3_3 = 206, // Patient/Study Only Query/Retrieve Information Model - GET
00240 uid_1_2_840_10008_5_1_4_31 = 207, // Modality Worklist Information Model - FIND
00241 uid_1_2_840_10008_5_1_4_32_1 = 208, // General Purpose Worklist Information Model - FIND
00242 uid_1_2_840_10008_5_1_4_32_2 = 209, // General Purpose Scheduled Procedure Step SOP Class
00243 uid_1_2_840_10008_5_1_4_32_3 = 210, // General Purpose Performed Procedure Step SOP Class
00244 uid_1_2_840_10008_5_1_4_32 = 211, // General Purpose Worklist Management Meta SOP Class
00245 uid_1_2_840_10008_5_1_4_33 = 212, // Instance Availability Notification SOP Class
00246 uid_1_2_840_10008_5_1_4_34_1 = 213, // RT Beams Delivery Instruction Storage (Supplement 74 Frozen Draft)
00247 uid_1_2_840_10008_5_1_4_34_2 = 214, // RT Conventional Machine Verification (Supplement 74 Frozen Draft)
00248 uid_1_2_840_10008_5_1_4_34_3 = 215, // RT Ion Machine Verification (Supplement 74 Frozen Draft)
00249 uid_1_2_840_10008_5_1_4_34_4 = 216, // Unified Worklist and Procedure Step Service Class
00250 uid_1_2_840_10008_5_1_4_34_4_1 = 217, // Unified Procedure Step - Push SOP Class
00251 uid_1_2_840_10008_5_1_4_34_4_2 = 218, // Unified Procedure Step - Watch SOP Class
00252 uid_1_2_840_10008_5_1_4_34_4_3 = 219, // Unified Procedure Step - Pull SOP Class
00253 uid_1_2_840_10008_5_1_4_34_4_4 = 220, // Unified Procedure Step - Event SOP Class
00254 uid_1_2_840_10008_5_1_4_34_5 = 221, // Unified Worklist and Procedure Step SOP Instance
00255 uid_1_2_840_10008_5_1_4_37_1 = 222, // General Relevant Patient Information Query
00256 uid_1_2_840_10008_5_1_4_37_2 = 223, // Breast Imaging Relevant Patient Information Query
00257 uid_1_2_840_10008_5_1_4_37_3 = 224, // Cardiac Relevant Patient Information Query
00258 uid_1_2_840_10008_5_1_4_38_1 = 225, // Hanging Protocol Storage
00259 uid_1_2_840_10008_5_1_4_38_2 = 226, // Hanging Protocol Information Model - FIND
00260 uid_1_2_840_10008_5_1_4_38_3 = 227, // Hanging Protocol Information Model - MOVE
00261 uid_1_2_840_10008_5_1_4_41 = 228, // Product Characteristics Query SOP Class
00262 uid_1_2_840_10008_5_1_4_42 = 229, // Substance Approval Query SOP Class
00263 uid_1_2_840_10008_15_0_3_1 = 230, // dicomDeviceName
00264 uid_1_2_840_10008_15_0_3_2 = 231, // dicomDescription
00265 uid_1_2_840_10008_15_0_3_3 = 232, // dicomManufacturer
00266 uid_1_2_840_10008_15_0_3_4 = 233, // dicomManufacturerModelName
00267 uid_1_2_840_10008_15_0_3_5 = 234, // dicomSoftwareVersion
00268 uid_1_2_840_10008_15_0_3_6 = 235, // dicomVendorData
00269 uid_1_2_840_10008_15_0_3_7 = 236, // dicomAETitle
00270 uid_1_2_840_10008_15_0_3_8 = 237, // dicomNetworkConnectionReference
00271 uid_1_2_840_10008_15_0_3_9 = 238, // dicomApplicationCluster
00272 uid_1_2_840_10008_15_0_3_10 = 239, // dicomAssociationInitiator
00273 uid_1_2_840_10008_15_0_3_11 = 240, // dicomAssociationAcceptor
00274 uid_1_2_840_10008_15_0_3_12 = 241, // dicomHostname
00275 uid_1_2_840_10008_15_0_3_13 = 242, // dicomPort
00276 uid_1_2_840_10008_15_0_3_14 = 243, // dicomSOPClass
00277 uid_1_2_840_10008_15_0_3_15 = 244, // dicomTransferRole
00278 uid_1_2_840_10008_15_0_3_16 = 245, // dicomTransferSyntax
00279 uid_1_2_840_10008_15_0_3_17 = 246, // dicomPrimaryDeviceType
00280 uid_1_2_840_10008_15_0_3_18 = 247, // dicomRelatedDeviceReference
00281 uid_1_2_840_10008_15_0_3_19 = 248, // dicomPreferredCalledAETitle
00282 uid_1_2_840_10008_15_0_3_20 = 249, // dicomTLSCyphersuite
00283 uid_1_2_840_10008_15_0_3_21 = 250, // dicomAuthorizedNodeCertificateReference
00284 uid_1_2_840_10008_15_0_3_22 = 251, // dicomThisNodeCertificateReference
00285 uid_1_2_840_10008_15_0_3_23 = 252, // dicomInstalled
00286 uid_1_2_840_10008_15_0_3_24 = 253, // dicomStationName
00287 uid_1_2_840_10008_15_0_3_25 = 254, // dicomDeviceSerialNumber
00288 uid_1_2_840_10008_15_0_3_26 = 255, // dicomInstitutionName
00289 uid_1_2_840_10008_15_0_3_27 = 256, // dicomInstitutionAddress
00290 uid_1_2_840_10008_15_0_3_28 = 257, // dicomInstitutionDepartmentName
00291 uid_1_2_840_10008_15_0_3_29 = 258, // dicomIssuerOfPatientID
00292 uid_1_2_840_10008_15_0_3_30 = 259, // dicomPreferredCallingAETitle
00293 uid_1_2_840_10008_15_0_3_31 = 260, // dicomSupportedCharacterSet
00294 uid_1_2_840_10008_15_0_4_1 = 261, // dicomConfigurationRoot
00295 uid_1_2_840_10008_15_0_4_2 = 262, // dicomDevicesRoot
00296 uid_1_2_840_10008_15_0_4_3 = 263, // dicomUniqueAETitlesRegistryRoot
00297 uid_1_2_840_10008_15_0_4_4 = 264, // dicomDevice
00298 uid_1_2_840_10008_15_0_4_5 = 265, // dicomNetworkAE
00299 uid_1_2_840_10008_15_0_4_6 = 266, // dicomNetworkConnection
00300 uid_1_2_840_10008_15_0_4_7 = 267, // dicomUniqueAETitle
00301 uid_1_2_840_10008_15_0_4_8 = 268, // dicomTransferCapability
00302 //
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00303 uid_1_2_840_10008_5_1_4_1_1_77_1_6 = 269, // VL Whole Slide Microscopy
00304 uid_1_2_840_10008_5_1_4_1_1_6_2     = 270, // Enhanced US Volume Storage
00305 uid_1_2_840_10008_5_1_4_1_1_66_5    = 271, // Surface Segmentation Storage
00306 uid_1_2_840_10008_5_1_4_1_1_13_1_3 = 272, // Breast Tomosynthesis Image Storage
00307 uid_1_2_840_10008_5_1_4_1_1_2_2     = 273, // Legacy Converted Enhanced CT
00308 uid_1_2_840_10008_5_1_4_1_1_4_4     = 274, // Legacy Converted Enhanced MR
00309 uid_1_2_840_10008_5_1_4_1_1_128_1   = 275, // Legacy Converted Enhanced PET
00310 uid_1_2_840_10008_1_2_4_101         = 276, // MPEG2 Main Profile High Level
00311 uid_1_2_840_10008_1_2_4_102         = 277, // MPEG-4 AVC/H.264 High Profile Lev. 4.1
00312 uid_1_2_840_10008_1_2_4_103         = 278, // MPEG-4 AVC/H.264 BD-comp High Profile Lev. 4.1
00313
00315 //
00316 // 2019b
00317 //
00318 uid_1_2_840_10008_1_5_2              = 279,
00319 uid_1_2_840_10008_1_5_3              = 280,
00320 uid_1_2_840_10008_1_5_4              = 281,
00321 uid_1_2_840_10008_1_5_5              = 282,
00322 uid_1_2_840_10008_1_5_6              = 283,
00323 uid_1_2_840_10008_1_5_7              = 284,
00324 uid_1_2_840_10008_1_5_8              = 285,
00325 uid_1_2_840_10008_1_20               = 286,
00326 uid_1_2_840_10008_2_16_5             = 287,
00327 uid_1_2_840_10008_2_16_6             = 288,
00328 uid_1_2_840_10008_2_16_7             = 289,
00329 uid_1_2_840_10008_2_16_8             = 290,
00330 uid_1_2_840_10008_2_16_9             = 291,
00331 uid_1_2_840_10008_2_16_10            = 292,
00332 uid_1_2_840_10008_2_16_11            = 293,
00333 uid_1_2_840_10008_2_16_12            = 294,
00334 uid_1_2_840_10008_2_16_13            = 295,
00335 uid_1_2_840_10008_2_16_14            = 296,
00336 uid_1_2_840_10008_5_1_1_40           = 297,
00337 uid_1_2_840_10008_5_1_1_40_1         = 298,
00338 uid_1_2_840_10008_5_1_4_1_1_9_4_2    = 299,
00339 uid_1_2_840_10008_5_1_4_1_1_9_5_1    = 300,
00340 uid_1_2_840_10008_5_1_4_1_1_9_6_1    = 301,
00341 uid_1_2_840_10008_5_1_4_1_1_11_5     = 302,
00342 uid_1_2_840_10008_5_1_4_1_1_11_6     = 303,
00343 uid_1_2_840_10008_1_2_4_104          = 304,
00344 uid_1_2_840_10008_1_2_4_105          = 305,
00345 uid_1_2_840_10008_1_2_4_106          = 306,
00346 uid_1_2_840_10008_1_2_4_107          = 307,
00347 uid_1_2_840_10008_1_2_4_108          = 308,
00348 uid_1_2_840_10008_1_5_1              = 309,
00349 uid_1_2_840_10008_5_1_4_1_1_11_7     = 310,
00350 uid_1_2_840_10008_5_1_4_1_1_11_8     = 311,
00351 uid_1_2_840_10008_5_1_4_1_1_11_9     = 312,
00352 uid_1_2_840_10008_5_1_4_1_1_11_10    = 313,
00353 uid_1_2_840_10008_5_1_4_1_1_11_11    = 314,
00354 uid_1_2_840_10008_5_1_4_1_1_12_77    = 315,
00355 uid_1_2_840_10008_5_1_4_1_1_13_1_4   = 316,
00356 uid_1_2_840_10008_5_1_4_1_1_13_1_5   = 317,
00357 uid_1_2_840_10008_5_1_4_1_1_14_1     = 318,
00358 uid_1_2_840_10008_5_1_4_1_1_14_2     = 319,
00359 uid_1_2_840_10008_5_1_4_1_1_30       = 320,
00360 uid_1_2_840_10008_5_1_4_1_1_40       = 321,
00361 uid_1_2_840_10008_5_1_4_1_1_66_6     = 322,
00362 uid_1_2_840_10008_5_1_4_1_1_68_1     = 323,
00363 uid_1_2_840_10008_5_1_4_1_1_68_2     = 324,
00364 uid_1_2_840_10008_5_1_4_1_1_77_1_5_5 = 325,
00365 uid_1_2_840_10008_5_1_4_1_1_77_1_5_6 = 326,
00366 uid_1_2_840_10008_5_1_4_1_1_77_1_5_7 = 327,
00367 uid_1_2_840_10008_5_1_4_1_1_77_1_5_8 = 328,
00368 uid_1_2_840_10008_5_1_4_1_1_78_1     = 329,
00369 uid_1_2_840_10008_5_1_4_1_1_78_2     = 330,
00370 uid_1_2_840_10008_5_1_4_1_1_78_3     = 331,
00371 uid_1_2_840_10008_5_1_4_1_1_78_4     = 332,
00372 uid_1_2_840_10008_5_1_4_1_1_78_5     = 333,
00373 uid_1_2_840_10008_5_1_4_1_1_78_6     = 334,
00374 uid_1_2_840_10008_5_1_4_1_1_78_7     = 335,
00375 uid_1_2_840_10008_5_1_4_1_1_78_8     = 336,
00376 uid_1_2_840_10008_5_1_4_1_1_79_1     = 337,
00377 uid_1_2_840_10008_5_1_4_1_1_80_1     = 338,
00378 uid_1_2_840_10008_5_1_4_1_1_81_1     = 339,
00379 uid_1_2_840_10008_5_1_4_1_1_82_1     = 340,
00380 uid_1_2_840_10008_5_1_4_1_1_88_34    = 341,
00381 uid_1_2_840_10008_5_1_4_1_1_88_35    = 342,
00382 uid_1_2_840_10008_5_1_4_1_1_88_68    = 343,
00383 uid_1_2_840_10008_5_1_4_1_1_88_69    = 344,
00384 uid_1_2_840_10008_5_1_4_1_1_88_70    = 345,
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00385 uid_1_2_840_10008_5_1_4_1_1_88_71    = 346,
00386 uid_1_2_840_10008_5_1_4_1_1_88_72    = 347,
00387 uid_1_2_840_10008_5_1_4_1_1_88_73    = 348,
00388 uid_1_2_840_10008_5_1_4_1_1_88_74    = 349,
00389 uid_1_2_840_10008_5_1_4_1_1_88_75    = 350,
00390 uid_1_2_840_10008_5_1_4_1_1_90_1     = 351,
00391 uid_1_2_840_10008_5_1_4_1_1_104_3    = 352,
00392 uid_1_2_840_10008_5_1_4_1_1_130      = 353,
00393 uid_1_2_840_10008_5_1_4_1_1_131      = 354,
00394 uid_1_2_840_10008_5_1_4_1_1_200_1    = 355,
00395 uid_1_2_840_10008_5_1_4_1_1_200_2    = 356,
00396 uid_1_2_840_10008_5_1_4_1_1_200_3    = 357,
00397 uid_1_2_840_10008_5_1_4_1_1_200_4    = 358,
00398 uid_1_2_840_10008_5_1_4_1_1_200_5    = 359,
00399 uid_1_2_840_10008_5_1_4_1_1_200_6    = 360,
00400 uid_1_2_840_10008_5_1_4_1_1_481_10   = 361,
00401 uid_1_2_840_10008_5_1_4_1_1_481_11   = 362,
00402 uid_1_2_840_10008_5_1_4_1_1_501_1    = 363,
00403 uid_1_2_840_10008_5_1_4_1_1_501_2_1  = 364,
00404 uid_1_2_840_10008_5_1_4_1_1_501_2_2  = 365,
00405 uid_1_2_840_10008_5_1_4_1_1_501_3    = 366,
00406 uid_1_2_840_10008_5_1_4_1_1_501_4    = 367,
00407 uid_1_2_840_10008_5_1_4_1_1_501_5    = 368,
00408 uid_1_2_840_10008_5_1_4_1_1_501_6    = 369,
00409 uid_1_2_840_10008_5_1_4_1_1_601_1    = 370,
00410 uid_1_2_840_10008_5_1_4_1_1_601_2    = 371,
00411 uid_1_2_840_10008_5_1_4_1_2_4_2      = 372,
00412 uid_1_2_840_10008_5_1_4_1_2_4_3      = 373,
00413 uid_1_2_840_10008_5_1_4_1_2_5_3      = 374,
00414 uid_1_2_840_10008_5_1_4_20_1         = 375,
00415 uid_1_2_840_10008_5_1_4_20_2         = 376,
00416 uid_1_2_840_10008_5_1_4_20_3         = 377,
00417 uid_1_2_840_10008_5_1_4_34_5_1       = 378,
00418 uid_1_2_840_10008_5_1_4_34_6         = 379,
00419 uid_1_2_840_10008_5_1_4_34_6_1       = 380,
00420 uid_1_2_840_10008_5_1_4_34_6_2       = 381,
00421 uid_1_2_840_10008_5_1_4_34_6_3       = 382,
00422 uid_1_2_840_10008_5_1_4_34_6_4       = 383,
00423 uid_1_2_840_10008_5_1_4_34_7         = 384,
00424 uid_1_2_840_10008_5_1_4_34_8         = 385,
00425 uid_1_2_840_10008_5_1_4_34_9         = 386,
00426 uid_1_2_840_10008_5_1_4_34_10        = 387,
00427 uid_1_2_840_10008_5_1_4_38_4         = 388,
00428 uid_1_2_840_10008_5_1_4_39_1         = 389,
00429 uid_1_2_840_10008_5_1_4_39_2         = 390,
00430 uid_1_2_840_10008_5_1_4_39_3         = 391,
00431 uid_1_2_840_10008_5_1_4_39_4         = 392,
00432 uid_1_2_840_10008_5_1_4_43_1         = 393,
00433 uid_1_2_840_10008_5_1_4_43_2         = 394,
00434 uid_1_2_840_10008_5_1_4_43_3         = 395,
00435 uid_1_2_840_10008_5_1_4_43_4         = 396,
00436 uid_1_2_840_10008_5_1_4_44_1         = 397,
00437 uid_1_2_840_10008_5_1_4_44_2         = 398,
00438 uid_1_2_840_10008_5_1_4_44_3         = 399,
00439 uid_1_2_840_10008_5_1_4_44_4         = 400,
00440 uid_1_2_840_10008_5_1_4_45_1         = 401,
00441 uid_1_2_840_10008_5_1_4_45_2         = 402,
00442 uid_1_2_840_10008_5_1_4_45_3         = 403,
00443 uid_1_2_840_10008_5_1_4_45_4         = 404,
00444 uid_1_2_840_10008_7_1_1              = 405,
00445 uid_1_2_840_10008_7_1_2              = 406,
00446 uid_1_2_840_10008_8_1_1              = 407,
00447 uid_1_2_840_10008_5_1_4_1_1_4_3      = 408,
00448 uid_1_2_840_10008_15_1_1             = 409
00449 //
00450 //
00452
00454 //
00455 // Optionally private UIDs
00456 //
00457 #if 0
00458 uid_1_2_840_113619_4_2,
00459 uid_1_2_840_113619_4_3,
00460 uid_1_3_12_2_1107_5_9_1,
00461 uid_1_2_840_113619_4_26,
00462 uid_1_2_840_113619_4_30,
00463 uid_2_16_840_1_113709_1_5_1,
00464 uid_2_16_840_1_113709_1_2_2,
00465 uid_1_2_840_113543_6_6_1_3_10002,
00466 uid_1_2_392_200036_9116_7_8_1_1_1,
00467 uid_1_2_392_200036_9125_1_1_2,
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00468 uid_1_2_840_113619_4_27,
00469 uid_1_3_46_670589_11_0_0_12_1,
00470 uid_1_3_46_670589_11_0_0_12_2,
00471 uid_1_3_46_670589_11_0_0_12_4,
00472 uid_1_3_46_670589_2_3_1_1,
00473 uid_1_3_46_670589_2_4_1_1,
00474 uid_1_3_46_670589_2_5_1_1,
00475 uid_1_3_46_670589_5_0_1,
00476 uid_1_3_46_670589_5_0_1_1,
00477 uid_1_3_46_670589_5_0_10,
00478 uid_1_3_46_670589_5_0_11,
00479 uid_1_3_46_670589_5_0_11_1,
00480 uid_1_3_46_670589_5_0_12,
00481 uid_1_3_46_670589_5_0_13,
00482 uid_1_3_46_670589_5_0_14,
00483 uid_1_3_46_670589_5_0_2,
00484 uid_1_3_46_670589_5_0_2_1,
00485 uid_1_3_46_670589_5_0_3,
00486 uid_1_3_46_670589_5_0_3_1,
00487 uid_1_3_46_670589_5_0_4,
00488 uid_1_3_46_670589_5_0_7,
00489 uid_1_3_46_670589_5_0_8,
00490 uid_1_3_46_670589_5_0_9,
00491 uid_1_2_752_24_3_7_6,
00492 uid_1_2_752_24_3_7_7,
00493 uid_1_2_840_113619_5_2,
00494 uid_1_3_46_670589_33_1_4_1
00495 #endif
00496 //
00497 //
00499
00500 } TSType;
00501   typedef enum {
00502 VerificationSOPClass = 1, // Verification SOP Class
00503 ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM = 2, // Implicit VR Little Endian: Default Transfer
      Syntax for DICOM
00504 ExplicitVRLittleEndian = 3, // Explicit VR Little Endian
00505 DeflatedExplicitVRLittleEndian = 4, // Deflated Explicit VR Little Endian
00506 ExplicitVRBigEndian = 5, // Explicit VR Big Endian
00507 JPEGBaselineProcess1DefaultTransferSyntaxforLossyJPEG8BitImageCompression = 6, // JPEG Baseline (Process
      1): Default Transfer Syntax for Lossy JPEG 8 Bit Image Compression
00508 JPEGExtendedProcess24DefaultTransferSyntaxforLossyJPEG12BitImageCompressionProcess4only = 7, // JPEG
      Extended (Process 2 & 4): Default Transfer Syntax for Lossy JPEG 12 Bit Image Compression (Process 4 only)
00509 JPEGExtendedProcess35Retired = 8, // JPEG Extended (Process 3 & 5)
00510 JPEGSpectralSelectionNonHierarchicalProcess68Retired = 9, // JPEG Spectral Selection, Non-Hierarchical
      (Process 6 & 8)
00511 JPEGSpectralSelectionNonHierarchicalProcess79Retired = 10, // JPEG Spectral Selection, Non-Hierarchical
      (Process 7 & 9)
00512 JPEGFullProgressionNonHierarchicalProcess1012Retired = 11, // JPEG Full Progression, Non-Hierarchical
      (Process 10 & 12)
00513 JPEGFullProgressionNonHierarchicalProcess1113Retired = 12, // JPEG Full Progression, Non-Hierarchical
      (Process 11 & 13)
00514 JPEGLosslessNonHierarchicalProcess14 = 13, // JPEG Lossless, Non-Hierarchical (Process 14)
00515 JPEGLosslessNonHierarchicalProcess15Retired = 14, // JPEG Lossless, Non-Hierarchical (Process 15)
00516 JPEGExtendedHierarchicalProcess1618Retired = 15, // JPEG Extended, Hierarchical (Process 16 & 18)
00517 JPEGExtendedHierarchicalProcess1719Retired = 16, // JPEG Extended, Hierarchical (Process 17 & 19)
00518 JPEGSpectralSelectionHierarchicalProcess2022Retired = 17, // JPEG Spectral Selection, Hierarchical
      (Process 20 & 22)
00519 JPEGSpectralSelectionHierarchicalProcess2123Retired = 18, // JPEG Spectral Selection, Hierarchical
      (Process 21 & 23)
00520 JPEGFullProgressionHierarchicalProcess2426Retired = 19, // JPEG Full Progression, Hierarchical (Process 24
      & 26)
00521 JPEGFullProgressionHierarchicalProcess2527Retired = 20, // JPEG Full Progression, Hierarchical (Process 25
      & 27)
00522 JPEGLosslessHierarchicalProcess28Retired = 21, // JPEG Lossless, Hierarchical (Process 28)
00523 JPEGLosslessHierarchicalProcess29Retired = 22, // JPEG Lossless, Hierarchical (Process 29)
00524
      JPEGLosslessNonHierarchicalFirstOrderPredictionProcess14SelectionValue1DefaultTransferSyntaxforLosslessJPEGImageCompression
      = 23, // JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1]): Default
      Transfer Syntax for Lossless JPEG Image Compression
00525 JPEGLSLosslessImageCompression = 24, // JPEG-LS Lossless Image Compression
00526 JPEGLSLossyNearLosslessImageCompression = 25, // JPEG-LS Lossy (Near-Lossless) Image Compression
00527 JPEG2000ImageCompressionLosslessOnly = 26, // JPEG 2000 Image Compression (Lossless Only)
00528 JPEG2000ImageCompression = 27, // JPEG 2000 Image Compression
00529 JPEG2000Part2MulticomponentImageCompressionLosslessOnly = 28, // JPEG 2000 Part 2 Multi-component Image
      Compression (Lossless Only)
00530 JPEG2000Part2MulticomponentImageCompression = 29, // JPEG 2000 Part 2 Multi-component Image Compression
00531 JPIPReferenced = 30, // JPIP Referenced
00532 JPIPReferencedDeflate = 31, // JPIP Referenced Deflate
00533 MPEG2MainProfileMainLevel = 32, // MPEG2 Main Profile @ Main Level
00534 RLELossless = 33, // RLE Lossless
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00535 RFC2557MIMEencapsulation = 34, // RFC 2557 MIME encapsulation
00536 XMLEncoding = 35, // XML Encoding
00537 MediaStorageDirectoryStorage = 36, // Media Storage Directory Storage
00538 TalairachBrainAtlasFrameofReference = 37, // Talairach Brain Atlas Frame of Reference
00539 SPM2T1FrameofReference = 38, // SPM2 T1 Frame of Reference
00540 SPM2T2FrameofReference = 39, // SPM2 T2 Frame of Reference
00541 SPM2PDFrameofReference = 40, // SPM2 PD Frame of Reference
00542 SPM2EPIFrameofReference = 41, // SPM2 EPI Frame of Reference
00543 SPM2FILT1FrameofReference = 42, // SPM2 FIL T1 Frame of Reference
00544 SPM2PETFrameofReference = 43, // SPM2 PET Frame of Reference
00545 SPM2TRANSMFrameofReference = 44, // SPM2 TRANSM Frame of Reference
00546 SPM2SPECTFrameofReference = 45, // SPM2 SPECT Frame of Reference
00547 SPM2GRAYFrameofReference = 46, // SPM2 GRAY Frame of Reference
00548 SPM2WHITEFrameofReference = 47, // SPM2 WHITE Frame of Reference
00549 SPM2CSFFrameofReference = 48, // SPM2 CSF Frame of Reference
00550 SPM2BRAINMASKFrameofReference = 49, // SPM2 BRAINMASK Frame of Reference
00551 SPM2AVG305T1FrameofReference = 50, // SPM2 AVG305T1 Frame of Reference
00552 SPM2AVG152T1FrameofReference = 51, // SPM2 AVG152T1 Frame of Reference
00553 SPM2AVG152T2FrameofReference = 52, // SPM2 AVG152T2 Frame of Reference
00554 SPM2AVG152PDFrameofReference = 53, // SPM2 AVG152PD Frame of Reference
00555 SPM2SINGLESUBJT1FrameofReference = 54, // SPM2 SINGLESUBJT1 Frame of Reference
00556 ICBM452T1FrameofReference = 55, // ICBM 452 T1 Frame of Reference
00557 ICBMSingleSubjectMRIFrameofReference = 56, // ICBM Single Subject MRI Frame of Reference
00558 BasicStudyContentNotificationSOPClassRetired = 57, // Basic Study Content Notification SOP Class
00559 StorageCommitmentPushModelSOPClass = 58, // Storage Commitment Push Model SOP Class
00560 StorageCommitmentPushModelSOPInstance = 59, // Storage Commitment Push Model SOP Instance
00561 StorageCommitmentPullModelSOPClassRetired = 60, // Storage Commitment Pull Model SOP Class
00562 StorageCommitmentPullModelSOPInstanceRetired = 61, // Storage Commitment Pull Model SOP Instance
00563 ProceduralEventLoggingSOPClass = 62, // Procedural Event Logging SOP Class
00564 ProceduralEventLoggingSOPInstance = 63, // Procedural Event Logging SOP Instance
00565 SubstanceAdministrationLoggingSOPClass = 64, // Substance Administration Logging SOP Class
00566 SubstanceAdministrationLoggingSOPInstance = 65, // Substance Administration Logging SOP Instance
00567 DICOMUIDRegistry = 66, // DICOM UID Registry
00568 DICOMControlledTerminology = 67, // DICOM Controlled Terminology
00569 DICOMApplicationContextName = 68, // DICOM Application Context Name
00570 DetachedPatientManagementSOPClassRetired = 69, // Detached Patient Management SOP Class
00571 DetachedPatientManagementMetaSOPClassRetired = 70, // Detached Patient Management Meta SOP Class
00572 DetachedVisitManagementSOPClassRetired = 71, // Detached Visit Management SOP Class
00573 DetachedStudyManagementSOPClassRetired = 72, // Detached Study Management SOP Class
00574 StudyComponentManagementSOPClassRetired = 73, // Study Component Management SOP Class
00575 ModalityPerformedProcedureStepSOPClass = 74, // Modality Performed Procedure Step SOP Class
00576 ModalityPerformedProcedureStepRetrieveSOPClass = 75, // Modality Performed Procedure Step Retrieve SOP
      Class
00577 ModalityPerformedProcedureStepNotificationSOPClass = 76, // Modality Performed Procedure Step Notification
      SOP Class
00578 DetachedResultsManagementSOPClassRetired = 77, // Detached Results Management SOP Class
00579 DetachedResultsManagementMetaSOPClassRetired = 78, // Detached Results Management Meta SOP Class
00580 DetachedStudyManagementMetaSOPClassRetired = 79, // Detached Study Management Meta SOP Class
00581 DetachedInterpretationManagementSOPClassRetired = 80, // Detached Interpretation Management SOP Class
00582 StorageServiceClass = 81, // Storage Service Class
00583 BasicFilmSessionSOPClass = 82, // Basic Film Session SOP Class
00584 BasicFilmBoxSOPClass = 83, // Basic Film Box SOP Class
00585 BasicGrayscaleImageBoxSOPClass = 84, // Basic Grayscale Image Box SOP Class
00586 BasicColorImageBoxSOPClass = 85, // Basic Color Image Box SOP Class
00587 ReferencedImageBoxSOPClassRetired = 86, // Referenced Image Box SOP Class
00588 BasicGrayscalePrintManagementMetaSOPClass = 87, // Basic Grayscale Print Management Meta SOP Class
00589 ReferencedGrayscalePrintManagementMetaSOPClassRetired = 88, // Referenced Grayscale Print Management Meta
      SOP Class
00590 PrintJobSOPClass = 89, // Print Job SOP Class
00591 BasicAnnotationBoxSOPClass = 90, // Basic Annotation Box SOP Class
00592 PrinterSOPClass = 91, // Printer SOP Class
00593 PrinterConfigurationRetrievalSOPClass = 92, // Printer Configuration Retrieval SOP Class
00594 PrinterSOPInstance = 93, // Printer SOP Instance
00595 PrinterConfigurationRetrievalSOPInstance = 94, // Printer Configuration Retrieval SOP Instance
00596 BasicColorPrintManagementMetaSOPClass = 95, // Basic Color Print Management Meta SOP Class
00597 ReferencedColorPrintManagementMetaSOPClassRetired = 96, // Referenced Color Print Management Meta SOP
      Class
00598 VOILUTBoxSOPClass = 97, // VOI LUT Box SOP Class
00599 PresentationLUTSOPClass = 98, // Presentation LUT SOP Class
00600 ImageOverlayBoxSOPClassRetired = 99, // Image Overlay Box SOP Class
00601 BasicPrintImageOverlayBoxSOPClassRetired = 100, // Basic Print Image Overlay Box SOP Class
00602 PrintQueueSOPInstanceRetired = 101, // Print Queue SOP Instance
00603 PrintQueueManagementSOPClassRetired = 102, // Print Queue Management SOP Class
00604 StoredPrintStorageSOPClassRetired = 103, // Stored Print Storage SOP Class
00605 HardcopyGrayscaleImageStorageSOPClassRetired = 104, // Hardcopy Grayscale Image Storage SOP Class
00606 HardcopyColorImageStorageSOPClassRetired = 105, // Hardcopy Color Image Storage SOP Class
00607 PullPrintRequestSOPClassRetired = 106, // Pull Print Request SOP Class
00608 PullStoredPrintManagementMetaSOPClassRetired = 107, // Pull Stored Print Management Meta SOP Class
00609 MediaCreationManagementSOPClassUID = 108, // Media Creation Management SOP Class UID
00610 ComputedRadiographyImageStorage = 109, // Computed Radiography Image Storage
00611 DigitalXRayImageStorageForPresentation = 110, // Digital X-Ray Image Storage - For Presentation
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00612 DigitalXRayImageStorageForProcessing = 111, // Digital X-Ray Image Storage - For Processing
00613 DigitalMammographyXRayImageStorageForPresentation = 112, // Digital Mammography X-Ray Image Storage - For
      Presentation
00614 DigitalMammographyXRayImageStorageForProcessing = 113, // Digital Mammography X-Ray Image Storage - For
      Processing
00615 DigitalIntraoralXRayImageStorageForPresentation = 114, // Digital Intra-oral X-Ray Image Storage - For
      Presentation
00616 DigitalIntraoralXRayImageStorageForProcessing = 115, // Digital Intra-oral X-Ray Image Storage - For
      Processing
00617 CTImageStorage = 116, // CT Image Storage
00618 EnhancedCTImageStorage = 117, // Enhanced CT Image Storage
00619 UltrasoundMultiframeImageStorageRetired = 118, // Ultrasound Multi-frame Image Storage
00620 UltrasoundMultiframeImageStorage = 119, // Ultrasound Multi-frame Image Storage
00621 MRImageStorage = 120, // MR Image Storage
00622 EnhancedMRImageStorage = 121, // Enhanced MR Image Storage
00623 MRSpectroscopyStorage = 122, // MR Spectroscopy Storage
00624 NuclearMedicineImageStorageRetired = 123, // Nuclear Medicine Image Storage
00625 UltrasoundImageStorageRetired = 124, // Ultrasound Image Storage
00626 UltrasoundImageStorage = 125, // Ultrasound Image Storage
00627 SecondaryCaptureImageStorage = 126, // Secondary Capture Image Storage
00628 MultiframeSingleBitSecondaryCaptureImageStorage = 127, // Multi-frame Single Bit Secondary Capture Image
      Storage
00629 MultiframeGrayscaleByteSecondaryCaptureImageStorage = 128, // Multi-frame Grayscale Byte Secondary Capture
      Image Storage
00630 MultiframeGrayscaleWordSecondaryCaptureImageStorage = 129, // Multi-frame Grayscale Word Secondary Capture
      Image Storage
00631 MultiframeTrueColorSecondaryCaptureImageStorage = 130, // Multi-frame True Color Secondary Capture Image
      Storage
00632 StandaloneOverlayStorageRetired = 131, // Standalone Overlay Storage
00633 StandaloneCurveStorageRetired = 132, // Standalone Curve Storage
00634 WaveformStorageTrialRetired = 133, // Waveform Storage - Trial
00635 ECG12leadWaveformStorage = 134, // 12-lead ECG Waveform Storage
00636 GeneralECGWaveformStorage = 135, // General ECG Waveform Storage
00637 AmbulatoryECGWaveformStorage = 136, // Ambulatory ECG Waveform Storage
00638 HemodynamicWaveformStorage = 137, // Hemodynamic Waveform Storage
00639 CardiacElectrophysiologyWaveformStorage = 138, // Cardiac Electrophysiology Waveform Storage
00640 BasicVoiceAudioWaveformStorage = 139, // Basic Voice Audio Waveform Storage
00641 StandaloneModalityLUTStorageRetired = 140, // Standalone Modality LUT Storage
00642 StandaloneVOILUTStorageRetired = 141, // Standalone VOI LUT Storage
00643 GrayscaleSoftcopyPresentationStateStorageSOPClass = 142, // Grayscale Softcopy Presentation State Storage
      SOP Class
00644 ColorSoftcopyPresentationStateStorageSOPClass = 143, // Color Softcopy Presentation State Storage SOP
      Class
00645 PseudoColorSoftcopyPresentationStateStorageSOPClass = 144, // Pseudo-Color Softcopy Presentation State
      Storage SOP Class
00646 BlendingSoftcopyPresentationStateStorageSOPClass = 145, // Blending Softcopy Presentation State Storage
      SOP Class
00647 XRayAngiographicImageStorage = 146, // X-Ray Angiographic Image Storage
00648 EnhancedXAImageStorage = 147, // Enhanced XA Image Storage
00649 XRayRadiofluoroscopicImageStorage = 148, // X-Ray Radiofluoroscopic Image Storage
00650 EnhancedXRFImageStorage = 149, // Enhanced XRF Image Storage
00651 XRay3DAngiographicImageStorage = 150, // X-Ray 3D Angiographic Image Storage
00652 XRay3DCraniofacialImageStorage = 151, // X-Ray 3D Craniofacial Image Storage
00653 XRayAngiographicBiPlaneImageStorageRetired = 152, // X-Ray Angiographic Bi-Plane Image Storage
00654 NuclearMedicineImageStorage = 153, // Nuclear Medicine Image Storage
00655 RawDataStorage = 154, // Raw Data Storage
00656 SpatialRegistrationStorage = 155, // Spatial Registration Storage
00657 SpatialFiducialsStorage = 156, // Spatial Fiducials Storage
00658 DeformableSpatialRegistrationStorage = 157, // Deformable Spatial Registration Storage
00659 SegmentationStorage = 158, // Segmentation Storage
00660 RealWorldValueMappingStorage = 159, // Real World Value Mapping Storage
00661 VLImageStorageTrialRetired = 160, // VL Image Storage - Trial
00662 VLMultiframeImageStorageTrialRetired = 161, // VL Multi-frame Image Storage - Trial
00663 VLEndoscopicImageStorage = 162, // VL Endoscopic Image Storage
00664 VideoEndoscopicImageStorage = 163, // Video Endoscopic Image Storage
00665 VLMicroscopicImageStorage = 164, // VL Microscopic Image Storage
00666 VideoMicroscopicImageStorage = 165, // Video Microscopic Image Storage
00667 VLSlideCoordinatesMicroscopicImageStorage = 166, // VL Slide-Coordinates Microscopic Image Storage
00668 VLPhotographicImageStorage = 167, // VL Photographic Image Storage
00669 VideoPhotographicImageStorage = 168, // Video Photographic Image Storage
00670 OphthalmicPhotography8BitImageStorage = 169, // Ophthalmic Photography 8 Bit Image Storage
00671 OphthalmicPhotography16BitImageStorage = 170, // Ophthalmic Photography 16 Bit Image Storage
00672 StereometricRelationshipStorage = 171, // Stereometric Relationship Storage
00673 OphthalmicTomographyImageStorage = 172, // Ophthalmic Tomography Image Storage
00674 TextSRStorageTrialRetired = 173, // Text SR Storage - Trial
00675 AudioSRStorageTrialRetired = 174, // Audio SR Storage - Trial
00676 DetailSRStorageTrialRetired = 175, // Detail SR Storage - Trial
00677 ComprehensiveSRStorageTrialRetired = 176, // Comprehensive SR Storage - Trial
00678 BasicTextSRStorage = 177, // Basic Text SR Storage
00679 EnhancedSRStorage = 178, // Enhanced SR Storage
00680 ComprehensiveSRStorage = 179, // Comprehensive SR Storage
```

```
00681 ProcedureLogStorage = 180, // Procedure Log Storage
00682 MammographyCADSRStorage = 181, // Mammography CAD SR Storage
00683 KeyObjectSelectionDocumentStorage = 182, // Key Object Selection Document Storage
00684 ChestCADSRStorage = 183, // Chest CAD SR Storage
00685 XRayRadiationDoseSRStorage = 184, // X-Ray Radiation Dose SR Storage
00686 EncapsulatedPDFStorage = 185, // Encapsulated PDF Storage
00687 EncapsulatedCDAStorage = 186, // Encapsulated CDA Storage
00688 PositronEmissionTomographyImageStorage = 187, // Positron Emission Tomography Image Storage
00689 StandalonePETCurveStorageRetired = 188, // Standalone PET Curve Storage
00690 RTImageStorage = 189, // RT Image Storage
00691 RTDoseStorage = 190, // RT Dose Storage
00692 RTStructureSetStorage = 191, // RT Structure Set Storage
00693 RTBeamsTreatmentRecordStorage = 192, // RT Beams Treatment Record Storage
00694 RTPlanStorage = 193, // RT Plan Storage
00695 RTBrachyTreatmentRecordStorage = 194, // RT Brachy Treatment Record Storage
00696 RTTreatmentSummaryRecordStorage = 195, // RT Treatment Summary Record Storage
00697 RTIonPlanStorage = 196, // RT Ion Plan Storage
00698 RTIonBeamsTreatmentRecordStorage = 197, // RT Ion Beams Treatment Record Storage
00699 PatientRootQueryRetrieveInformationModelFIND = 198, // Patient Root Query/Retrieve Information Model -
      FIND
00700 PatientRootQueryRetrieveInformationModelMOVE = 199, // Patient Root Query/Retrieve Information Model -
      MOVE
00701 PatientRootQueryRetrieveInformationModelGET = 200, // Patient Root Query/Retrieve Information Model - GET
00702 StudyRootQueryRetrieveInformationModelFIND = 201, // Study Root Query/Retrieve Information Model - FIND
00703 StudyRootQueryRetrieveInformationModelMOVE = 202, // Study Root Query/Retrieve Information Model - MOVE
00704 StudyRootQueryRetrieveInformationModelGET = 203, // Study Root Query/Retrieve Information Model - GET
00705 PatientStudyOnlyQueryRetrieveInformationModelFINDRetired = 204, // Patient/Study Only Query/Retrieve
      Information Model - FIND
00706 PatientStudyOnlyQueryRetrieveInformationModelMOVERetired = 205, // Patient/Study Only Query/Retrieve
      Information Model - MOVE
00707 PatientStudyOnlyQueryRetrieveInformationModelGETRetired = 206, // Patient/Study Only Query/Retrieve
      Information Model - GET
00708 ModalityWorklistInformationModelFIND = 207, // Modality Worklist Information Model - FIND
00709 GeneralPurposeWorklistInformationModelFIND = 208, // General Purpose Worklist Information Model - FIND
00710 GeneralPurposeScheduledProcedureStepSOPClass = 209, // General Purpose Scheduled Procedure Step SOP Class
00711 GeneralPurposePerformedProcedureStepSOPClass = 210, // General Purpose Performed Procedure Step SOP Class
00712 GeneralPurposeWorklistManagementMetaSOPClass = 211, // General Purpose Worklist Management Meta SOP Class
00713 InstanceAvailabilityNotificationSOPClass = 212, // Instance Availability Notification SOP Class
00714 RTBeamsDeliveryInstructionStorageSupplement74FrozenDraft = 213, // RT Beams Delivery Instruction Storage
      (Supplement 74 Frozen Draft)
00715 RTConventionalMachineVerificationSupplement74FrozenDraft = 214, // RT Conventional Machine Verification
      (Supplement 74 Frozen Draft)
00716 RTIonMachineVerificationSupplement74FrozenDraft = 215, // RT Ion Machine Verification (Supplement 74
      Frozen Draft)
00717 UnifiedWorklistandProcedureStepServiceClass = 216, // Unified Worklist and Procedure Step Service Class
00718 UnifiedProcedureStepPushSOPClass = 217, // Unified Procedure Step - Push SOP Class
00719 UnifiedProcedureStepWatchSOPClass = 218, // Unified Procedure Step - Watch SOP Class
00720 UnifiedProcedureStepPullSOPClass = 219, // Unified Procedure Step - Pull SOP Class
00721 UnifiedProcedureStepEventSOPClass = 220, // Unified Procedure Step - Event SOP Class
00722 UnifiedWorklistandProcedureStepSOPInstance = 221, // Unified Worklist and Procedure Step SOP Instance
00723 GeneralRelevantPatientInformationQuery = 222, // General Relevant Patient Information Query
00724 BreastImagingRelevantPatientInformationQuery = 223, // Breast Imaging Relevant Patient Information Query
00725 CardiacRelevantPatientInformationQuery = 224, // Cardiac Relevant Patient Information Query
00726 HangingProtocolStorage = 225, // Hanging Protocol Storage
00727 HangingProtocolInformationModelFIND = 226, // Hanging Protocol Information Model - FIND
00728 HangingProtocolInformationModelMOVE = 227, // Hanging Protocol Information Model - MOVE
00729 ProductCharacteristicsQuerySOPClass = 228, // Product Characteristics Query SOP Class
00730 SubstanceApprovalQuerySOPClass = 229, // Substance Approval Query SOP Class
00731 dicomDeviceName = 230, // dicomDeviceName
00732 dicomDescription = 231, // dicomDescription
00733 dicomManufacturer = 232, // dicomManufacturer
00734 dicomManufacturerModelName = 233, // dicomManufacturerModelName
00735 dicomSoftwareVersion = 234, // dicomSoftwareVersion
00736 dicomVendorData = 235, // dicomVendorData
00737 dicomAETitle = 236, // dicomAETitle
00738 dicomNetworkConnectionReference = 237, // dicomNetworkConnectionReference
00739 dicomApplicationCluster = 238, // dicomApplicationCluster
00740 dicomAssociationInitiator = 239, // dicomAssociationInitiator
00741 dicomAssociationAcceptor = 240, // dicomAssociationAcceptor
00742 dicomHostname = 241, // dicomHostname
00743 dicomPort = 242, // dicomPort
00744 dicomSOPClass = 243, // dicomSOPClass
00745 dicomTransferRole = 244, // dicomTransferRole
00746 dicomTransferSyntax = 245, // dicomTransferSyntax
00747 dicomPrimaryDeviceType = 246, // dicomPrimaryDeviceType
00748 dicomRelatedDeviceReference = 247, // dicomRelatedDeviceReference
00749 dicomPreferredCalledAETitle = 248, // dicomPreferredCalledAETitle
00750 dicomTLSCyphersuite = 249, // dicomTLSCyphersuite
00751 dicomAuthorizedNodeCertificateReference = 250, // dicomAuthorizedNodeCertificateReference
00752 dicomThisNodeCertificateReference = 251, // dicomThisNodeCertificateReference
00753 dicomInstalled = 252, // dicomInstalled
```

```
00754 dicomStationName = 253, // dicomStationName
00755 dicomDeviceSerialNumber = 254, // dicomDeviceSerialNumber
00756 dicomInstitutionName = 255, // dicomInstitutionName
00757 dicomInstitutionAddress = 256, // dicomInstitutionAddress
00758 dicomInstitutionDepartmentName = 257, // dicomInstitutionDepartmentName
00759 dicomIssuerOfPatientID = 258, // dicomIssuerOfPatientID
00760 dicomPreferredCallingAETitle = 259, // dicomPreferredCallingAETitle
00761 dicomSupportedCharacterSet = 260, // dicomSupportedCharacterSet
00762 dicomConfigurationRoot = 261, // dicomConfigurationRoot
00763 dicomDevicesRoot = 262, // dicomDevicesRoot
00764 dicomUniqueAETitlesRegistryRoot = 263, // dicomUniqueAETitlesRegistryRoot
00765 dicomDevice = 264, // dicomDevice
00766 dicomNetworkAE = 265, // dicomNetworkAE
00767 dicomNetworkConnection = 266, // dicomNetworkConnection
00768 dicomUniqueAETitle = 267, // dicomUniqueAETitle
00769 dicomTransferCapability = 268, // dicomTransferCapability
00770 //
00771 VLWholeSlideMicroscopyImageStorage           = 269,
00772 EnhancedUSVolumeStorage                      = 270,
00773 SurfaceSegmentationStorage                   = 271,
00774 BreastTomosynthesisImageStorage              = 272,
00775 LegacyConvertedEnhancedCTImageStorage        = 273,
00776 LegacyConvertedEnhancedMRImageStorage        = 274,
00777 LegacyConvertedEnhancedPETImageStorage       = 275,
00778 MPEG2MainProfileHighLevel                    = 276,
00779 MPEG4AVCH_264HighProfileLevel4_1             = 277,
00780 MPEG4AVCH_264BDcompatibleHighProfileLevel4_1 = 278,
00781
00783 //
00784 // 2019b
00785 //
00786 PETColorPaletteSOPInstance                                      = 279,
00787 HotMetalBlueColorPaletteSOPInstance                             = 280,
00788 PET20StepColorPaletteSOPInstance                                = 281,
00789 SpringColorPaletteSOPInstance                                   = 282,
00790 SummerColorPaletteSOPInstance                                   = 283,
00791 FallColorPaletteSOPInstance                                     = 284,
00792 WinterColorPaletteSOPInstance                                   = 285,
00793 Papyrus3ImplicitVRLittleEndian                                  = 286,
00794 AdultMouseAnatomyOntology                                       = 287,
00795 UberonOntology                                                  = 288,
00796 IntegratedTaxonomicInformationSystemITISTaxonomicSerialNumberTSN = 289,
00797 MouseGenomeInitiativeMGI                                       = 290,
00798 PubChemCompoundCID                                             = 291,
00799 ICD11                                                          = 292,
00800 NewYorkUniversityMelanomaClinicalCooperativeGroup              = 293,
00801 MayoClinicNonradiologicalImagesSBSAnatomicalSurfaceRegionGuide = 294,
00802 ImageBiomarkerStandardisationInitiative                        = 295,
00803 RadiomicsOntology                                              = 296,
00804 DisplaySystemSOPClass                                         = 297,
00805 DisplaySystemSOPInstance                                      = 298,
00806 GeneralAudioWaveformStorage                                   = 299,
00807 ArterialPulseWaveformStorage                                  = 300,
00808 RespiratoryWaveformStorage                                    = 301,
00809 XAXRFGrayscaleSoftcopyPresentationStateStorage                = 302,
00810 GrayscalePlanarMPRVolumetricPresentationStateStorage          = 303,
00811 MPEG4AVCH_264HighProfileLevel4_2For2DVideo                    = 304,
00812 MPEG4AVCH_264HighProfileLevel4_2For3DVideo                    = 305,
00813 MPEG4AVCH_264StereoHighProfileLevel4_2                        = 306,
00814 HEVCH_265MainProfileLevel5_1                                  = 307,
00815 HEVCH_265Main10ProfileLevel5_1                                = 308,
00816 HotIronColorPaletteSOPInstance                                 = 309,
00817 CompositingPlanarMPRVolumetricPresentationStateStorage        = 310,
00818 AdvancedBlendingPresentationStateStorage                      = 311,
00819 VolumeRenderingVolumetricPresentationStateStorage             = 312,
00820 SegmentedVolumeRenderingVolumetricPresentationStateStorage    = 313,
00821 MultipleVolumeRenderingVolumetricPresentationStateStorage     = 314,
00822 Null0                                                         = 315,
00823 BreastProjectionXRayImageStorageForPresentation              = 316,
00824 BreastProjectionXRayImageStorageForProcessing                = 317,
00825 IntravascularOpticalCoherenceTomographyImageStorageForPresentation = 318,
00826 IntravascularOpticalCoherenceTomographyImageStorageForProcessing   = 319,
00827 ParametricMapStorage                                          = 320,
00828 Null1                                                         = 321,
00829 TractographyResultsStorage                                    = 322,
00830 SurfaceScanMeshStorage                                        = 323,
00831 SurfaceScanPointCloudStorage                                  = 324,
00832 WideFieldOphthalmicPhotographyStereographicProjectionImageStorage  = 325,
00833 WideFieldOphthalmicPhotography3DCoordinatesImageStorage       = 326,
00834 OphthalmicOpticalCoherenceTomographyEnFaceImageStorage        = 327,
00835 OphthalmicOpticalCoherenceTomographyBscanVolumeAnalysisStorage     = 328,
```

```
00836 LensometryMeasurementsStorage                                = 329,
00837 AutorefractionMeasurementsStorage                            = 330,
00838 KeratometryMeasurementsStorage                               = 331,
00839 SubjectiveRefractionMeasurementsStorage                       = 332,
00840 VisualAcuityMeasurementsStorage                              = 333,
00841 SpectaclePrescriptionReportStorage                           = 334,
00842 OphthalmicAxialMeasurementsStorage                          = 335,
00843 IntraocularLensCalculationsStorage                          = 336,
00844 MacularGridThicknessandVolumeReportStorage                  = 337,
00845 OphthalmicVisualFieldStaticPerimetryMeasurementsStorage     = 338,
00846 OphthalmicThicknessMapStorage                               = 339,
00847 CornealTopographyMapStorage                                 = 340,
00848 Comprehensive3DSRStorage                                    = 341,
00849 ExtensibleSRStorage                                         = 342,
00850 RadiopharmaceuticalRadiationDoseSRStorage                   = 343,
00851 ColonCADSRStorage                                           = 344,
00852 ImplantationPlanSRStorage                                   = 345,
00853 AcquisitionContextSRStorage                                 = 346,
00854 SimplifiedAdultEchoSRStorage                               = 347,
00855 PatientRadiationDoseSRStorage                              = 348,
00856 PlannedImagingAgentAdministrationSRStorage                  = 349,
00857 PerformedImagingAgentAdministrationSRStorage               = 350,
00858 ContentAssessmentResultsStorage                            = 351,
00859 EncapsulatedSTLStorage                                      = 352,
00860 EnhancedPETImageStorage                                    = 353,
00861 BasicStructuredDisplayStorage                              = 354,
00862 CTDefinedProcedureProtocolStorage                          = 355,
00863 CTPerformedProcedureProtocolStorage                        = 356,
00864 ProtocolApprovalStorage                                    = 357,
00865 ProtocolApprovalInformationModelFIND                       = 358,
00866 ProtocolApprovalInformationModelMOVE                       = 359,
00867 ProtocolApprovalInformationModelGET                        = 360,
00868 RTPhysicianIntentStorage                                   = 361,
00869 RTSegmentAnnotationStorage                                 = 362,
00870 DICOSCTImageStorage                                        = 363,
00871 DICOSDigitalXRayImageStorageForPresentation                = 364,
00872 DICOSDigitalXRayImageStorageForProcessing                  = 365,
00873 DICOSThreatDetectionReportStorage                          = 366,
00874 DICOS2DAITStorage                                          = 367,
00875 DICOS3DAITStorage                                          = 368,
00876 DICOSQuadrupoleResonanceQRStorage                         = 369,
00877 EddyCurrentImageStorage                                    = 370,
00878 EddyCurrentMultiframeImageStorage                          = 371,
00879 CompositeInstanceRootRetrieveMOVE                          = 372,
00880 CompositeInstanceRootRetrieveGET                           = 373,
00881 CompositeInstanceRetrieveWithoutBulkDataGET                = 374,
00882 DefinedProcedureProtocolInformationModelFIND               = 375,
00883 DefinedProcedureProtocolInformationModelMOVE               = 376,
00884 DefinedProcedureProtocolInformationModelGET                = 377,
00885 UPSFilteredGlobalSubscriptionSOPInstance                   = 378,
00886 UnifiedWorklistandProcedureStepServiceClass1               = 379,
00887 UnifiedProcedureStepPushSOPClass1                          = 380,
00888 UnifiedProcedureStepWatchSOPClass1                         = 381,
00889 UnifiedProcedureStepPullSOPClass1                          = 382,
00890 UnifiedProcedureStepEventSOPClass1                        = 383,
00891 RTBeamsDeliveryInstructionStorage                          = 384,
00892 RTConventionalMachineVerification                          = 385,
00893 RTIonMachineVerification                                   = 386,
00894 RTBrachyApplicationSetupDeliveryInstructionStorage         = 387,
00895 HangingProtocolInformationModelGET                        = 388,
00896 ColorPaletteStorage                                        = 389,
00897 ColorPaletteQueryRetrieveInformationModelFIND              = 390,
00898 ColorPaletteQueryRetrieveInformationModelMOVE              = 391,
00899 ColorPaletteQueryRetrieveInformationModelGET               = 392,
00900 GenericImplantTemplateStorage                              = 393,
00901 GenericImplantTemplateInformationModelFIND                 = 394,
00902 GenericImplantTemplateInformationModelMOVE                 = 395,
00903 GenericImplantTemplateInformationModelGET                  = 396,
00904 ImplantAssemblyTemplateStorage                             = 397,
00905 ImplantAssemblyTemplateInformationModelFIND               = 398,
00906 ImplantAssemblyTemplateInformationModelMOVE               = 399,
00907 ImplantAssemblyTemplateInformationModelGET                = 400,
00908 ImplantTemplateGroupStorage                                = 401,
00909 ImplantTemplateGroupInformationModelFIND                   = 402,
00910 ImplantTemplateGroupInformationModelMOVE                   = 403,
00911 ImplantTemplateGroupInformationModelGET                    = 404,
00912 NativeDICOMModel                                           = 405,
00913 AbstractMultiDimensionalImageModel                         = 406,
00914 DICOMContentMappingResource                                = 407,
00915 EnhancedMRColorImageStorage                                = 408,
00916 UniversalCoordinatedTime                                   = 409
```

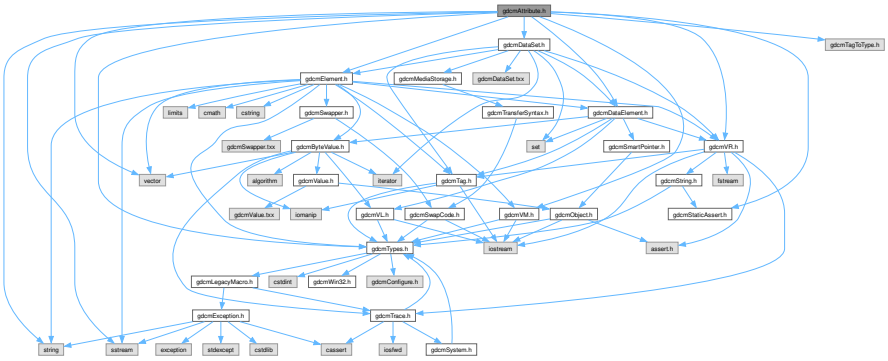
```
00917 //
00918 //
00920
00922 //
00923 // Optionally private UIDs
00924 //
00925 #if 0
00926 Private_1_2_840_113619_4_2,
00927 Private_1_2_840_113619_4_3,
00928 Private_1_3_12_2_1107_5_9_1,
00929 Private_1_2_840_113619_4_26,
00930 Private_1_2_840_113619_4_30,
00931 Private_2_16_840_1_113709_1_5_1,
00932 Private_2_16_840_1_113709_1_2_2,
00933 Private_1_2_840_113543_6_6_1_3_10002,
00934 Private_1_2_392_200036_9116_7_8_1_1_1,
00935 Private_1_2_392_200036_9125_1_1_2,
00936 Private_1_2_840_113619_4_27,
00937 Private_1_3_46_670589_11_0_0_12_1,
00938 Private_1_3_46_670589_11_0_0_12_2,
00939 Private_1_3_46_670589_11_0_0_12_4,
00940 Private_1_3_46_670589_2_3_1_1,
00941 Private_1_3_46_670589_2_4_1_1,
00942 Private_1_3_46_670589_2_5_1_1,
00943 Private_1_3_46_670589_5_0_1,
00944 Private_1_3_46_670589_5_0_1_1,
00945 Private_1_3_46_670589_5_0_10,
00946 Private_1_3_46_670589_5_0_11,
00947 Private_1_3_46_670589_5_0_11_1,
00948 Private_1_3_46_670589_5_0_12,
00949 Private_1_3_46_670589_5_0_13,
00950 Private_1_3_46_670589_5_0_14,
00951 Private_1_3_46_670589_5_0_2,
00952 Private_1_3_46_670589_5_0_2_1,
00953 Private_1_3_46_670589_5_0_3,
00954 Private_1_3_46_670589_5_0_3_1,
00955 Private_1_3_46_670589_5_0_4,
00956 Private_1_3_46_670589_5_0_7,
00957 Private_1_3_46_670589_5_0_8,
00958 Private_1_3_46_670589_5_0_9,
00959 Private_1_2_752_24_3_7_6,
00960 Private_1_2_752_24_3_7_7,
00961 Private_1_2_840_113619_5_2,
00962 Private_1_3_46_670589_33_1_4_1
00963 #endif
00964 //
00965 //
00967
00968 } TSName;
00969
00970
00971   typedef const char* const (*TransferSyntaxStringsType)[2];
00972   static TransferSyntaxStringsType GetTransferSyntaxStrings();
00973   static const char * const *GetTransferSyntaxString(unsigned int ts);
00974   static unsigned int GetNumberOfTransferSyntaxStrings();
00975
00976
00977   // TODO: Because I would like a dual signature for TSType and TSName, C++ won't let me do it...
00978   static const char* GetUIDString(/*TSType*/ unsigned int ts);
00979   static const char* GetUIDName(/*TSType*/ unsigned int ts);
00980
00983   bool SetFromUID(const char *str);
00984
00987   const char *GetName() const;
00988
00991   const char *GetString() const;
00992
00993   operator TSType () const { return TSField; }
00994
00995 private:
00996   TSType TSField;
00997 };
00998 //----------------------------------------------------------------------------
00999 inline std::ostream &operator«(std::ostream &_os, const UIDs &uid)
01000 {
01001   _os « uid.GetString() « " -> " « uid.GetName();
01002   return _os;
01003
01004 }
01005
01006 } // end namespace gdcm
```

```
01007
01008 #endif //GDCMUIDS_H
```

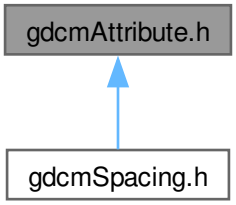
13.109 gdcmAttribute.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVR.h"
#include "gdcmTagToType.h"
#include "gdcmVM.h"
#include "gdcmElement.h"
#include "gdcmDataElement.h"
#include "gdcmDataSet.h"
#include "gdcmStaticAssert.h"
#include <string>
#include <vector>
#include <sstream>
```

Include dependency graph for gdcmAttribute.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Attribute< Group, Element, TVR, TVM >

  Attribute class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary.
- class gdcm::Attribute< Group, Element, TVR, VM::VM1 >
- class gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >
- class gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >
- class gdcm::Attribute< Group, Element, TVR, VM::VM1_n >
- class gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >
- class gdcm::Attribute< Group, Element, TVR, VM::VM2_n >
- class gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >
- class gdcm::Attribute< Group, Element, TVR, VM::VM3_n >
- class gdcm::VRVLSize< 0 >
- class gdcm::VRVLSize< 1 >

Namespaces

- namespace gdcm

13.110 gdcmAttribute.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMATTRIBUTE_H
00015 #define GDCMATTRIBUTE_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmVR.h"
00019 #include "gdcmTagToType.h"
00020 #include "gdcmVM.h"
00021 #include "gdcmElement.h"
00022 #include "gdcmDataElement.h"
00023 #include "gdcmDataSet.h"
00024 #include "gdcmStaticAssert.h"
00025
00026 #include <string>
00027 #include <vector>
00028 #include <sstream>
00029
00030 namespace gdcm_ns
00031 {
00032
00033 struct void_;
00034
00035 // Declaration, also serve as forward declaration
00036 template<int T> class VRVLSize;
00037
00038 // Implementation when VL is coded on 16 bits:
00039 template<> class VRVLSize<0> {
```

```
00040 public:
00041   static inline uint16_t Read(std::istream &_is) {
00042     uint16_t l;
00043     _is.read((char*)&l, 2);
00044     return l;
00045     }
00046
00047   static inline void Write(std::ostream &os)  { (void)os;
00048     }
00049 };
00050 // Implementation when VL is coded on 32 bits:
00051 template<> class VRVLSize<1> {
00052 public:
00053   static inline uint32_t Read(std::istream &_is) {
00054     char dummy[2];
00055     _is.read(dummy, 2);
00056
00057     uint32_t l;
00058     _is.read((char*)&l, 4);
00059     return l;
00060     }
00061
00062   static inline void Write(std::ostream &os)  { (void)os;
00063     }
00064 };
00065
00081 template<uint16_t Group, uint16_t Element,
00082    long long TVR = TagToType<Group, Element>::VRType, // can the user override this value ?
00083    int TVM = TagToType<Group, Element>::VMType // can the user override this value ?
00084    /*typename SQAttribute = void_*/ > // if only I had variadic template...
00085 class Attribute
00086 {
00087 public:
00088   typedef typename VRToType<TVR>::Type ArrayType;
00089   enum { VMType = VMToLength<TVM>::Length };
00090   ArrayType Internal[VMToLength<TVM>::Length];
00091
00092   // Make sure that user specified VR/VM are compatible with the public dictionary:
00093   GDCM_STATIC_ASSERT( ((VR::VRType)TVR & (VR::VRType)(TagToType<Group, Element>::VRType)) );
00094   GDCM_STATIC_ASSERT( ((VM::VMType)TVM & (VM::VMType)(TagToType<Group, Element>::VMType)) );
00095   GDCM_STATIC_ASSERT( ((((VR::VRType)TVR & VR::VR_VM1) && ((VM::VMType)TVM == VM::VM1) )
00096                     || !((VR::VRType)TVR & VR::VR_VM1) ) );
00097
00098   static Tag GetTag() { return Tag(Group,Element); }
00099   static VR  GetVR()  { return (VR::VRType)TVR; }
00100   static VM  GetVM()  { return (VM::VMType)TVM; }
00101
00102   // The following two methods do make sense only in case of public element,
00103   // when the template is intanciated with private element the VR/VM are simply
00104   // defaulted to allow everything (see gdcmTagToType.h default template for TagToType)
00105   static VR  GetDictVR() { return (VR::VRType)(TagToType<Group, Element>::VRType); }
00106   static VM  GetDictVM() { return (VM::VMType)(TagToType<Group, Element>::VMType); }
00107
00108   // Some extra dummy checks:
00109   // Data Elements with a VR of SQ, OF, OW, OB or UN shall always have a Value Multiplicity of one.
00110
00111   unsigned int GetNumberOfValues() const {
00112     return VMToLength<TVM>::Length;
00113   }
00114   // Implementation of Print is common to all Mode (ASCII/Binary)
00115   // TODO: Can we print a \ when in ASCII...well I don't think so
00116   // it would mean we used a bad VM then, right ?
00117   void Print(std::ostream &os) const {
00118     os « GetTag() « " ";
00119     os « TagToType<Group,Element>::GetVRString()  « " ";
00120     os « TagToType<Group,Element>::GetVMString()  « " ";
00121     os « Internal[0]; // VM is at least guarantee to be one
00122     for(unsigned int i=1; i<GetNumberOfValues(); ++i)
00123       os « "," « Internal[i];
00124     }
00125
00126   // copy:
00127   //ArrayType GetValue(unsigned int idx = 0) {
00128   //  assert( idx < GetNumberOfValues() );
00129   //  return Internal[idx];
00130   //}
00131   //ArrayType operator[] (unsigned int idx) {
00132   //  return GetValue(idx);
00133   //}
00134   // FIXME: is this always a good idea ?
00135   // I do not think so, I prefer operator
```

```
00136   //operator ArrayType () const { return Internal[0]; }
00137
00138   bool operator==(const Attribute &att) const
00139     {
00140     return std::equal(Internal, Internal+GetNumberOfValues(),
00141       att.GetValues());
00142     }
00143   bool operator!=(const Attribute &att) const
00144     {
00145     return !std::equal(Internal, Internal+GetNumberOfValues(),
00146       att.GetValues());
00147     }
00148   bool operator<(const Attribute &att) const
00149     {
00150     return std::lexicographical_compare(Internal, Internal+GetNumberOfValues(),
00151       att.GetValues(), att.GetValues() + att.GetNumberOfValues() );
00152     }
00153
00154   ArrayType &GetValue(unsigned int idx = 0) {
00155     assert( idx < GetNumberOfValues() );
00156     return Internal[idx];
00157   }
00158   ArrayType & operator[] (unsigned int idx) {
00159     return GetValue(idx);
00160   }
00161   // const reference
00162   ArrayType const &GetValue(unsigned int idx = 0) const {
00163     assert( idx < GetNumberOfValues() );
00164     return Internal[idx];
00165   }
00166   ArrayType const & operator[] (unsigned int idx) const {
00167     return GetValue(idx);
00168   }
00169   void SetValue(ArrayType v, unsigned int idx = 0) {
00170     assert( idx < GetNumberOfValues() );
00171     Internal[idx] = v;
00172   }
00173   void SetValues(const ArrayType* array, unsigned int numel = VMType ) {
00174     assert( array && numel && numel == GetNumberOfValues() );
00175     // std::copy is smarted than a memcpy, and will call memcpy when POD type
00176     std::copy(array, array+numel, Internal);
00177   }
00178   const ArrayType* GetValues() const {
00179     return Internal;
00180   }
00181
00182   // API to talk to the run-time layer: gdcm::DataElement
00183   DataElement GetAsDataElement() const {
00184     DataElement ret( GetTag() );
00185     std::ostringstream os;
00186     // os.imbue(std::locale::classic()); // This is not required AFAIK
00187     EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00188       GetNumberOfValues(),os);
00189     ret.SetVR( GetVR() );
00190     assert( ret.GetVR() != VR::SQ );
00191     if( (VR::VRType)VRToEncoding<TVR>::Mode == VR::VRASCII )
00192       {
00193       if( GetVR() != VR::UI )
00194         {
00195         if( os.str().size() % 2 )
00196           {
00197           os << " ";
00198           }
00199         }
00200       }
00201     VL::Type osStrSize = (VL::Type)os.str().size();
00202     ret.SetByteValue( os.str().c_str(), osStrSize );
00203     return ret;
00204   }
00205
00206   void SetFromDataElement(DataElement const &de) {
00207     // This is kind of hackish but since I do not generate other element than the first one: 0x6000 I
      should be ok:
00208     assert( Tag(Group,Element) == de.GetTag() || Group == 0x6000 || Group == 0x5000 );
00209     assert( GetVR() != VR::INVALID );
00210     assert( GetVR().Compatible( de.GetVR() ) || de.GetVR() == VR::INVALID ); // In case of VR::INVALID
      cannot use the & operator
00211     if( de.IsEmpty() ) return;
00212     const ByteValue *bv = de.GetByteValue();
00213 #ifdef GDCM_WORDS_BIGENDIAN
00214     if( de.GetVR() == VR::UN /*|| de.GetVR() == VR::INVALID*/ )
```

```
00215 #else
00216     if( de.GetVR() == VR::UN || de.GetVR() == VR::INVALID )
00217 #endif
00218       {
00219       SetByteValue(bv);
00220       }
00221     else
00222       {
00223       SetByteValueNoSwap(bv);
00224       }
00225   }
00226   void Set(DataSet const &ds) {
00227     SetFromDataElement( ds.GetDataElement( Tag(Group,Element) ) );
00228   }
00229   void SetFromDataSet(DataSet const &ds) {
00230     if( ds.FindDataElement( Tag(Group,Element) ) &&
00231       !ds.GetDataElement( Tag(Group,Element) ).IsEmpty() )
00232       {
00233       SetFromDataElement( ds.GetDataElement( Tag(Group,Element) ) );
00234       }
00235   }
00236 protected:
00237   void SetByteValueNoSwap(const ByteValue *bv) {
00238     if( !bv ) return; // That would be bad...
00239     assert( bv->GetPointer() && bv->GetLength() ); // [123]C element can be empty
00240     //if( VRToEncoding<TVR>::Mode == VR::VRBINARY )
00241     //  {
00242     //  // always do a copy !
00243     //  SetValues(bv->GetPointer(), bv->GetLength());
00244     //  }
00245     //else
00246       {
00247       std::stringstream ss;
00248       std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00249       ss.str( s );
00250       EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadNoSwap(Internal,
00251         GetNumberOfValues(),ss);
00252       }
00253   }
00254   void SetByteValue(const ByteValue *bv) {
00255     if( !bv ) return; // That would be bad...
00256     assert( bv->GetPointer() && bv->GetLength() ); // [123]C element can be empty
00257     //if( VRToEncoding<TVR>::Mode == VR::VRBINARY )
00258     //  {
00259     //  // always do a copy !
00260     //  SetValues(bv->GetPointer(), bv->GetLength());
00261     //  }
00262     //else
00263       {
00264       std::stringstream ss;
00265       std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00266       ss.str( s );
00267       EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00268         GetNumberOfValues(),ss);
00269       }
00270   }
00271 #if 0 // TODO  FIXME the implicit way:
00272   // explicit:
00273   void Read(std::istream &_is) {
00274     const uint16_t cref[] = { Group, Element };
00275     uint16_t c[2];
00276     _is.read((char*)&c, sizeof(c));
00277     assert( c[0] == cref[0] && c[1] == cref[1] );
00278     char vr[2];
00279     _is.read(vr, 2); // Check consistency ?
00280     const uint32_t lref = GetLength() * sizeof( typename VRToType<TVR>::Type );
00281     uint32_t l = VRVLSize< (TVR & VR::VL32) >::Read(_is);
00282     l /= sizeof( typename VRToType<TVR>::Type );
00283     return EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00284       l,_is);
00285   }
00286   void Write(std::ostream &_os) const {
00287     uint16_t c[] = { Group, Element };
00288     _os.write((char*)&c, 4);
00289     uint32_t l = GetLength() * sizeof( typename VRToType<TVR>::Type );
00290     _os.write((char*)&l, 4);
00291     return EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00292       GetLength(),_os);
00293     }
00294   void Read(std::istream &_is) {
00295     uint16_t cref[] = { Group, Element };
```

```
00296     uint16_t c[2];
00297     _is.read((char*)&c, 4);
00298     const uint32_t lref = GetLength() * sizeof( typename VRToType<TVR>::Type );
00299     uint32_t l;
00300     _is.read((char*)&l, 4);
00301     l /= sizeof( typename VRToType<TVR>::Type );
00302      return EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00303       l,_is);
00304     }
00305   void Write(std::ostream &_os) const {
00306     uint16_t c[] = { Group, Element };
00307     _os.write((char*)&c, 4);
00308     uint32_t l = GetLength() * sizeof( typename VRToType<TVR>::Type );
00309     _os.write((char*)&l, 4);
00310     return EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00311       GetLength(),_os);
00312     }
00313 #endif
00314
00315 };
00316
00317 template<uint16_t Group, uint16_t Element, long long TVR >
00318 class Attribute<Group,Element,TVR,VM::VM1>
00319 {
00320 public:
00321   typedef typename VRToType<TVR>::Type ArrayType;
00322   enum { VMType = VMToLength<VM::VM1>::Length };
00323   //ArrayType Internal[VMToLength<TVM>::Length];
00324   ArrayType Internal;
00325   GDCM_STATIC_ASSERT( VMToLength<VM::VM1>::Length == 1 );
00326
00327   // Make sure that user specified VR/VM are compatible with the public dictionary:
00328   GDCM_STATIC_ASSERT( ((VR::VRType)TVR & (VR::VRType)(TagToType<Group, Element>::VRType)) );
00329   GDCM_STATIC_ASSERT( ((VM::VMType)VM::VM1 & (VM::VMType)(TagToType<Group, Element>::VMType)) );
00330   GDCM_STATIC_ASSERT( ((((VR::VRType)TVR & VR::VR_VM1) && ((VM::VMType)VM::VM1 == VM::VM1) )
00331                       || !((VR::VRType)TVR & VR::VR_VM1) ) );
00332
00333   static Tag GetTag() { return Tag(Group,Element); }
00334   static VR  GetVR()  { return (VR::VRType)TVR; }
00335   static VM  GetVM()  { return (VM::VMType)VM::VM1; }
00336
00337   // The following two methods do make sense only in case of public element,
00338   // when the template is intanciated with private element the VR/VM are simply
00339   // defaulted to allow everything (see gdcmTagToType.h default template for TagToType)
00340   static VR  GetDictVR() { return (VR::VRType)(TagToType<Group, Element>::VRType); }
00341   static VM  GetDictVM() { return (VM::VMType)(TagToType<Group, Element>::VMType); }
00342
00343   // Some extra dummy checks:
00344   // Data Elements with a VR of SQ, OF, OW, OB or UN shall always have a Value Multiplicity of one.
00345
00346   unsigned int GetNumberOfValues() const {
00347     return VMToLength<VM::VM1>::Length;
00348   }
00349   // Implementation of Print is common to all Mode (ASCII/Binary)
00350   // TODO: Can we print a \ when in ASCII...well I don't think so
00351   // it would mean we used a bad VM then, right ?
00352   void Print(std::ostream &os) const {
00353     os « GetTag() « " ";
00354     os « TagToType<Group,Element>::GetVRString()  « " ";
00355     os « TagToType<Group,Element>::GetVMString()  « " ";
00356     os « Internal; // VM is at least guarantee to be one
00357   }
00358   // copy:
00359   //ArrayType GetValue(unsigned int idx = 0) {
00360   //  assert( idx < GetNumberOfValues() );
00361   //  return Internal[idx];
00362   //}
00363   //ArrayType operator[] (unsigned int idx) {
00364   //  return GetValue(idx);
00365   //}
00366   // FIXME: is this always a good idea ?
00367   // I do not think so, I prefer operator
00368   //operator ArrayType () const { return Internal[0]; }
00369
00370   bool operator==(const Attribute &att) const
00371     {
00372     return std::equal(&Internal, &Internal+GetNumberOfValues(),
00373       att.GetValues());
00374     }
00375   bool operator!=(const Attribute &att) const
00376     {
```

```
00377     return !std::equal(&Internal, &Internal+GetNumberOfValues(),
00378       att.GetValues());
00379     }
00380   bool operator<(const Attribute &att) const
00381     {
00382     return std::lexicographical_compare(&Internal, &Internal+GetNumberOfValues(),
00383       att.GetValues(), att.GetValues() + att.GetNumberOfValues() );
00384     }
00385
00386   ArrayType &GetValue() {
00387 //    assert( idx < GetNumberOfValues() );
00388     return Internal;
00389   }
00390 //  ArrayType & operator[] (unsigned int idx) {
00391 //    return GetValue(idx);
00392 //  }
00393   // const reference
00394   ArrayType const &GetValue() const {
00395     //assert( idx < GetNumberOfValues() );
00396     return Internal;
00397   }
00398   //ArrayType const & operator[] () const {
00399   //  return GetValue();
00400   //}
00401   void SetValue(ArrayType v) {
00402 //    assert( idx < GetNumberOfValues() );
00403     Internal = v;
00404   }
00405 /*  void SetValues(const ArrayType* array, unsigned int numel = VMType ) {
00406     assert( array && numel && numel == GetNumberOfValues() );
00407     // std::copy is smarted than a memcpy, and will call memcpy when POD type
00408     std::copy(array, array+numel, Internal);
00409   }
00410 */
00411
00412   // FIXME Should we remove this function ?
00413   const ArrayType* GetValues() const {
00414     return &Internal;
00415   }
00416
00417   // API to talk to the run-time layer: gdcm::DataElement
00418   DataElement GetAsDataElement() const {
00419     DataElement ret( Tag(Group,Element) );
00420     std::ostringstream os;
00421     // os.imbue(std::locale::classic()); // This is not required AFAIK
00422     EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(&Internal,
00423       GetNumberOfValues(),os);
00424     ret.SetVR( GetVR() );
00425     assert( ret.GetVR() != VR::SQ );
00426     if( (VR::VRType)VRToEncoding<TVR>::Mode == VR::VRASCII )
00427       {
00428       if( GetVR() != VR::UI )
00429         {
00430         if( os.str().size() % 2 )
00431           {
00432           os « " ";
00433           }
00434         }
00435       }
00436     VL::Type osStrSize = (VL::Type)os.str().size();
00437     ret.SetByteValue( os.str().c_str(), osStrSize );
00438     return ret;
00439   }
00440
00441   void SetFromDataElement(DataElement const &de) {
00442     // This is kind of hackish but since I do not generate other element than the first one: 0x6000 I
      should be ok:
00443     assert( Tag(Group,Element) == de.GetTag() || Group == 0x6000 || Group == 0x5000 );
00444     assert( GetVR() != VR::INVALID );
00445     assert( GetVR().Compatible( de.GetVR() ) || de.GetVR() == VR::INVALID ); // In case of VR::INVALID
      cannot use the & operator
00446     if( de.IsEmpty() ) return;
00447     const ByteValue *bv = de.GetByteValue();
00448 #ifdef GDCM_WORDS_BIGENDIAN
00449     if( de.GetVR() == VR::UN /*|| de.GetVR() == VR::INVALID*/ )
00450 #else
00451     if( de.GetVR() == VR::UN || de.GetVR() == VR::INVALID )
00452 #endif
00453       {
00454       SetByteValue(bv);
00455       }
```

```
00456     else
00457       {
00458       SetByteValueNoSwap(bv);
00459       }
00460   }
00461   void Set(DataSet const &ds) {
00462     SetFromDataElement( ds.GetDataElement( Tag(Group,Element) ) );
00463   }
00464   void SetFromDataSet(DataSet const &ds) {
00465     if( ds.FindDataElement( Tag(Group,Element) ) &&
00466       !ds.GetDataElement( Tag(Group,Element) ).IsEmpty() )
00467       {
00468       SetFromDataElement( ds.GetDataElement( Tag(Group,Element) ) );
00469       }
00470   }
00471 protected:
00472   void SetByteValueNoSwap(const ByteValue *bv) {
00473     if( !bv ) return; // That would be bad...
00474     assert( bv->GetPointer() && bv->GetLength() ); // [123]C element can be empty
00475     //if( VRToEncoding<TVR>::Mode == VR::VRBINARY )
00476     //  {
00477     //  // always do a copy !
00478     //  SetValues(bv->GetPointer(), bv->GetLength());
00479     //  }
00480     //else
00481       {
00482       std::stringstream ss;
00483       std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00484       ss.str( s );
00485       EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadNoSwap(&Internal,
00486         GetNumberOfValues(),ss);
00487       }
00488   }
00489   void SetByteValue(const ByteValue *bv) {
00490     if( !bv ) return; // That would be bad...
00491     assert( bv->GetPointer() && bv->GetLength() ); // [123]C element can be empty
00492     //if( VRToEncoding<TVR>::Mode == VR::VRBINARY )
00493     //  {
00494     //  // always do a copy !
00495     //  SetValues(bv->GetPointer(), bv->GetLength());
00496     //  }
00497     //else
00498       {
00499       std::stringstream ss;
00500       std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00501       ss.str( s );
00502       EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(&Internal,
00503         GetNumberOfValues(),ss);
00504       }
00505   }
00506 #if 0 // TODO  FIXME the implicit way:
00507   // explicit:
00508   void Read(std::istream &_is) {
00509     const uint16_t cref[] = { Group, Element };
00510     uint16_t c[2];
00511     _is.read((char*)&c, sizeof(c));
00512     assert( c[0] == cref[0] && c[1] == cref[1] );
00513     char vr[2];
00514     _is.read(vr, 2); // Check consistency ?
00515     const uint32_t lref = GetLength() * sizeof( typename VRToType<TVR>::Type );
00516     uint32_t l = VRVLSize< (TVR & VR::VL32) >::Read(_is);
00517     l /= sizeof( typename VRToType<TVR>::Type );
00518     return EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00519       l,_is);
00520   }
00521   void Write(std::ostream &_os) const {
00522     uint16_t c[] = { Group, Element };
00523     _os.write((char*)&c, 4);
00524     uint32_t l = GetLength() * sizeof( typename VRToType<TVR>::Type );
00525     _os.write((char*)&l, 4);
00526     return EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00527       GetLength(),_os);
00528     }
00529   void Read(std::istream &_is) {
00530     uint16_t cref[] = { Group, Element };
00531     uint16_t c[2];
00532     _is.read((char*)&c, 4);
00533     const uint32_t lref = GetLength() * sizeof( typename VRToType<TVR>::Type );
00534     uint32_t l;
00535     _is.read((char*)&l, 4);
00536     l /= sizeof( typename VRToType<TVR>::Type );
```

```
00537       return EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00538         l,_is);
00539       }
00540     void Write(std::ostream &_os) const {
00541       uint16_t c[] = { Group, Element };
00542       _os.write((char*)&c, 4);
00543       uint32_t l = GetLength() * sizeof( typename VRToType<TVR>::Type );
00544       _os.write((char*)&l, 4);
00545       return EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00546         GetLength(),_os);
00547       }
00548 #endif
00549
00550 };
00551
00552 // No need to repeat default template arg, since primary template
00553 // will be used to generate the default arguments
00554 template<uint16_t Group, uint16_t Element, long long TVR >
00555 class Attribute<Group,Element,TVR,VM::VM1_n>
00556 {
00557 public:
00558   typedef typename VRToType<TVR>::Type ArrayType;
00559
00560   // Make sure that user specified VR/VM are compatible with the public dictionary:
00561   GDCM_STATIC_ASSERT( ((VR::VRType)TVR & (VR::VRType)(TagToType<Group, Element>::VRType)) );
00562   GDCM_STATIC_ASSERT( (VM::VM1_n & (VM::VMType)(TagToType<Group, Element>::VMType)) );
00563   GDCM_STATIC_ASSERT( ((((VR::VRType)TVR & VR::VR_VM1) && ((VM::VMType)TagToType<Group,Element>::VMType ==
    VM::VM1) )
00564                       || !((VR::VRType)TVR & VR::VR_VM1) ) );
00565
00566   static Tag GetTag() { return Tag(Group,Element); }
00567   static VR  GetVR()  { return (VR::VRType)TVR; }
00568   static VM  GetVM()  { return VM::VM1_n; }
00569
00570   static VR  GetDictVR() { return (VR::VRType)(TagToType<Group, Element>::VRType); }
00571   static VM  GetDictVM() { return GetVM(); }
00572
00573   // This the way to prevent default initialization
00574   explicit Attribute() { Internal=nullptr; Length=0; Own = true; }
00575   ~Attribute() {
00576     if( Own ) {
00577       delete[] Internal;
00578     }
00579     Internal = nullptr; // paranoid
00580   }
00581
00582   unsigned int GetNumberOfValues() const { return Length; }
00583
00584   void SetNumberOfValues(unsigned int numel)
00585     {
00586     SetValues(nullptr, numel, true);
00587     }
00588
00589   const ArrayType* GetValues() const {
00590     return Internal;
00591   }
00592   void Print(std::ostream &os) const {
00593     os « GetTag() « " ";
00594     os « GetVR()  « " ";
00595     os « GetVM()  « " ";
00596     os « Internal[0]; // VM is at least guarantee to be one
00597     for(unsigned int i=1; i<GetNumberOfValues(); ++i)
00598       os « "," « Internal[i];
00599     }
00600   ArrayType &GetValue(unsigned int idx = 0) {
00601     assert( idx < GetNumberOfValues() );
00602     return Internal[idx];
00603   }
00604   ArrayType &operator[] (unsigned int idx) {
00605     return GetValue(idx);
00606   }
00607   // const reference
00608   ArrayType const &GetValue(unsigned int idx = 0) const {
00609     assert( idx < GetNumberOfValues() );
00610     return Internal[idx];
00611   }
00612   ArrayType const & operator[] (unsigned int idx) const {
00613     return GetValue(idx);
00614   }
00615   void SetValue(unsigned int idx, ArrayType v) {
00616     assert( idx < GetNumberOfValues() );
```

```
00617     Internal[idx] = v;
00618   }
00619   void SetValue(ArrayType v) { SetValue(0, v); }
00620
00621   void SetValues(const ArrayType *array, unsigned int numel, bool own = false)
00622     {
00623     if( Internal ) // were we used before ?
00624       {
00625       // yes !
00626       if( Own ) delete[] Internal;
00627       Internal = nullptr;
00628       }
00629     Own = own;
00630     Length = numel;
00631     assert( Internal == nullptr );
00632     if( own ) // make a copy:
00633       {
00634       Internal = new ArrayType[numel];
00635       if( array && numel )
00636         std::copy(array, array+numel, Internal);
00637       }
00638     else // pass pointer
00639       {
00640       Internal = const_cast<ArrayType*>(array);
00641       }
00642     // postcondition
00643     assert( numel == GetNumberOfValues() );
00644     }
00645
00646   DataElement GetAsDataElement() const {
00647     DataElement ret( GetTag() );
00648     std::ostringstream os;
00649     if( Internal )
00650       {
00651       EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00652         GetNumberOfValues(),os);
00653       if( (VR::VRType)VRToEncoding<TVR>::Mode == VR::VRASCII )
00654         {
00655         if( GetVR() != VR::UI )
00656           {
00657           if( os.str().size() % 2 )
00658             {
00659             os « " ";
00660             }
00661           }
00662         }
00663       }
00664     ret.SetVR( GetVR() );
00665     assert( ret.GetVR() != VR::SQ );
00666     VL::Type osStrSize = (VL::Type) os.str().size();
00667     ret.SetByteValue( os.str().c_str(), osStrSize);
00668     return ret;
00669   }
00670   void SetFromDataElement(DataElement const &de) {
00671     // This is kind of hackish but since I do not generate other element than the first one: 0x6000 I
      should be ok:
00672     assert( GetTag() == de.GetTag() || GetTag().GetGroup() == 0x6000
00673       || GetTag().GetGroup() == 0x5000 );
00674     assert( GetVR().Compatible( de.GetVR() ) ); // In case of VR::INVALID cannot use the & operator
00675     assert( !de.IsEmpty() );
00676     const ByteValue *bv = de.GetByteValue();
00677     SetByteValue(bv);
00678   }
00679   void Set(DataSet const &ds) {
00680     SetFromDataElement( ds.GetDataElement( GetTag() ) );
00681   }
00682   void SetFromDataSet(DataSet const &ds) {
00683     if( ds.FindDataElement( GetTag() ) &&
00684       !ds.GetDataElement( GetTag() ).IsEmpty() )
00685       {
00686       SetFromDataElement( ds.GetDataElement( GetTag() ) );
00687       }
00688   }
00689 protected:
00690   void SetByteValue(const ByteValue *bv) {
00691     assert( bv ); // FIXME
00692     std::stringstream ss;
00693     std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00694     Length = bv->GetLength(); // HACK FIXME
00695     ss.str( s );
00696     ArrayType *internal;
```

```
00697     ArrayType buffer[256];
00698     if( bv->GetLength() < 256 )
00699       {
00700       internal = buffer;
00701       }
00702     else
00703       {
00704       internal = new ArrayType[(VL::Type)bv->GetLength()]; // over allocation
00705       }
00706     EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadComputeLength(internal, Length, ss);
00707     SetValues( internal, Length, true );
00708     if( !(bv->GetLength() < 256) )
00709       {
00710       delete[] internal;
00711       }
00712     //EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00713     //  GetNumberOfValues(),ss);
00714   }
00715
00716 private:
00717   ArrayType *Internal;
00718   unsigned int Length;
00719   bool Own : 1;
00720 };
00721
00722 template<uint16_t Group, uint16_t Element, long long TVR>
00723 class Attribute<Group,Element,TVR,VM::VM1_3> : public Attribute<Group,Element,TVR,VM::VM1_n>
00724 {
00725 public:
00726   VM  GetVM() const { return VM::VM1_3; }
00727 };
00728
00729 template<uint16_t Group, uint16_t Element, long long TVR>
00730 class Attribute<Group,Element,TVR,VM::VM1_8> : public Attribute<Group,Element,TVR,VM::VM1_n>
00731 {
00732 public:
00733   VM  GetVM() const { return VM::VM1_8; }
00734 };
00735
00736 template<uint16_t Group, uint16_t Element, long long TVR>
00737 class Attribute<Group,Element,TVR,VM::VM2_n> : public Attribute<Group,Element,TVR,VM::VM1_n>
00738 {
00739 public:
00740   VM  GetVM() const { return VM::VM2_n; }
00741 };
00742
00743 template<uint16_t Group, uint16_t Element, long long TVR>
00744 class Attribute<Group,Element,TVR,VM::VM2_2n> : public Attribute<Group,Element,TVR,VM::VM2_n>
00745 {
00746 public:
00747   static VM  GetVM() { return VM::VM2_2n; }
00748 };
00749
00750 template<uint16_t Group, uint16_t Element, long long TVR>
00751 class Attribute<Group,Element,TVR,VM::VM3_n> : public Attribute<Group,Element,TVR,VM::VM1_n>
00752 {
00753 public:
00754   static VM  GetVM() { return VM::VM3_n; }
00755 };
00756
00757 template<uint16_t Group, uint16_t Element, long long TVR>
00758 class Attribute<Group,Element,TVR,VM::VM3_3n> : public Attribute<Group,Element,TVR,VM::VM3_n>
00759 {
00760 public:
00761   static VM  GetVM() { return VM::VM3_3n; }
00762 };
00763
00764
00765 // For particular case for ASCII string
00766 // WARNING: This template explicitly instantiates a particular
00767 // EncodingImplementation THEREFORE it is required to be declared after the
00768 // EncodingImplementation is needs (doh!)
00769 #if 0
00770 template<int TVM>
00771 class Attribute<TVM>
00772 {
00773 public:
00774   Attribute(const char array[])
00775     {
00776     unsigned int i = 0;
00777     const char sep = '\\';
```

```
00778     std::string sarray = array;
00779     std::string::size_type pos1 = 0;
00780     std::string::size_type pos2 = sarray.find(sep, pos1+1);
00781     while(pos2 != std::string::npos)
00782       {
00783       Internal[i++] = sarray.substr(pos1, pos2-pos1);
00784       pos1 = pos2+1;
00785       pos2 = sarray.find(sep, pos1+1);
00786       }
00787     Internal[i] = sarray.substr(pos1, pos2-pos1);
00788     // Shouldn't we do the contrary, since we know how many separators
00789     // (and default behavior is to discard anything after the VM declared
00790     assert( GetLength()-1 == i );
00791     }
00792
00793   unsigned long GetLength() const {
00794     return VMToLength<TVM>::Length;
00795   }
00796   // Implementation of Print is common to all Mode (ASCII/Binary)
00797   void Print(std::ostream &_os) const {
00798     _os « Internal[0]; // VM is at least guarantee to be one
00799     for(int i=1; i<VMToLength<TVM>::Length; ++i)
00800       _os « "," « Internal[i];
00801     }
00802
00803   void Read(std::istream &_is) {
00804     EncodingImplementation<VR::VRASCII>::Read(Internal, GetLength(),_is);
00805     }
00806   void Write(std::ostream &_os) const {
00807     EncodingImplementation<VR::VRASCII>::Write(Internal, GetLength(),_os);
00808     }
00809 private:
00810   typename String Internal[VMToLength<TVM>::Length];
00811 };
00812
00813 template< int TVM>
00814 class Attribute<VR::PN, TVM> : public StringAttribute<TVM>
00815 {
00816 };
00817 #endif
00818
00819 #if 0
00820
00821 // Implementation for the undefined length (dynamically allocated array)
00822 template<int TVR>
00823 class Attribute<TVR, VM::VM1_n>
00824 {
00825 public:
00826   // This the way to prevent default initialization
00827   explicit Attribute() { Internal=0; Length=0; }
00828   ~Attribute() {
00829     delete[] Internal;
00830     Internal = 0;
00831   }
00832
00833   // Length manipulation
00834   // SetLength should really be protected anyway...all operation
00835   // should go through SetArray
00836   unsigned long GetLength() const { return Length; }
00837   typedef typename VRToType<TVR>::Type ArrayType;
00838   void SetLength(unsigned long len) {
00839     const unsigned int size = sizeof(ArrayType);
00840     if( len ) {
00841       if( len > Length ) {
00842         // perform realloc
00843         assert( (len / size) * size == len );
00844         ArrayType *internal = new ArrayType[len / size];
00845         memcpy(internal, Internal, Length * size);
00846         delete[] Internal;
00847         Internal = internal;
00848         }
00849       }
00850     Length = len / size;
00851   }
00852
00853   // If save is set to zero user should not delete the pointer
00854   //void SetArray(const typename VRToType<TVR>::Type *array, int len, bool save = false)
00855   void SetArray(const ArrayType *array, unsigned long len,
00856     bool save = false) {
00857     if( save ) {
00858       SetLength(len); // realloc
```

```
00859       memcpy(Internal, array, len/*/sizeof(ArrayType)*/);
00860       }
00861     else {
00862       // TODO rewrite this stupid code:
00863       Length = len;
00864       //Internal = array;
00865       assert(0);
00866       }
00867   }
00868   // Implementation of Print is common to all Mode (ASCII/Binary)
00869   void Print(std::ostream &_os) const {
00870     assert( Length );
00871     assert( Internal );
00872     _os « Internal[0]; // VM is at least guarantee to be one
00873     const unsigned long length = GetLength() < 25 ? GetLength() : 25;
00874     for(unsigned long i=1; i<length; ++i)
00875       _os « "," « Internal[i];
00876     }
00877   void Read(std::istream &_is) {
00878     EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00879       GetLength(),_is);
00880     }
00881   void Write(std::ostream &_os) const {
00882     EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00883       GetLength(),_os);
00884     }
00885
00886   Attribute(const Attribute&_val) {
00887     if( this != &_val) {
00888       *this = _val;
00889       }
00890     }
00891
00892   Attribute &operator=(const Attribute &_val) {
00893     Length = 0; // SYITF
00894     Internal = 0;
00895     SetArray(_val.Internal, _val.Length, true);
00896     return *this;
00897     }
00898
00899 private:
00900   typename VRToType<TVR>::Type *Internal;
00901   unsigned long Length; // unsigned int ??
00902 };
00903
00904 //template <int TVM = VM::VM1_n>
00905 //class Attribute<VR::OB, TVM > : public Attribute<VR::OB, VM::VM1_n> {};
00906
00907 // Partial specialization for derivatives of 1-n : 2-n, 3-n ...
00908 template<int TVR>
00909 class Attribute<TVR, VM::VM2_n> : public Attribute<TVR, VM::VM1_n>
00910 {
00911 public:
00912   typedef Attribute<TVR, VM::VM1_n> Parent;
00913   void SetLength(int len) {
00914     if( len <= 1 ) return;
00915     Parent::SetLength(len);
00916   }
00917 };
00918 template<int TVR>
00919 class Attribute<TVR, VM::VM2_2n> : public Attribute<TVR, VM::VM2_n>
00920 {
00921 public:
00922   typedef Attribute<TVR, VM::VM2_n> Parent;
00923   void SetLength(int len) {
00924     if( len % 2 ) return;
00925     Parent::SetLength(len);
00926   }
00927 };
00928 template<int TVR>
00929 class Attribute<TVR, VM::VM3_n> : public Attribute<TVR, VM::VM1_n>
00930 {
00931 public:
00932   typedef Attribute<TVR, VM::VM1_n> Parent;
00933   void SetLength(int len) {
00934     if( len <= 2 ) return;
00935     Parent::SetLength(len);
00936   }
00937 };
00938 template<int TVR>
00939 class Attribute<TVR, VM::VM3_3n> : public Attribute<TVR, VM::VM3_n>
```

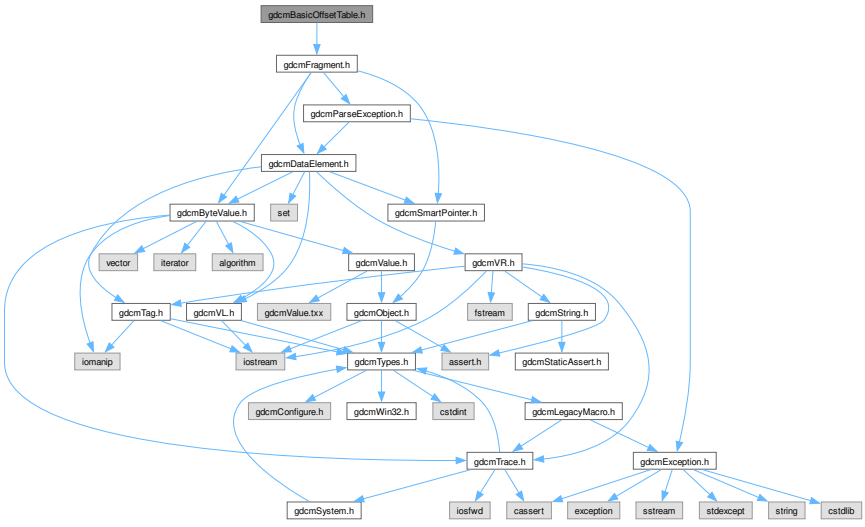
```
00940 {
00941 public:
00942   typedef Attribute<TVR, VM::VM3_n> Parent;
00943   void SetLength(int len) {
00944     if( len % 3 ) return;
00945     Parent::SetLength(len);
00946   }
00947 };
00948
00949
00950 //template<int T> struct VRToLength;
00951 //template <> struct VRToLength<VR::AS>
00952 //{ enum { Length  = VM::VM1 }; }
00953 //template<>
00954 //class Attribute<VR::AS> : public Attribute<VR::AS, VRToLength<VR::AS>::Length >
00955
00956 // only 0010 1010 AS 1 Patient's Age
00957 template<>
00958 class Attribute<VR::AS, VM::VM5>
00959 {
00960 public:
00961   char Internal[VMToLength<VM::VM5>::Length];
00962   void Print(std::ostream &_os) const {
00963     _os « Internal;
00964     }
00965 };
00966
00967 template <>
00968 class Attribute<VR::OB, VM::VM1> : public Attribute<VR::OB, VM::VM1_n> {};
00969 // Make it impossible to compile any other cases:
00970 template <int TVM> class Attribute<VR::OB, TVM>;
00971
00972 // Same for OW:
00973 template <>
00974 class Attribute<VR::OW, VM::VM1> : public Attribute<VR::OW, VM::VM1_n> {};
00975 // Make it impossible to compile any other cases:
00976 template <int TVM> class Attribute<VR::OW, TVM>;
00977 #endif
00978
00979 #if 0
00980 template<>
00981 class Attribute<0x7fe0,0x0010, VR::OW, VM::VM1>
00982 {
00983 public:
00984   char *Internal;
00985   unsigned long Length; // unsigned int ??
00986
00987   void Print(std::ostream &_os) const {
00988     _os « Internal[0];
00989     }
00990   void SetBytes(char *bytes, unsigned long length) {
00991     Internal = bytes;
00992     Length = length;
00993   }
00994   void Read(std::istream &_is) {
00995      uint16_t c[2];
00996     _is.read((char*)&c, 4);
00997     uint32_t l;
00998     _is.read((char*)&l, 4);
00999     Length = l;
01000     _is.read( Internal, Length );
01001     }
01002   void Write(std::ostream &_os) const {
01003      uint16_t c[] = {0x7fe0, 0x0010};
01004     _os.write((char*)&c, 4);
01005     _os.write((char*)&Length, 4);
01006     _os.write( Internal, Length );
01007     }
01008 };
01009 #endif
01010
01011 /*
01012 // Removing Attribute for SQ for now...
01013 template<uint16_t Group, uint16_t Element, typename SQA>
01014 class Attribute<Group,Element, VR::SQ, VM::VM1, SQA>
01015 {
01016 public:
01017   SQA sqa;
01018   void Print(std::ostream &_os) const {
01019     _os « Tag(Group,Element);
01020     sqa.Print(_os « std::endl « '\t');
```

```
01021     }
01022  void Write(std::ostream &_os) const {
01023     uint16_t c[] = {Group, Element};
01024     _os.write((char*)&c, 4);
01025     uint32_t undef = 0xffffffff;
01026     _os.write((char*)&undef, 4);
01027     uint16_t item_beg[] = {0xfffe,0xe000};
01028     _os.write((char*)&item_beg, 4);
01029     _os.write((char*)&undef, 4);
01030     sqa.Write(_os);
01031     uint16_t item_end[] = {0xfffe,0xe00d};
01032     _os.write((char*)&item_end, 4);
01033     uint32_t zero = 0x0;
01034     _os.write((char*)&zero, 4);
01035     uint16_t seq_end[] = {0xfffe, 0xe0dd};
01036     _os.write((char*)&seq_end, 4);
01037     _os.write((char*)&zero, 4);
01038     }
01039 };
01040 */
01041
01046
01047 } // namespace gdcm_ns
01048
01049 #endif //GDCMATTRIBUTE_H
```

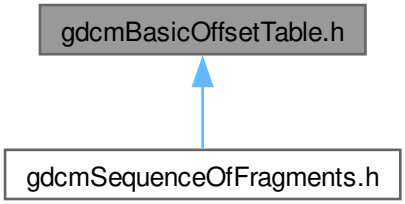
13.111 gdcmBasicOffsetTable.h File Reference

`#include "gdcmFragment.h"`

Include dependency graph for gdcmBasicOffsetTable.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::BasicOffsetTable

  Class to represent a BasicOffsetTable.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const BasicOffsetTable &val)

13.112 gdcmBasicOffsetTable.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMBASICOFFSETTABLE_H
00016 #define GDCMBASICOFFSETTABLE_H
00017
00018 #include "gdcmFragment.h"
00019
00020 namespace gdcm_ns
00021 {
00025
```

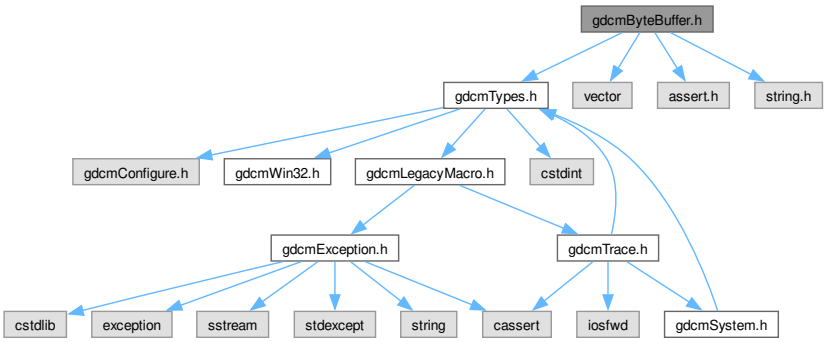
```
00026 class GDCM_EXPORT BasicOffsetTable : public Fragment
00027 {
00028 //protected:
00029 //  void SetTag(const Tag &t);
00030 public:
00031   BasicOffsetTable() : Fragment() {}
00032   friend std::ostream &operator«(std::ostream &os, const BasicOffsetTable &val);
00033
00034 /*
00035   VL GetLength() const {
00036     assert( !ValueLengthField.IsUndefined() );
00037     assert( !ValueField || ValueField->GetLength() == ValueLengthField );
00038     return TagField.GetLength() + ValueLengthField.GetLength()
00039       + ValueLengthField;
00040   }
00041 */
00042
00043   template <typename TSwap>
00044   std::istream &Read(std::istream &is) {
00045     // Superclass
00046     const Tag itemStart(0xfffe, 0xe000);
00047     if( !TagField.Read<TSwap>(is) )
00048       {
00049       assert(0 && "Should not happen");
00050       return is;
00051       }
00052     //assert( TagField == itemStart );
00053     if( TagField != itemStart )
00054       {
00055       // Bug_Siemens_PrivateIconNoItem.dcm
00056       //gdcmDebugMacro( "Could be Bug_Siemens_PrivateIconNoItem.dcm" );
00057       ParseException pe;
00058       pe.SetLastElement(*this);
00059       //throw "SIEMENS Icon thingy";
00060       throw pe;
00061       }
00062     if( !ValueLengthField.Read<TSwap>(is) )
00063       {
00064       assert(0 && "Should not happen");
00065       return is;
00066       }
00067     // Self
00068     SmartPointer<ByteValue> bv = new ByteValue;
00069     bv->SetLength(ValueLengthField);
00070     if( !bv->Read<TSwap>(is) )
00071       {
00072       gdcmAssertAlwaysMacro(0 && "Should not happen");
00073       return is;
00074       }
00075     ValueField = bv;
00076     return is;
00077     }
00078
00079 /*
00080   template <typename TSwap>
00081   std::ostream &Write(std::ostream &os) const {
00082     const Tag itemStart(0xfffe, 0xe000);
00083     const Tag seqDelItem(0xfffe,0xe0dd);
00084     if( !TagField.Write<TSwap>(os) )
00085       {
00086       assert(0 && "Should not happen");
00087       return os;
00088       }
00089     assert( TagField == itemStart );
00090     if( !ValueLengthField.Write<TSwap>(os) )
00091       {
00092       assert(0 && "Should not happen");
00093       return os;
00094       }
00095     if( ValueLengthField )
00096       {
00097       // Self
00098       const ByteValue *bv = GetByteValue();
00099       assert( bv );
00100       assert( bv->GetLength() == ValueLengthField );
00101       if( !bv->Write<TSwap>(os) )
00102         {
00103         assert(0 && "Should not happen");
00104         return os;
00105         }
00106       }
```

```
00107     return os;
00108     }
00109 */
00110 };
00111 //-----------------------------------------------------------------------------
00112 inline std::ostream &operator«(std::ostream &os, const BasicOffsetTable &val)
00113 {
00114   os « " BasicOffsetTable Length=" « val.ValueLengthField « std::endl;
00115   if( val.ValueField )
00116     {
00117     const ByteValue *bv = val.GetByteValue();
00118     assert( bv );
00119     os « *bv;
00120     }
00121
00122   return os;
00123 }
00124
00125
00126 } // end namespace gdcm_ns
00127
00128 #endif //GDCMBASICOFFSETTABLE_H
```

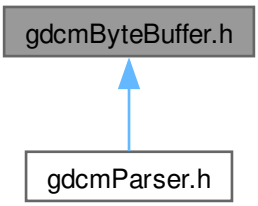
13.113 gdcmByteBuffer.h File Reference

```
#include "gdcmTypes.h"
#include <vector>
#include <assert.h>
#include <string.h>
```

Include dependency graph for gdcmByteBuffer.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::ByteBuffer

  ByteBuffer.

Namespaces

- namespace gdcm

13.114 gdcmByteBuffer.h

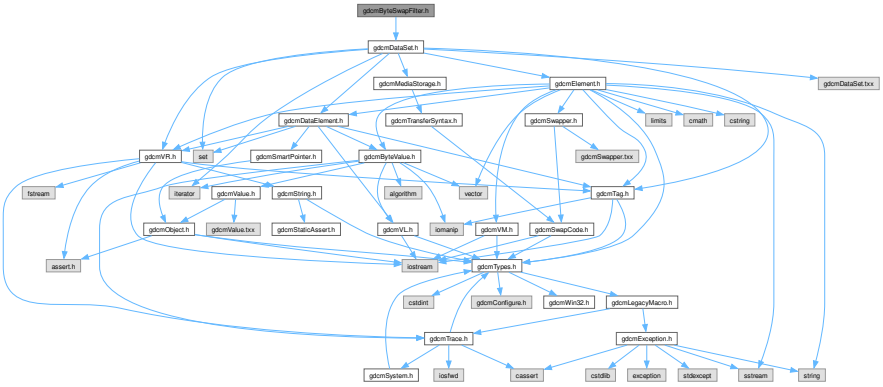
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBYTEBUFFER_H
00015 #define GDCMBYTEBUFFER_H
00016
00017 #include "gdcmTypes.h"
00018 #include <vector>
00019 #include <assert.h>
00020 #include <string.h> // memmove
00021
00022 #error should not be used
00023
00024 namespace gdcm
00025 {
00034 class ByteBuffer
00035 {
00036   static const int InitBufferSize = 1024;
00037 public:
00038   ByteBuffer() : Start(0), End(0),Limit(0) {}
```

```
00039   char *Get(int len)
00040     {
00041     char *buffer = &Internal[0];
00042     if (len > Limit - End)
00043       {
00044       // FIXME avoid integer overflow
00045       int neededSize = len + (End - Start);
00046       if (neededSize  <= Limit - buffer)
00047         {
00048         memmove(buffer, Start, End - Start);
00049         End = buffer + (End - Start);
00050         Start = buffer;
00051         }
00052       else
00053         {
00054         char *newBuf;
00055         int bufferSize = Limit - Start;
00056         if ( bufferSize == 0 )
00057           {
00058           bufferSize = InitBufferSize;
00059           }
00060         do
00061           {
00062           bufferSize *= 2;
00063           } while (bufferSize < neededSize);
00064         //newBuf = malloc(bufferSize);
00065         try
00066           {
00067           Internal.reserve(bufferSize);
00068           newBuf = &Internal[0];
00069           }
00070         catch(...)
00071           {
00072           //errorCode = NoMemoryError;
00073           return 0;
00074           }
00075         Limit = newBuf + bufferSize;
00076
00077         if (Start)
00078           {
00079           memcpy(newBuf, Start, End - Start);
00080           }
00081         End = newBuf + (End - Start);
00082         Start = /*buffer =*/ newBuf;
00083         }
00084       }
00085     assert( (int)Internal.capacity() >= len );
00086     return End;
00087     }
00088
00089   void UpdatePosition() {}
00090   void ShiftEnd(int len) {
00091     End += len;
00092   }
00093   const char *GetStart() const {
00094     return Start;
00095   }
00096
00097 private:
00098   typedef std::vector<char> CharVector;
00099   const char *Start;
00100         char *End;
00101   const char *Limit;
00102   CharVector Internal;
00103 };
00104
00105 } // end namespace gdcm
00106
00107 #endif //GDCMBYTEBUFFER_H
```

13.115 gdcmByteSwapFilter.h File Reference

`#include "gdcmDataSet.h"`
Include dependency graph for gdcmByteSwapFilter.h:



Classes

- class gdcm::ByteSwapFilter
  ByteSwapFilter.

Namespaces

- namespace gdcm

13.116 gdcmByteSwapFilter.h

Go to the documentation of this file.

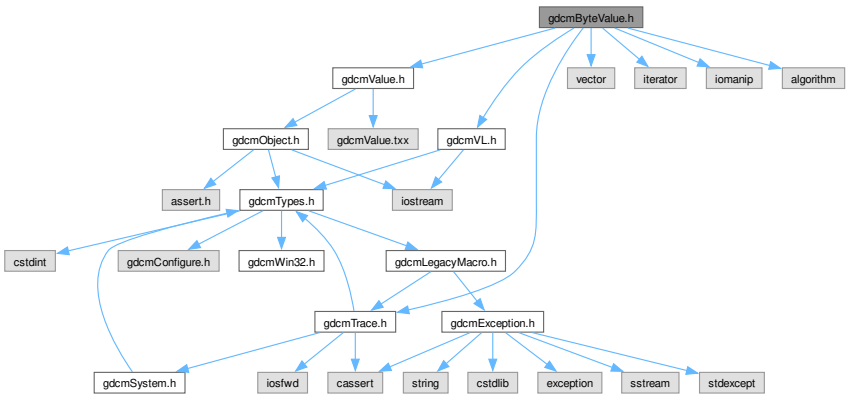
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBYTESWAPFILTER_H
00015 #define GDCMBYTESWAPFILTER_H
00016
00017 #include "gdcmDataSet.h"
00018
00019 namespace gdcm
00020 {
00021
00027 class GDCM_EXPORT ByteSwapFilter
00028 {
```

```
00029 public:
00030   ByteSwapFilter(DataSet& ds):DS(ds),ByteSwapTag(false) {}
00031   ~ByteSwapFilter() = default;
00032   ByteSwapFilter(const ByteSwapFilter &) = delete;
00033   ByteSwapFilter& operator=(const ByteSwapFilter &) = delete;
00034
00035   bool ByteSwap();
00036   void SetByteSwapTag(bool b) { ByteSwapTag = b; }
00037
00038 private:
00039   DataSet &DS;
00040   bool ByteSwapTag;
00041
00042 };
00043
00044 } // end namespace gdcm
00045
00046 #endif //GDCMBYTESWAPFILTER_H
```

13.117 gdcmByteValue.h File Reference

```
#include "gdcmValue.h"
#include "gdcmTrace.h"
#include "gdcmVL.h"
#include <vector>
#include <iterator>
#include <iomanip>
#include <algorithm>
```

Include dependency graph for gdcmByteValue.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::ByteValue

  Class to represent binary value (array of bytes).

Namespaces

- namespace gdcm

13.118 gdcmByteValue.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBYTEVALUE_H
00015 #define GDCMBYTEVALUE_H
00016
00017 #include "gdcmValue.h"
00018 #include "gdcmTrace.h"
00019 #include "gdcmVL.h"
00020
00021 #include <vector>
00022 #include <iterator>
00023 #include <iomanip>
00024 #include <algorithm>
00025
00026 namespace gdcm_ns
00027 {
00028 #if !defined(SWIGPYTHON) && !defined(SWIGCSHARP) && !defined(SWIGJAVA) && !defined(SWIGPHP)
00029 using namespace gdcm;
00030 #endif
00034 class GDCM_EXPORT ByteValue : public Value
00035 {
00036 public:
00037   ByteValue(const char* array = nullptr, VL const &vl = 0):
00038     Internal(array, array+vl),Length(vl) {
00039       if( vl.IsOdd() )
00040         {
00041         gdcmDebugMacro( "Odd length" );
00042         Internal.resize(vl+1);
00043         ++Length;
00044         }
00045   }
00046
00048   ByteValue(std::vector<char> &v):Internal(v),Length((uint32_t)v.size()) {}
00049   //ByteValue(std::ostringstream const &os) {
00050   //  (void)os;
00051   //  assert(0); // TODO
00052   //}
00053   ~ByteValue() override {
00054     Internal.clear();
00055   }
00056
00057   // When 'dumping' dicom file we still have some information from
00058   // Either the VR: eg LO (private tag)
00059   void PrintASCII(std::ostream &os, VL maxlength ) const;
00060
00061   void PrintHex(std::ostream &os, VL maxlength) const;
00062
00063   // Either from Element Number (== 0x0000)
00064   void PrintGroupLength(std::ostream &os) {
00065     assert( Length == 2 );
00066     (void)os;
00067   }
00068
00069   bool IsEmpty() const {
00070 #if 0
```

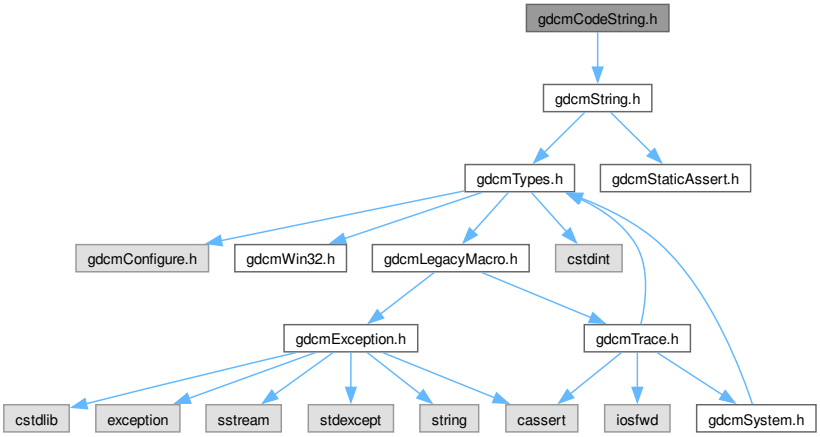
```
00071     if( Internal.empty() ) assert( Length == 0 );
00072     return Internal.empty();
00073 #else
00074   return Length == 0;
00075 #endif
00076   }
00077   VL GetLength() const override { return Length; }
00078
00079   VL ComputeLength() const { return Length + Length % 2; }
00080   // Does a reallocation
00081   void SetLength(VL vl) override;
00082
00083   operator const std::vector<char>& () const { return Internal; }
00084
00085   ByteValue &operator=(const ByteValue &val) {
00086     Internal = val.Internal;
00087     Length = val.Length;
00088     return *this;
00089     }
00090
00091   bool operator==(const ByteValue &val) const {
00092     if( Length != val.Length )
00093       return false;
00094     if( Internal == val.Internal )
00095       return true;
00096     return false;
00097     }
00098   bool operator==(const Value &val) const override
00099     {
00100     const ByteValue &bv = dynamic_cast<const ByteValue&>(val);
00101     return Length == bv.Length && Internal == bv.Internal;
00102     }
00103
00104   void Append(ByteValue const & bv);
00105
00106   void Clear() override {
00107     Internal.clear();
00108   }
00109   // Use that only if you understand what you are doing
00110   const char *GetPointer() const {
00111     if(!Internal.empty()) return &Internal[0];
00112     return nullptr;
00113   }
00114   // Use that only if you really understand what you are doing
00115   const void *GetVoidPointer() const {
00116     if(!Internal.empty()) return &Internal[0];
00117     return nullptr;
00118   }
00119   void *GetVoidPointer() {
00120     if(!Internal.empty()) return &Internal[0];
00121     return nullptr;
00122   }
00123   void Fill(char c) {
00124     //if( Internal.empty() ) return;
00125     std::vector<char>::iterator it = Internal.begin();
00126     for(; it != Internal.end(); ++it) *it = c;
00127   }
00128   bool GetBuffer(char *buffer, unsigned long length) const;
00129   bool WriteBuffer(std::ostream &os) const {
00130     if( Length ) {
00131       //assert( Internal.size() <= Length );
00132       assert( !(Internal.size() % 2) );
00133       os.write(&Internal[0], Internal.size() );
00134       }
00135     return true;
00136   }
00137
00138   template <typename TSwap, typename TType>
00139   std::istream &Read(std::istream &is, bool readvalues = true) {
00140     // If Length is odd we have detected that in SetLength
00141     // and calling std::vector::resize make sure to allocate *AND*
00142     // initialize values to 0 so we are sure to have a \0 at the end
00143     // even in this case
00144     if(Length)
00145       {
00146       if( readvalues )
00147         {
00148         is.read(&Internal[0], Length);
00149         assert( Internal.size() == Length || Internal.size() == Length + 1 );
00150         TSwap::SwapArray((TType*)GetVoidPointer(), Internal.size() / sizeof(TType) );
00151         }
```

```
00152       else
00153         {
00154         is.seekg(Length, std::ios::cur);
00155         }
00156       }
00157     return is;
00158   }
00159
00160   template <typename TSwap>
00161   std::istream &Read(std::istream &is) {
00162     return Read<TSwap,uint8_t>(is);
00163   }
00164
00165
00166   template <typename TSwap, typename TType>
00167   std::ostream const &Write(std::ostream &os) const {
00168     assert( !(Internal.size() % 2) );
00169     if( !Internal.empty() ) {
00170       //os.write(&Internal[0], Internal.size());
00171       std::vector<char> copy = Internal;
00172       TSwap::SwapArray((TType*)(void*)&copy[0], Internal.size() / sizeof(TType) );
00173       os.write(&copy[0], copy.size());
00174       }
00175     return os;
00176   }
00177
00178   template <typename TSwap>
00179   std::ostream const &Write(std::ostream &os) const {
00180     return Write<TSwap,uint8_t>(os);
00181   }
00182
00189   bool IsPrintable(VL length) const {
00190     assert( length <= Length );
00191     for(unsigned int i=0; i<length; i++)
00192       {
00193       if ( i == (length-1) && Internal[i] == '\0') continue;
00194       if ( !( isprint((unsigned char)Internal[i]) || isspace((unsigned char)Internal[i]) ) )
00195         {
00196         //gdcmWarningMacro( "Cannot print :" « i );
00197         return false;
00198         }
00199       }
00200     return true;
00201     }
00202
00204   void PrintPNXML(std::ostream &os) const;
00205   void PrintASCIIXML(std::ostream &os) const;
00206   void PrintHexXML(std::ostream &os) const;
00207 protected:
00208   void Print(std::ostream &os) const override {
00209   // This is perfectly valid to have a Length = 0 , so we cannot check
00210   // the length for printing
00211   if( !Internal.empty() )
00212     {
00213     if( IsPrintable(Length) )
00214       {
00215       // WARNING: Internal.end() != Internal.begin()+Length
00216       std::vector<char>::size_type length = Length;
00217       if( Internal.back() == 0 ) --length;
00218       std::copy(Internal.begin(), Internal.begin()+length,
00219         std::ostream_iterator<char>(os));
00220       }
00221     else
00222       os « "Loaded:" « Internal.size();
00223     }
00224   else
00225     {
00226     //os « "Not Loaded";
00227     os « "(no value available)";
00228     }
00229   }
00230 /*
00231 //Introduce check for invalid XML characters
00232 friend std::ostream& operator«(std::ostream &os,const char c);
00233 */
00234
00235   void SetLengthOnly(VL vl) override {
00236     Length = vl;
00237   }
00238
00239 private:
```

```
00240   std::vector<char> Internal;
00241
00242   // WARNING Length IS NOT Internal.size() some *featured* DICOM
00243   // implementation define odd length, we always load them as even number
00244   // of byte, so we need to keep the right Length
00245   VL Length;
00246 };
00247
00248 } // end namespace gdcm_ns
00249
00250 #endif //GDCMBYTEVALUE_H
```

13.119 gdcmCodeString.h File Reference

`#include "gdcmString.h"`
Include dependency graph for gdcmCodeString.h:



Classes

- class gdcm::CodeString
  CodeString.

Namespaces

- namespace gdcm

Functions

- bool gdcm::operator!= (const CodeString &ref, const CodeString &cs)
- std::ostream & gdcm::operator<< (std::ostream &os, const CodeString &str)
- bool gdcm::operator== (const CodeString &ref, const CodeString &cs)

13.120 gdcmCodeString.h

Go to the documentation of this file.

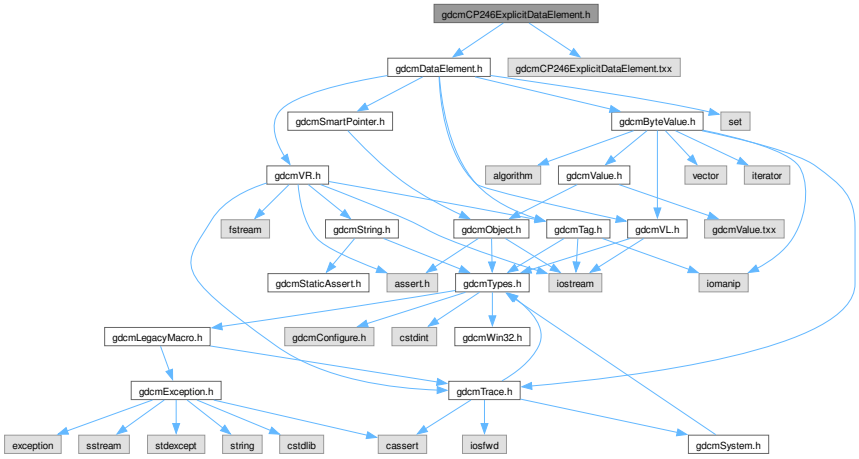
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCODESTRING_H
00015 #define GDCMCODESTRING_H
00016
00017 #include "gdcmString.h"
00018
00019 namespace gdcm
00020 {
00021
00039 // Note to myself: because note all wrapped language support exception
00040 // we could not support throwing an exception during object construction.
00041 class GDCM_EXPORT CodeString
00042 {
00043   friend std::ostream& operator« (std::ostream& os, const CodeString& str);
00044   friend bool operator==(const CodeString &ref, const CodeString& cs);
00045   friend bool operator!=(const CodeString &ref, const CodeString& cs);
00046   typedef String<'\\',16> InternalClass;
00047 public:
00048   typedef InternalClass::value_type             value_type;
00049   typedef InternalClass::pointer                pointer;
00050   typedef InternalClass::reference              reference;
00051   typedef InternalClass::const_reference        const_reference;
00052   typedef InternalClass::size_type              size_type;
00053   typedef InternalClass::difference_type        difference_type;
00054   typedef InternalClass::iterator               iterator;
00055   typedef InternalClass::const_iterator         const_iterator;
00056   typedef InternalClass::reverse_iterator       reverse_iterator;
00057   typedef InternalClass::const_reverse_iterator const_reverse_iterator;
00058
00060   CodeString(): Internal() {}
00061   CodeString(const value_type* s): Internal(s) { Internal = Internal.Trim(); }
00062   CodeString(const value_type* s, size_type n): Internal(s, n) {
00063     Internal = Internal.Trim(); }
00064   CodeString(const InternalClass& s, size_type pos=0, size_type n=InternalClass::npos):
00065     Internal(s, pos, n) { Internal = Internal.Trim(); }
00066
00068   bool IsValid() const;
00069
00071   std::string GetAsString() const {
00072     return Internal;
00073   }
00074
00076   size_type Size() const { return Internal.size(); }
00077
00078 protected:
00079   std::string TrimInternal() const {
00080     return Internal.Trim();
00081   }
00082
00083 private:
00084   String<'\\',16> Internal;
00085 };
00086
00087 inline std::ostream& operator« (std::ostream& os, const CodeString& str)
00088 {
00089   os « str.Internal;
00090   return os;
00091 }
00092
00093 inline bool operator==(const CodeString &ref, const CodeString& cs)
00094 {
00095   return ref.Internal == cs.Internal;
00096 }
```

```
00097 inline bool operator!=(const CodeString &ref, const CodeString& cs)
00098 {
00099   return ref.Internal != cs.Internal;
00100 }
00101
00102
00103 } // end namespace gdcm
00104
00105 #endif //GDCMCODESTRING_H
```

13.121 gdcmCP246ExplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmCP246ExplicitDataElement.txx"
```

Include dependency graph for gdcmCP246ExplicitDataElement.h:



Classes

- class gdcm::CP246ExplicitDataElement

  Class to read/write a DataElement as CP246Explicit Data Element.

Namespaces

- namespace gdcm

13.122 gdcmCP246ExplicitDataElement.h

Go to the documentation of this file.

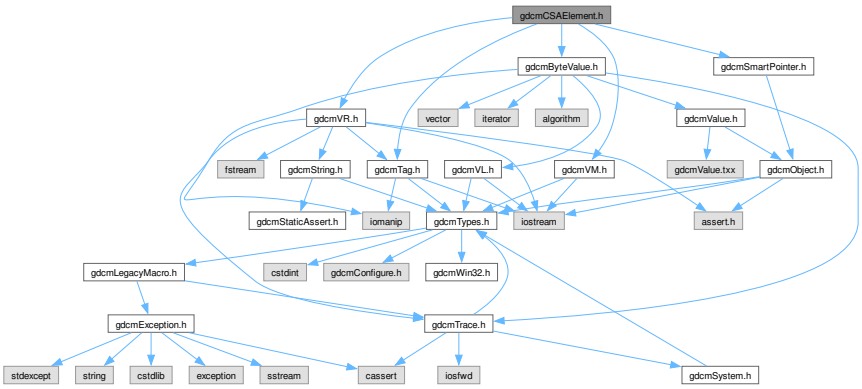
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
```

```
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCP246EXPLICITDATAELEMENT_H
00015 #define GDCMCP246EXPLICITDATAELEMENT_H
00016
00017 #include "gdcmDataElement.h"
00018
00019 namespace gdcm
00020 {
00021 // Data Element (CP246Explicit)
00027 class GDCM_EXPORT CP246ExplicitDataElement : public DataElement
00028 {
00029 public:
00030   VL GetLength() const;
00031
00032   template <typename TSwap>
00033   std::istream &Read(std::istream &is);
00034
00035   template <typename TSwap>
00036   std::istream &ReadPreValue(std::istream &is);
00037
00038   template <typename TSwap>
00039   std::istream &ReadValue(std::istream &is, bool readvalues = true);
00040
00041   template <typename TSwap>
00042   std::istream &ReadWithLength(std::istream &is, VL & length);
00043
00044   // PURPOSELY do not provide an implementation for writing !
00045   //template <typename TSwap>
00046   //const std::ostream &Write(std::ostream &os) const;
00047 };
00048
00049 } // end namespace gdcm
00050
00051 #include "gdcmCP246ExplicitDataElement.txx"
00052
00053 #endif //GDCMCP246EXPLICITDATAELEMENT_H
```

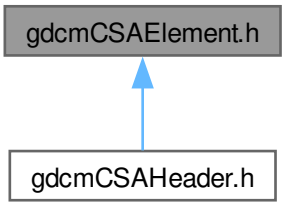
13.123 gdcmCSAElement.h File Reference

```
#include "gdcmTag.h"
#include "gdcmVM.h"
#include "gdcmVR.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"
```

Include dependency graph for gdcmCSAElement.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::CSAElement

  Class to represent a CSA Element.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const CSAElement &val)

13.124 gdcmCSAElement.h

Go to the documentation of this file.

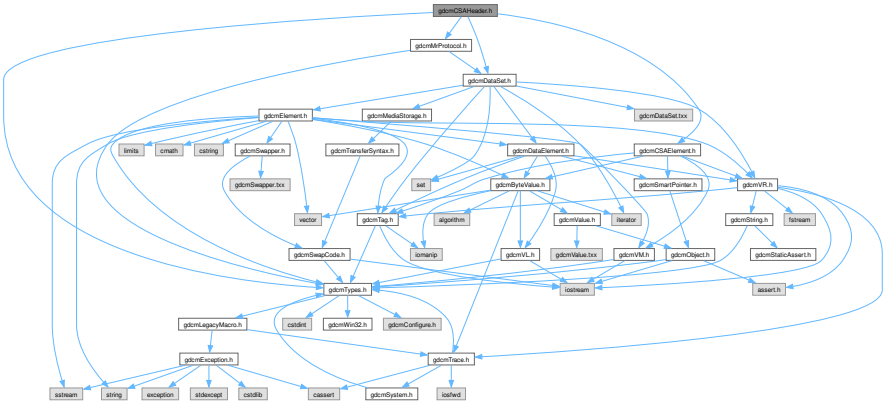
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCSAELEMENT_H
00015 #define GDCMCSAELEMENT_H
00016
00017 #include "gdcmTag.h"
00018 #include "gdcmVM.h"
00019 #include "gdcmVR.h"
00020 #include "gdcmByteValue.h"
00021 #include "gdcmSmartPointer.h"
00022
00023 namespace gdcm
00024 {
00029 class GDCM_EXPORT CSAElement
00030 {
00031 public:
00032   CSAElement(unsigned int kf = 0):KeyField(kf) {}
00033
00034   friend std::ostream& operator<<(std::ostream &os, const CSAElement &val);
00035
00037   unsigned int GetKey() const { return KeyField; }
00038   void SetKey(unsigned int key) { KeyField = key; }
00039
00041   const char *GetName() const { return NameField.c_str(); }
00042   void SetName(const char *name) { NameField = name; }
00043
00045   const VM& GetVM() const { return ValueMultiplicityField; }
00046   void SetVM(const VM &vm) { ValueMultiplicityField = vm; }
00047
00049   VR const &GetVR() const { return VRField; }
00050   void SetVR(VR const &vr) { VRField = vr; }
00051
00053   unsigned int GetSyngoDT() const { return SyngoDTField; }
00054   void SetSyngoDT(unsigned int syngodt) { SyngoDTField = syngodt; }
00055
00057   unsigned int GetNoOfItems() const { return NoOfItemsField; }
00058   void SetNoOfItems(unsigned int items) { NoOfItemsField = items; }
00059
00061   Value const &GetValue() const { return *DataField; }
00062   Value &GetValue() { return *DataField; }
00063   void SetValue(Value const & vl) {
00064     //assert( DataField == 0 );
00065     DataField = vl;
00066   }
00068   bool IsEmpty() const { return DataField == nullptr; }
00069
00071   void SetByteValue(const char *array, VL length)
00072     {
00073     ByteValue *bv = new ByteValue(array,length);
00074     SetValue( *bv );
00075     }
00078   const ByteValue* GetByteValue() const {
00079     // Get the raw pointer from the gdcm::SmartPointer
00080     const ByteValue *bv = dynamic_cast<const ByteValue*>(DataField.GetPointer());
00081     return bv; // Will return NULL if not ByteValue
00082   }
00083
00084   CSAElement(const CSAElement &_val)
00085     {
00086     if( this != &_val)
00087       {
00088       *this = _val;
00089       }
00090     }
```

```
00091
00092   bool operator<(const CSAElement &de) const
00093     {
00094     return GetKey() < de.GetKey();
00095     }
00096   CSAElement &operator=(const CSAElement &de)
00097     = default;
00098
00099   bool operator==(const CSAElement &de) const
00100     {
00101     return KeyField == de.KeyField
00102       && NameField == de.NameField
00103       && ValueMultiplicityField == de.ValueMultiplicityField
00104       && VRField == de.VRField
00105       && SyngoDTField == de.SyngoDTField
00106       //&& ValueField == de.ValueField;
00107       ;
00108     }
00109
00110 protected:
00111   unsigned int KeyField;
00112   std::string NameField;
00113   VM ValueMultiplicityField;
00114   VR VRField;
00115   unsigned int SyngoDTField;
00116   unsigned int NoOfItemsField;
00117   typedef SmartPointer<Value> DataPtr;
00118   DataPtr DataField;
00119 };
00120 //-----------------------------------------------------------------------------
00121 inline std::ostream& operator«(std::ostream &os, const CSAElement &val)
00122 {
00123   os « val.KeyField;
00124   os « " - '" « val.NameField;
00125   os « "' VM " « val.ValueMultiplicityField;
00126   os « ", VR " « val.VRField;
00127   os « ", SyngoDT " « val.SyngoDTField;
00128   os « ", NoOfItems " « val.NoOfItemsField;
00129   os « ", Data ";
00130   if( val.DataField )
00131     {
00132     //val.DataField->Print( os « "'" );
00133     const ByteValue * bv = dynamic_cast<ByteValue*>(&*val.DataField);
00134     assert( bv );
00135     const char * p = bv->GetPointer();
00136     std::string str(p, p + bv->GetLength() );
00137     if( val.ValueMultiplicityField == VM::VM1 )
00138       {
00139       os « "'" « str.c_str() « "'";
00140       }
00141     else
00142       {
00143       std::istringstream is( str );
00144       std::string s;
00145       bool sep = false;
00146       while( std::getline(is, s, '\\' ) )
00147         {
00148         if( sep )
00149           {
00150           os « '\\';
00151           }
00152         sep = true;
00153         os « "'" « s.c_str() « "'";
00154         }
00155       //bv->Print( os « "'" );
00156       //os « "'";
00157       }
00158     }
00159   return os;
00160 }
00161
00162 } // end namespace gdcm
00163
00164 #endif //GDCMCSAELEMENT_H
```

13.125 gdcmCSAHeader.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDataSet.h"
#include "gdcmCSAElement.h"
#include "gdcmMrProtocol.h"
```

Include dependency graph for gdcmCSAHeader.h:



Classes

- class gdcm::CSAHeader

  Class for CSAHeader.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const CSAHeader &d)

13.126 gdcmCSAHeader.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
```

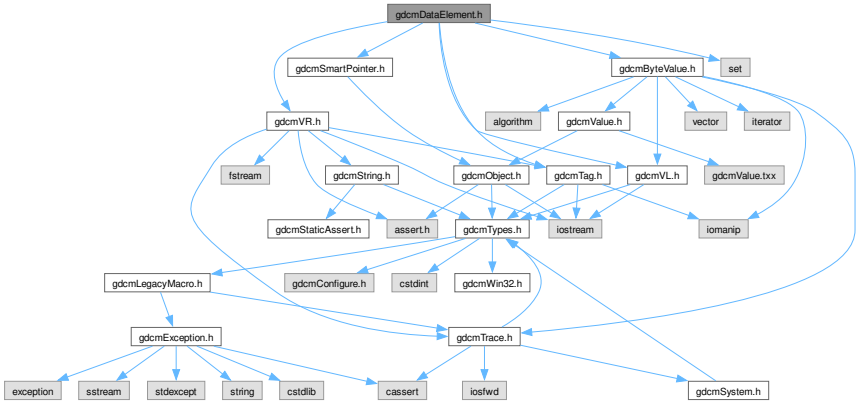
```
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCSAHEADER_H
00015 #define GDCMCSAHEADER_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmDataSet.h"
00019 #include "gdcmCSAElement.h"
00020 #include "gdcmMrProtocol.h"
00021
00022 namespace gdcm
00023 {
00024 /*
00025  * Everything done in this code is for the sole purpose of writing interoperable
00026  * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
00027  * If you believe anything in this code violates any law or any of your rights,
00028  * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
00029  * find a solution.
00030  */
00031 //-----------------------------------------------------------------------------
00032
00033 class DataElement;
00034 class PrivateTag;
00063 class GDCM_EXPORT CSAHeader
00064 {
00065   friend std::ostream& operator<<(std::ostream &_os, const CSAHeader &d);
00066 public :
00067   CSAHeader():InternalDataSet(),InternalType(UNKNOWN),InterfileData(nullptr) {}
00068   ~CSAHeader() = default;
00069
00071   typedef enum {
00072     UNKNOWN = 0,
00073     SV10,
00074     NOMAGIC,
00075     DATASET_FORMAT,
00076     INTERFILE,
00077     ZEROED_OUT
00078   } CSAHeaderType;
00079
00081   bool LoadFromDataElement(DataElement const &de);
00082
00084   void Print(std::ostream &os) const;
00085
00087   const DataSet& GetDataSet() const { return InternalDataSet; }
00088
00090   const char * GetInterfile() const { return InterfileData; }
00091
00094   CSAHeaderType GetFormat() const;
00095
00098   static const PrivateTag & GetCSAImageHeaderInfoTag();
00099
00102   static const PrivateTag & GetCSASeriesHeaderInfoTag();
00103
00106   static const PrivateTag & GetCSADataInfo();
00107
00110   const CSAElement &GetCSAElementByName(const char *name);
00111
00114   bool FindCSAElementByName(const char *name);
00115
00117   bool GetMrProtocol( const DataSet & ds, MrProtocol & mrProtocol );
00118
00119 protected:
00120   const CSAElement& GetCSAEEnd() const;
00121
00122 private:
00123   std::set<CSAElement> InternalCSADataSet;
00124   DataSet InternalDataSet;
00125   CSAHeaderType InternalType;
00126   Tag DataElementTag;
00127   static CSAElement CSAEEnd;
00128   const char *InterfileData;
00129 };
00130 //-----------------------------------------------------------------------------
00131 inline std::ostream& operator<<(std::ostream &os, const CSAHeader &d)
00132 {
00133   d.Print( os );
00134   return os;
00135 }
00136
00137 } // end namespace gdcm
```

```
00138 //-----------------------------------------------------------------------------
00139 #endif //GDCMCSAHEADER_H
```

13.127 gdcmDataElement.h File Reference

```
#include "gdcmTag.h"
#include "gdcmVL.h"
#include "gdcmVR.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"
#include <set>
```

Include dependency graph for gdcmDataElement.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::DataElement

  Class to represent a Data Element either Implicit or Explicit.

Namespaces

- namespace gdcm

Functions

- bool gdcm::operator!= (const DataElement &lhs, const DataElement &rhs)
- std::ostream & gdcm::operator<< (std::ostream &os, const DataElement &val)

13.128 gdcmDataElement.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDATAELEMENT_H
00015 #define GDCMDATAELEMENT_H
00016
00017 #include "gdcmTag.h"
00018 #include "gdcmVL.h"
00019 #include "gdcmVR.h"
00020 #include "gdcmByteValue.h"
00021 #include "gdcmSmartPointer.h"
00022
00023 #include <set>
00024
00025 namespace gdcm_ns
00026 {
00027 // Data Element
00028 // Contains multiple fields:
00029 // -> Tag
00030 // -> Optional VR (Explicit Transfer Syntax)
00031 // -> ValueLength
00032 // -> Value
00033 // TODO: This class SHOULD be pure virtual. I don't want a user
00034 // to shoot himself in the foot.
00035
00036 class SequenceOfItems;
00037 class SequenceOfFragments;
00058 class GDCM_EXPORT DataElement
00059 {
00060 public:
00061   DataElement(const Tag& t = Tag(0), const VL& vl = 0, const VR &vr =
      VR::INVALID):TagField(t),ValueLengthField(vl),VRField(vr),ValueField(nullptr) {}
00062   //DataElement( Attribute const &att );
00063
00064   friend std::ostream& operator«(std::ostream &_os, const DataElement &_val);
00065
00067   const Tag& GetTag() const { return TagField; }
00068   Tag& GetTag() { return TagField; }
00071   void SetTag(const Tag &t) { TagField = t; }
00072
00074   const VL& GetVL() const { return ValueLengthField; }
00075   VL& GetVL() { return ValueLengthField; }
00079   void SetVL(const VL &vl) { ValueLengthField = vl; }
00080   void SetVLToUndefined();
00081
00084   VR const &GetVR() const { return VRField; }
00088   void SetVR(VR const &vr) {
00089     if( vr.IsVRFile() )
00090       VRField = vr;
00091   }
00092
00094   Value const &GetValue() const { gdcmAssertAlwaysMacro(ValueField); return *ValueField; }
00095   Value &GetValue() {
00096     gdcmAssertAlwaysMacro(ValueField);
00097     return *ValueField;
```

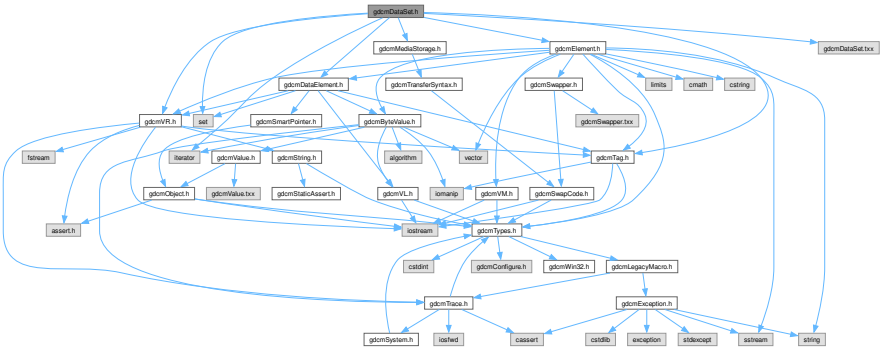
```
00098   }
00100   void SetValue(Value const & vl) {
00101     //assert( ValueField == 0 );
00102     ValueField = vl;
00103     ValueLengthField = vl.GetLength();
00104   }
00106   bool IsEmpty() const { return ValueField == nullptr || (GetByteValue() && GetByteValue()->IsEmpty()); }
00107
00109   void Empty() { ValueField = nullptr; ValueLengthField = 0; }
00110
00112   void Clear()
00113     {
00114     TagField = 0;
00115     VRField = VR::INVALID;
00116     ValueField = nullptr;
00117     ValueLengthField = 0;
00118     }
00119
00120   // Helper:
00126   void SetByteValue(const char *array, VL length)
00127     {
00128     ByteValue *bv = new ByteValue(array,length);
00129     SetValue( *bv );
00130     }
00133   const ByteValue* GetByteValue() const {
00134     // Get the raw pointer from the gdcm::SmartPointer
00135     const ByteValue *bv = dynamic_cast<const ByteValue*>(ValueField.GetPointer());
00136     return bv; // Will return NULL if not ByteValue
00137   }
00138
00145   SmartPointer<SequenceOfItems> GetValueAsSQ() const;
00146
00149   const SequenceOfFragments* GetSequenceOfFragments() const;
00150   SequenceOfFragments* GetSequenceOfFragments();
00151
00153   bool IsUndefinedLength() const {
00154     return ValueLengthField.IsUndefined();
00155   }
00156
00157   DataElement(const DataElement &_val)
00158     {
00159     if( this != &_val)
00160       {
00161       *this = _val;
00162       }
00163     }
00164
00165   bool operator<(const DataElement &de) const
00166     {
00167     return GetTag() < de.GetTag();
00168     }
00169   DataElement &operator=(const DataElement &)
00170     = default;
00171
00172   bool operator==(const DataElement &de) const
00173     {
00174     bool b = TagField == de.TagField
00175       && ValueLengthField == de.ValueLengthField
00176       && VRField == de.VRField;
00177     if( !ValueField && !de.ValueField )
00178       {
00179       return b;
00180       }
00181     if( ValueField && de.ValueField )
00182       {
00183       return b && (*ValueField == *de.ValueField);
00184       }
00185     // ValueField != de.ValueField
00186     return false;
00187     }
00188
00189   // The following functionalities are dependent on:
00190   // # The Transfer Syntax: Explicit or Implicit
00191   // # The Byte encoding: Little Endian / Big Endian
00192
00193   /*
00194    * The following was inspired by a C++ idiom: Curiously Recurring Template Pattern
00195    * Ref: http://en.wikipedia.org/wiki/Curiously_Recurring_Template_Pattern
00196    * The typename TDE is typically a derived class *without* any data
00197    * while TSwap is a simple template parameter to achieve byteswapping (and allow factorization of
00198    * highly identical code)
```

```
00199    */
00200   template <typename TDE>
00201   VL GetLength() const {
00202     return static_cast<const TDE*>(this)->GetLength();
00203   }
00204
00205   template <typename TDE, typename TSwap>
00206   std::istream &Read(std::istream &is) {
00207     return static_cast<TDE*>(this)->template Read<TSwap>(is);
00208   }
00209
00210   template <typename TDE, typename TSwap>
00211   std::istream &ReadOrSkip(std::istream &is, std::set<Tag> const &skiptags) {
00212     (void)skiptags;
00213     return static_cast<TDE*>(this)->template Read<TSwap>(is);
00214   }
00215
00216   template <typename TDE, typename TSwap>
00217   std::istream &ReadPreValue(std::istream &is, std::set<Tag> const &skiptags) {
00218     (void)skiptags;
00219     return static_cast<TDE*>(this)->template ReadPreValue<TSwap>(is);
00220   }
00221   template <typename TDE, typename TSwap>
00222   std::istream &ReadValue(std::istream &is, std::set<Tag> const &skiptags) {
00223     (void)skiptags;
00224     return static_cast<TDE*>(this)->template ReadValue<TSwap>(is);
00225   }
00226   template <typename TDE, typename TSwap>
00227   std::istream &ReadValueWithLength(std::istream &is, VL & length, std::set<Tag> const &skiptags) {
00228     (void)skiptags;
00229     return static_cast<TDE*>(this)->template ReadValueWithLength<TSwap>(is, length);
00230   }
00231
00232   template <typename TDE, typename TSwap>
00233   std::istream &ReadWithLength(std::istream &is, VL &length) {
00234     return static_cast<TDE*>(this)->template ReadWithLength<TSwap>(is,length);
00235   }
00236
00237   template <typename TDE, typename TSwap>
00238   const std::ostream &Write(std::ostream &os) const {
00239     return static_cast<const TDE*>(this)->template Write<TSwap>(os);
00240   }
00241
00242 protected:
00243   Tag TagField;
00244   // This is the value read from the file, might be different from the length of Value Field
00245   VL ValueLengthField; // Can be 0xFFFFFFFF
00246
00247   // Value Representation
00248   VR VRField;
00249   typedef SmartPointer<Value> ValuePtr;
00250   ValuePtr ValueField;
00251
00252   void SetValueFieldLength( VL vl, bool readvalues );
00253 };
00254 //-----------------------------------------------------------------------------
00255 inline std::ostream& operator«(std::ostream &os, const DataElement &val)
00256 {
00257   os « val.TagField;
00258   os « "\t" « val.VRField;
00259   os « "\t" « val.ValueLengthField;
00260   if( val.ValueField )
00261     {
00262     val.ValueField->Print( os « "\t" );
00263     }
00264   return os;
00265 }
00266
00267 inline bool operator!=(const DataElement& lhs, const DataElement& rhs)
00268 {
00269   return ! ( lhs == rhs );
00270 }
00271
00272 } // end namespace gdcm_ns
00273
00274 #endif //GDCMDATAELEMENT_H
```

13.129 gdcmDataSet.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmTag.h"
#include "gdcmVR.h"
#include "gdcmElement.h"
#include "gdcmMediaStorage.h"
#include <set>
#include <iterator>
#include "gdcmDataSet.txx"
```

Include dependency graph for gdcmDataSet.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::DataElementException
- class gdcm::DataSet

  Class to represent a Data Set (which contains Data Elements).

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const DataSet &val)

13.130 gdcmDataSet.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDATASET_H
00015 #define GDCMDATASET_H
00016
00017 #include "gdcmDataElement.h"
00018 #include "gdcmTag.h"
00019 #include "gdcmVR.h"
00020 #include "gdcmElement.h"
00021 #include "gdcmMediaStorage.h"
00022
00023 #include <set>
00024 #include <iterator>
00025
00026 namespace gdcm_ns
00027 {
00028 class GDCM_EXPORT DataElementException : public std::exception {};
00029
00030 class PrivateTag;
00055 class GDCM_EXPORT DataSet
00056 {
00057   friend class CSAHeader;
00058 public:
00059   typedef std::set<DataElement> DataElementSet;
00060   typedef DataElementSet::const_iterator ConstIterator;
00061   typedef DataElementSet::iterator Iterator;
00062   typedef DataElementSet::size_type SizeType;
00063   //typedef typename DataElementSet::iterator iterator;
00064   ConstIterator Begin() const { return DES.begin(); }
00065   Iterator Begin() { return DES.begin(); }
00066   ConstIterator End() const { return DES.end(); }
00067   Iterator End() { return DES.end(); }
00068   const DataElementSet &GetDES() const { return DES; }
00069   DataElementSet &GetDES() { return DES; }
00070   void Clear() {
00071     DES.clear();
00072     assert( DES.empty() );
00073   }
00074
00075   SizeType Size() const {
00076     return DES.size();
00077   }
00078
00079   void Print(std::ostream &os, std::string const &indent = "") const {
00080     // CT_Phillips_JPEG2K_Decompr_Problem.dcm has a SQ of length == 0
00081     //int s = DES.size();
00082     //assert( s );
00083     //std::copy(DES.begin(), DES.end(),
00084     //  std::ostream_iterator<DataElement>(os, "\n"));
00085     ConstIterator it = DES.begin();
00086     for( ; it != DES.end(); ++it)
00087       {
00088       os « indent « *it « "\n";
00089       }
00090   }
00091
00092   template <typename TDE>
00093   unsigned int ComputeGroupLength(Tag const &tag) const
00094     {
00095     assert( tag.GetElement() == 0x0 );
00096     const DataElement r(tag);
00097     ConstIterator it = DES.find(r);
00098     unsigned int res = 0;
00099     for( ++it; it != DES.end()
```

```
00100       && it->GetTag().GetGroup() == tag.GetGroup(); ++it)
00101       {
00102       assert( it->GetTag().GetElement() != 0x0 );
00103       assert( it->GetTag().GetGroup() == tag.GetGroup() );
00104       res += it->GetLength<TDE>();
00105       }
00106     return res;
00107     }
00108
00109   template <typename TDE>
00110   VL GetLength() const {
00111     if( DES.empty() ) return 0;
00112     assert( !DES.empty() );
00113     VL ll = 0;
00114     assert( ll == 0 );
00115     ConstIterator it = DES.begin();
00116     for( ; it != DES.end(); ++it)
00117       {
00118       assert( !(it->GetLength<TDE>().IsUndefined()) );
00119       if ( it->GetTag() != Tag(0xfffe,0xe00d) )
00120         {
00121         ll += it->GetLength<TDE>();
00122         }
00123       }
00124     return ll;
00125   }
00128   void Insert(const DataElement& de) {
00129     // FIXME: there is a special case where a dataset can have value < 0x8, see:
00130     // $ gdcmdump --csa gdcmData/SIEMENS-JPEG-CorruptFrag.dcm
00131     if( de.GetTag().GetGroup() >= 0x0008 || de.GetTag().GetGroup() == 0x4 )
00132       {
00133       // prevent user error:
00134       if( de.GetTag() == Tag(0xfffe,0xe00d)
00135       || de.GetTag() == Tag(0xfffe,0xe0dd)
00136       || de.GetTag() == Tag(0xfffe,0xe000) )
00137         {
00138         }
00139       else
00140         {
00141         InsertDataElement( de );
00142         }
00143       }
00144     else
00145       {
00146       gdcmErrorMacro( "Cannot add element with group < 0x0008 and != 0x4 in the dataset: " « de.GetTag()
      );
00147       }
00148   }
00150   void Replace(const DataElement& de) {
00151     ConstIterator it = DES.find(de);
00152   if( it != DES.end() )
00153   {
00154     // detect loop:
00155     gdcmAssertAlwaysMacro( &*it != &de );
00156     DES.erase(it);
00157   }
00158     DES.insert(de);
00159   }
00161   void ReplaceEmpty(const DataElement& de) {
00162     ConstIterator it = DES.find(de);
00163     if( it != DES.end() && it->IsEmpty() )
00164     {
00165       // detect loop:
00166     gdcmAssertAlwaysMacro( &*it != &de );
00167     DES.erase(it);
00168     }
00169   DES.insert(de);
00170   }
00172   SizeType Remove(const Tag& tag) {
00173     DataElementSet::size_type count = DES.erase(tag);
00174     assert( count == 0 || count == 1 );
00175     return count;
00176   }
00177
00181   //DataElement& GetDataElement(const Tag &t) {
00182   //  DataElement r(t);
00183   //  Iterator it = DES.find(r);
00184   //  if( it != DES.end() )
00185   //    return *it;
00186   //  return GetDEEnd();
00187   //  }
```

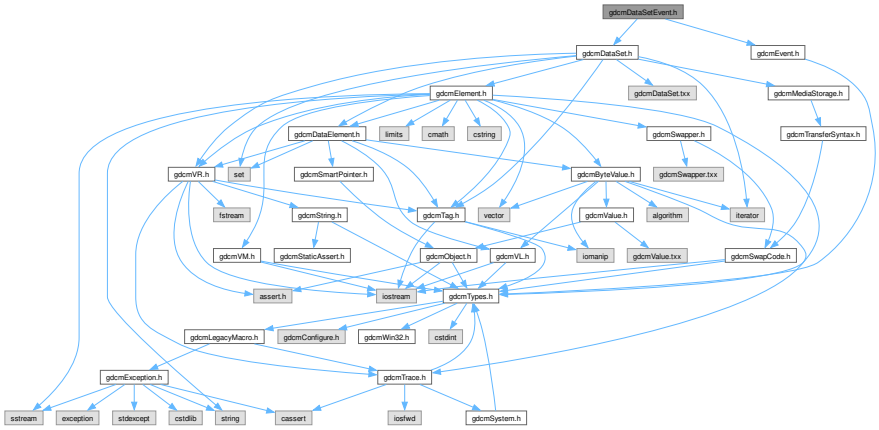
```
00188   const DataElement& GetDataElement(const Tag &t) const {
00189     const DataElement r(t);
00190     ConstIterator it = DES.find(r);
00191     if( it != DES.end() )
00192       return *it;
00193     return GetDEEnd();
00194     }
00195   const DataElement& operator[] (const Tag &t) const { return GetDataElement(t); }
00196   const DataElement& operator() (uint16_t group, uint16_t element) const { return GetDataElement(
      Tag(group,element) ); }
00197
00200   std::string GetPrivateCreator(const Tag &t) const;
00201
00203   PrivateTag GetPrivateTag(const Tag &t) const;
00204
00206   bool FindDataElement(const PrivateTag &t) const;
00208   const DataElement& GetDataElement(const PrivateTag &t) const;
00209
00210   // DUMB: this only search within the level of the current DataSet
00211   bool FindDataElement(const Tag &t) const {
00212     const auto it = GetDataElement(t);
00213     // Return if tag is found
00214     return it != GetDEEnd();
00215     }
00216
00217   // WARNING:
00218   // This only search at the same level as the DataSet is !
00219   const DataElement& FindNextDataElement(const Tag &t) const {
00220     const DataElement r(t);
00221     ConstIterator it = DES.lower_bound(r);
00222     if( it != DES.end() )
00223       return *it;
00224     return GetDEEnd();
00225     }
00226
00228   bool IsEmpty() const { return DES.empty(); }
00229
00230   DataSet& operator=(DataSet const &)
00231   = default;
00232
00233   template <typename TDE, typename TSwap>
00234   std::istream &ReadNested(std::istream &is);
00235
00236   template <typename TDE, typename TSwap>
00237   std::istream &Read(std::istream &is);
00238
00239   template <typename TDE, typename TSwap>
00240   std::istream &ReadUpToTag(std::istream &is, const Tag &t, std::set<Tag> const & skiptags);
00241
00242   template <typename TDE, typename TSwap>
00243   std::istream &ReadUpToTagWithLength(std::istream &is, const Tag &t, std::set<Tag> const & skiptags, VL &
      length);
00244
00245   template <typename TDE, typename TSwap>
00246   std::istream &ReadSelectedTags(std::istream &is, const std::set<Tag> & tags, bool readvalues = true);
00247   template <typename TDE, typename TSwap>
00248   std::istream &ReadSelectedTagsWithLength(std::istream &is, const std::set<Tag> & tags, VL & length, bool
      readvalues = true);
00249
00250   template <typename TDE, typename TSwap>
00251   std::istream &ReadSelectedPrivateTags(std::istream &is, const std::set<PrivateTag> & tags, bool
      readvalues = true);
00252   template <typename TDE, typename TSwap>
00253   std::istream &ReadSelectedPrivateTagsWithLength(std::istream &is, const std::set<PrivateTag> & tags, VL
      & length, bool readvalues = true);
00254
00255   template <typename TDE, typename TSwap>
00256   std::ostream const &Write(std::ostream &os) const;
00257
00258   template <typename TDE, typename TSwap>
00259   std::istream &ReadWithLength(std::istream &is, VL &length);
00260
00261   MediaStorage GetMediaStorage() const;
00262
00263 protected:
00264   /* GetDEEnd is a Win32 only issue, one cannot use a dllexported
00265    * static member data in an inline function, otherwise symbol
00266    * will get reported as missing in any dll using the inlined function
00267    */
00268   const DataElement& GetDEEnd() const;
00269
```

```
00270   // This function is not safe, it does not check for the value of the tag
00271   // so depending whether we are getting called from a dataset or file meta header
00272   // the condition is different
00273   void InsertDataElement(const DataElement& de) {
00274     //if( de.GetTag() == Tag(0xfffe,0xe00d) ) return;
00275     //if( de.GetTag() == Tag(0xfffe,0xe0dd) ) return;
00276 #ifndef NDEBUG
00277     std::pair<Iterator,bool> pr = DES.insert(de);
00278     if( pr.second == false )
00279       {
00280       gdcmWarningMacro( "DataElement: " « de « " was already found, skipping duplicate entry.\n"
00281         "Original entry kept is: " « *pr.first );
00282       }
00283 #else
00284     DES.insert(de);
00285 #endif
00286     assert( de.IsEmpty() || de.GetVL() == de.GetValue().GetLength() );
00287     }
00288
00289 protected:
00290   // Internal function, that will compute the actual Tag (if found) of
00291   // a requested Private Tag (XXXX,YY,"PRIVATE")
00292   Tag ComputeDataElement(const PrivateTag & t) const;
00293
00294 private:
00295   DataElementSet DES;
00296   static DataElement DEEnd;
00297   friend std::ostream& operator«(std::ostream &_os, const DataSet &);
00298 };
00299 //-----------------------------------------------------------------------------
00300 inline std::ostream& operator«(std::ostream &os, const DataSet &val)
00301 {
00302   val.Print(os);
00303   return os;
00304 }
00305
00306 #if defined(SWIGPYTHON) || defined(SWIGCSHARP) || defined(SWIGJAVA) || defined(SWIGPHP)
00307 /*
00308  * HACK: I need this temp class to be able to manipulate a std::set from python,
00309  * swig does not support wrapping of simple class like std::set...
00310  */
00311 class SWIGDataSet
00312 {
00313 public:
00314   SWIGDataSet(DataSet &des):Internal(des),it(des.Begin()) {}
00315   const DataElement& GetCurrent() const { return *it; }
00316   void Start() { it = Internal.Begin(); }
00317   bool IsAtEnd() const { return it == Internal.End(); }
00318   void Next() { ++it; }
00319 private:
00320   DataSet & Internal;
00321   DataSet::ConstIterator it;
00322 };
00323 #endif /* SWIG */
00324
00329
00330 } // end namespace gdcm_ns
00331
00332 #include "gdcmDataSet.txx"
00333
00334 #endif //GDCMDATASET_H
```

13.131 gdcmDataSetEvent.h File Reference

```
#include "gdcmEvent.h"
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmDataSetEvent.h:



Classes

- class gdcm::DataSetEvent

  DataSetEvent.

Namespaces

- namespace gdcm

13.132 gdcmDataSetEvent.h

Go to the documentation of this file.

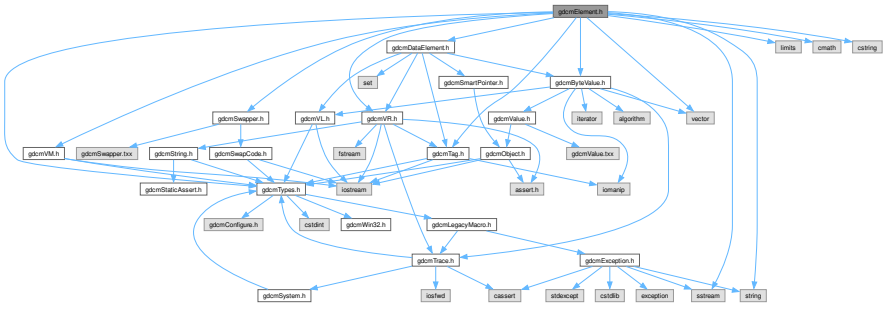
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDATASETEVENT_H
00015 #define GDCMDATASETEVENT_H
00016
00017 #include "gdcmEvent.h"
00018 #include "gdcmDataSet.h"
00019
00020 namespace gdcm
00021 {
00022
00027 class DataSetEvent : public AnyEvent
00028 {
00029 public:
00030   typedef DataSetEvent Self;
```

```
00031   typedef AnyEvent Superclass;
00032   DataSetEvent(DataSet const *ds = nullptr):m_DataSet(ds) {}
00033   ~DataSetEvent() override = default;
00034   void operator=(const Self&) = delete;
00035   const DataSet *m_DataSet;
00036   const char * GetEventName() const override { return "DataSetEvent"; }
00037   bool CheckEvent(const ::gdcm::Event* e) const override
00038   { return (dynamic_cast<const Self*>(e) == nullptr ? false : true) ; }
00039   ::gdcm::Event* MakeObject() const override
00040     { return new Self; }
00041   DataSetEvent(const Self&s) : AnyEvent(s){}
00042
00043   DataSet const & GetDataSet() const { return *m_DataSet; }
00044 };
00045
00046
00047 } // end namespace gdcm
00048
00049 #endif //GDCMANONYMIZEEVENT_H
```

13.133 gdcmElement.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVR.h"
#include "gdcmTag.h"
#include "gdcmVM.h"
#include "gdcmByteValue.h"
#include "gdcmDataElement.h"
#include "gdcmSwapper.h"
#include <string>
#include <vector>
#include <sstream>
#include <limits>
#include <cmath>
#include <cstring>
```

Include dependency graph for gdcmElement.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Element< TVR, TVM >

  Element class.
- class gdcm::Element< TVR, VM::VM1_2 >
- class gdcm::Element< TVR, VM::VM1_n >
- class gdcm::Element< TVR, VM::VM2_2n >
- class gdcm::Element< TVR, VM::VM2_n >
- class gdcm::Element< TVR, VM::VM3_3n >
- class gdcm::Element< TVR, VM::VM3_4 >
- class gdcm::Element< TVR, VM::VM3_n >
- class gdcm::Element< VR::AS, VM::VM5 >
- class gdcm::Element< VR::OB, VM::VM1 >
- class gdcm::Element< VR::OW, VM::VM1 >
- class gdcm::ElementDisableCombinations< TVR, TVM >

  A class which is used to produce compile errors for an invalid combination of template parameters.
- class gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n >
- class gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n >
- class gdcm::EncodingImplementation< VR::VRASCII >
- class gdcm::EncodingImplementation< VR::VRBINARY >
- struct gdcm::ignore_char

Namespaces

- namespace gdcm

Functions

- static int gdcm::add1 (char *buf, int n)
- ignore_char const gdcm::backslash ('\\')
- static void gdcm::clean (char *mant)
- static int gdcm::doround (char *buf, unsigned int n)
- std::istream & gdcm::operator>> (std::istream &in, ignore_char const &ic)
- static int gdcm::roundat (char *buf, size_t bufLen, unsigned int i, int iexp)
- template<typename Float>
  static void gdcm::x16printf (char *buf, int size, Float f)

13.134 gdcmElement.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
```

```
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMELEMENT_H
00015 #define GDCMELEMENT_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmVR.h"
00019 #include "gdcmTag.h"
00020 #include "gdcmVM.h"
00021 #include "gdcmByteValue.h"
00022 #include "gdcmDataElement.h"
00023 #include "gdcmSwapper.h"
00024
00025 #include <string>
00026 #include <vector>
00027 #include <sstream>
00028 #include <limits>
00029 #include <cmath>
00030 #include <cstring>
00031
00032 namespace gdcm_ns
00033 {
00034
00035 // Forward declaration
00041 template<long long T> class EncodingImplementation;
00042
00043
00051 template <long long TVR, int TVM>
00052 class ElementDisableCombinations {};
00053 template <>
00054 class  ElementDisableCombinations<VR::OB, VM::VM1_n> {};
00055 template <>
00056 class  ElementDisableCombinations<VR::OW, VM::VM1_n> {};
00057 // Make it impossible to compile these other cases
00058 template <int TVM>
00059 class  ElementDisableCombinations<VR::OB, TVM>;
00060 template <int TVM>
00061 class ElementDisableCombinations<VR::OW, TVM>;
00062
00068 template<long long TVR, int TVM>
00069 class Element
00070 {
00071   enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, TVM> ) };
00072 public:
00073   typename VRToType<TVR>::Type Internal[VMToLength<TVM>::Length];
00074   typedef typename VRToType<TVR>::Type Type;
00075
00076   static VR  GetVR()  { return (VR::VRType)TVR; }
00077   static VM  GetVM()  { return (VM::VMType)TVM; }
00078
00079   unsigned long GetLength() const {
00080     return VMToLength<TVM>::Length;
00081   }
00082   // Implementation of Print is common to all Mode (ASCII/Binary)
00083   // TODO: Can we print a \ when in ASCII...well I don't think so
00084   // it would mean we used a bad VM then, right?
00085   void Print(std::ostream &_os) const {
00086     _os << Internal[0]; // VM is at least guarantee to be one
00087     for(int i=1; i<VMToLength<TVM>::Length; ++i)
00088       _os << "," << Internal[i];
00089     }
00090
00091   const typename VRToType<TVR>::Type *GetValues() const {
00092     return Internal;
00093   }
00094   const typename VRToType<TVR>::Type &GetValue(unsigned int idx = 0) const {
00095     assert( idx < VMToLength<TVM>::Length );
00096     return Internal[idx];
00097   }
00098   typename VRToType<TVR>::Type &GetValue(unsigned int idx = 0) {
00099     assert( idx < VMToLength<TVM>::Length );
00100     return Internal[idx];
00101   }
00102   typename VRToType<TVR>::Type operator[] (unsigned int idx) const {
00103     return GetValue(idx);
00104   }
00105   void SetValue(typename VRToType<TVR>::Type v, unsigned int idx = 0) {
00106     assert( idx < VMToLength<TVM>::Length );
00107     Internal[idx] = v;
00108   }
```

```
00109
00110   void SetFromDataElement(DataElement const &de) {
00111     const ByteValue *bv = de.GetByteValue();
00112     if( !bv ) return;
00113 #ifdef GDCM_WORDS_BIGENDIAN
00114     if( de.GetVR() == VR::UN /*|| de.GetVR() == VR::INVALID*/ )
00115 #else
00116     if( de.GetVR() == VR::UN || de.GetVR() == VR::INVALID )
00117 #endif
00118       {
00119       Set(de.GetValue());
00120       }
00121     else
00122       {
00123       SetNoSwap(de.GetValue());
00124       }
00125   }
00126
00127   DataElement GetAsDataElement() const {
00128     DataElement ret;
00129     std::ostringstream os;
00130     EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00131       GetLength(),os);
00132     ret.SetVR( (VR::VRType)TVR );
00133     assert( ret.GetVR() != VR::SQ );
00134     if( (VR::VRType)VRToEncoding<TVR>::Mode == VR::VRASCII )
00135       {
00136       if( GetVR() != VR::UI )
00137         {
00138         if( os.str().size() % 2 )
00139           {
00140           os << " ";
00141           }
00142         }
00143       }
00144     VL::Type osStrSize = (VL::Type)os.str().size();
00145     ret.SetByteValue( os.str().c_str(), osStrSize );
00146
00147     return ret;
00148   }
00149
00150   void Read(std::istream &_is) {
00151     return EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00152       GetLength(),_is);
00153     }
00154   void Write(std::ostream &_os) const {
00155     return EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00156       GetLength(),_os);
00157     }
00158
00159   // FIXME: remove this function
00160   // this is only used in gdcm::SplitMosaicFilter / to pass value of a CSAElement
00161   void Set(Value const &v) {
00162     const ByteValue *bv = dynamic_cast<const ByteValue*>(&v);
00163     if( bv ) {
00164       //memcpy(Internal, bv->GetPointer(), bv->GetLength());
00165       std::stringstream ss;
00166       std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00167       ss.str( s );
00168       EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00169         GetLength(),ss);
00170     }
00171   }
00172 protected:
00173   void SetNoSwap(Value const &v) {
00174     const ByteValue *bv = dynamic_cast<const ByteValue*>(&v);
00175     assert( bv ); // That would be bad...
00176     //memcpy(Internal, bv->GetPointer(), bv->GetLength());
00177     std::stringstream ss;
00178     std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00179     ss.str( s );
00180     EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadNoSwap(Internal,
00181       GetLength(),ss);
00182   }
00183 };
00184
00185 struct ignore_char {
00186   ignore_char(char c): m_char(c) {}
00187   char m_char;
00188 };
00189 ignore_char const backslash('\\');
```

```
00190
00191   inline std::istream& operator» (std::istream& in, ignore_char const& ic) {
00192     if (!in.eof())
00193       in.clear(in.rdstate() & ~std::ios_base::failbit);
00194     if (in.get() != ic.m_char)
00195       in.setstate(std::ios_base::failbit);
00196     return in;
00197   }
00198
00199
00200 // Implementation to perform formatted read and write
00201 template<> class EncodingImplementation<VR::VRASCII> {
00202 public:
00203   template<typename T> // FIXME this should be VRToType<TVR>::Type
00204   static inline void ReadComputeLength(T* data, unsigned int &length,
00205                           std::istream &_is) {
00206     assert( data );
00207     //assert( length ); // != 0
00208     length = 0;
00209     assert( _is );
00210 #if 0
00211     char sep;
00212     while( _is » data[length++] )
00213       {
00214       // Get the separator in between the values
00215       assert( _is );
00216       _is.get(sep);
00217       assert( sep == '\\' || sep == ' ' ); // FIXME: Bad use of assert
00218       if( sep == ' ' ) length--; // FIXME
00219       }
00220 #else
00221   while( _is » std::ws » data[length++] » std::ws » backslash )
00222     {
00223     }
00224 #endif
00225     }
00226
00227   template<typename T> // FIXME this should be VRToType<TVR>::Type
00228   static inline void Read(T* data, unsigned long length,
00229                           std::istream &_is) {
00230     assert( data );
00231     assert( length ); // != 0
00232     assert( _is );
00233     // FIXME BUG: what if » operation fails ?
00234     // gdcmData/MR00010001.dcm / SpacingBetweenSlices
00235     _is » std::ws » data[0];
00236     char sep;
00237     //std::cout « "GetLength: " « af->GetLength() « std::endl;
00238     for(unsigned long i=1; i<length;++i) {
00239       //assert( _is );
00240       // Get the separator in between the values
00241       _is » std::ws » sep; //_is.get(sep);
00242       //assert( sep == '\\' ); // FIXME: Bad use of assert
00243       _is » std::ws » data[i];
00244       }
00245     }
00246
00247   template<typename T>
00248   static inline void ReadNoSwap(T* data, unsigned long length,
00249                           std::istream &_is) {
00250     Read(data,length,_is);
00251 }
00252   template<typename T>
00253   static inline void Write(const T* data, unsigned long length,
00254                            std::ostream &_os)  {
00255     assert( data );
00256     assert( length );
00257     assert( _os );
00258     _os « data[0];
00259     for(unsigned long i=1; i<length; ++i) {
00260       assert( _os );
00261       _os « "\\" « data[i];
00262       }
00263     }
00264 };
00265
00266 //#define VRDS16ILLEGAL
00267
00268 #ifdef VRDS16ILLEGAL
00269 template < typename Float >
00270 std::string to_string ( Float data ) {
```

```
00271   std::stringstream in;
00272   // in.imbue(std::locale::classic()); // This is not required AFAIK
00273   int const digits =
00274     static_cast< int >(
00275     - std::log( std::numeric_limits<Float>::epsilon() )
00276     / static_cast< Float >( std::log( 10.0 ) ) );
00277   if ( in « std::dec « std::setprecision(/*2+*/digits) « data ) {
00278     return ( in.str() );
00279   } else {
00280     throw "Impossible Conversion"; // should not happen ...
00281   }
00282 }
00283 #else
00284 //
      http://stackoverflow.com/questions/32631178/writing-ieee-754-1985-double-as-ascii-on-a-limited-16-bytes-string
00285
00286 static inline void clean(char *mant) {
00287   char *ix = mant + strlen(mant) - 1;
00288   while(('0' == *ix) && (ix > mant)) {
00289     *ix-- = '\0';
00290   }
00291   if ('.' == *ix) {
00292     *ix = '\0';
00293   }
00294 }
00295
00296 static int add1(char *buf, int n) {
00297   if (n < 0) return 1;
00298   if (buf[n] == '9') {
00299     buf[n] = '0';
00300     return add1(buf, n-1);
00301   }
00302   else {
00303     buf[n] = (char)(buf[n] + 1);
00304   }
00305   return 0;
00306 }
00307
00308 static int doround(char *buf, unsigned int n) {
00309   char c;
00310   if (n >= strlen(buf)) return 0;
00311   c = buf[n];
00312   buf[n] = 0;
00313   if ((c >= '5') && (c <= '9')) return add1(buf, n-1);
00314   return 0;
00315 }
00316
00317 #if defined(_MSC_VER) && (_MSC_VER < 1900)
00318 #define snprintf _snprintf
00319 #endif
00320
00321 static int roundat(char *buf, size_t bufLen, unsigned int i, int iexp) {
00322   if (doround(buf, i) != 0) {
00323     iexp += 1;
00324     switch(iexp) {
00325     case -2:
00326       strcpy(buf, ".01");
00327       break;
00328     case -1:
00329       strcpy(buf, ".1");
00330       break;
00331     case 0:
00332       strcpy(buf, "1.");
00333       break;
00334     case 1:
00335       strcpy(buf, "10");
00336       break;
00337     case 2:
00338       strcpy(buf, "100");
00339       break;
00340     default:
00341       snprintf(buf, bufLen, "1e%d", iexp);
00342     }
00343     return 1;
00344   }
00345   return 0;
00346 }
00347
00348 template < typename Float >
00349 static void x16printf(char *buf, int size, Float f) {
00350   char line[40];
```

```
00351   char *mant = line + 1;
00352   int iexp, lexp, i;
00353   char exp[6];
00354
00355   if (f < 0) {
00356     f = -f;
00357     size -= 1;
00358     *buf++ = '-';
00359   }
00360   snprintf(line, sizeof(line), "%1.16e", f);
00361   if (line[0] == '-') {
00362     f = -f;
00363     size -= 1;
00364     *buf++ = '-';
00365     snprintf(line, sizeof(line), "%1.16e", f);
00366   }
00367   *mant = line[0];
00368   i = (int)strcspn(mant, "eE");
00369   mant[i] = '\0';
00370   iexp = (int)strtol(mant + i + 1, nullptr, 10);
00371   lexp = snprintf(exp, sizeof(exp), "e%d", iexp);
00372   if ((iexp >= size) || (iexp < -3)) {
00373     i = roundat(mant, sizeof(line) - 1, size - 1 -lexp, iexp);
00374     if(i == 1) {
00375       strcpy(buf, mant);
00376       return;
00377     }
00378     buf[0] = mant[0];
00379     buf[1] = '.';
00380     strncpy(buf + i + 2, mant + 1, size - 2 - lexp);
00381     buf[size-lexp] = 0;
00382     clean(buf);
00383     strcat(buf, exp);
00384   }
00385   else if (iexp >= size - 2) {
00386     roundat(mant, sizeof(line) - 1, iexp + 1, iexp);
00387     strcpy(buf, mant);
00388   }
00389   else if (iexp >= 0) {
00390     i = roundat(mant, sizeof(line) - 1, size - 1, iexp);
00391     if (i == 1) {
00392       strcpy(buf, mant);
00393       return;
00394     }
00395     strncpy(buf, mant, iexp + 1);
00396     buf[iexp + 1] = '.';
00397     strncpy(buf + iexp + 2, mant + iexp + 1, size - iexp - 1);
00398     buf[size] = 0;
00399     clean(buf);
00400   }
00401   else {
00402     int j;
00403     i = roundat(mant, sizeof(line) - 1, size + 1 + iexp, iexp);
00404     if (i == 1) {
00405       strcpy(buf, mant);
00406       return;
00407     }
00408     buf[0] = '.';
00409     for(j=0; j< -1 - iexp; j++) {
00410       buf[j+1] = '0';
00411     }
00412     strncpy(buf - iexp, mant, size + 1 + iexp);
00413     buf[size] = 0;
00414     clean(buf);
00415   }
00416 }
00417 #if defined(_MSC_VER) && (_MSC_VER < 1900)
00418 #undef snprintf
00419 #endif
00420
00421 #endif
00422
00423 template<> inline void EncodingImplementation<VR::VRASCII>::Write(const double* data, unsigned long
      length, std::ostream &_os)  {
00424     assert( data );
00425     assert( length );
00426     assert( _os );
00427 #ifdef VRDS16ILLEGAL
00428     _os << to_string(data[0]);
00429 #else
00430     char buf[16+1];
```

```
00431     x16printf(buf, 16, data[0]);
00432     _os « buf;
00433 #endif
00434     for(unsigned long i=1; i<length; ++i) {
00435       assert( _os );
00436 #ifdef VRDS16ILLEGAL
00437       _os « "\\" « to_string(data[i]);
00438 #else
00439       x16printf(buf, 16, data[i]);
00440       _os « "\\" « buf;
00441 #endif
00442       }
00443     }
00444
00445
00446 // Implementation to perform binary read and write
00447 // TODO rewrite operation so that either:
00448 // #1. dummy implementation use a pointer to Internal and do ++p (faster)
00449 // #2. Actually do some meta programming to unroll the loop
00450 // (no notion of order in VM ...)
00451 template<> class EncodingImplementation<VR::VRBINARY> {
00452 public:
00453   template<typename T> // FIXME this should be VRToType<TVR>::Type
00454     static inline void ReadComputeLength(T* data, unsigned int &length,
00455       std::istream &_is) {
00456     const unsigned int type_size = sizeof(T);
00457     assert( data ); // Can we read from pointer ?
00458     //assert( length );
00459     length /= type_size;
00460     assert( _is ); // Is stream valid ?
00461     _is.read( reinterpret_cast<char*>(data+0), type_size);
00462     for(unsigned long i=1; i<length; ++i) {
00463       assert( _is );
00464       _is.read( reinterpret_cast<char*>(data+i), type_size );
00465     }
00466     }
00467   template<typename T>
00468   static inline void ReadNoSwap(T* data, unsigned long length,
00469     std::istream &_is) {
00470     const unsigned int type_size = sizeof(T);
00471     assert( data ); // Can we read from pointer ?
00472     assert( length );
00473     assert( _is ); // Is stream valid ?
00474     _is.read( reinterpret_cast<char*>(data+0), type_size);
00475     for(unsigned long i=1; i<length; ++i) {
00476       if( _is )
00477       _is.read( reinterpret_cast<char*>(data+i), type_size );
00478     }
00479     //ByteSwap<T>::SwapRangeFromSwapCodeIntoSystem(data,
00480     //  _is.GetSwapCode(), length);
00481     //SwapperNoOp::SwapArray(data,length);
00482   }
00483   template<typename T>
00484   static inline void Read(T* data, unsigned long length,
00485     std::istream &_is) {
00486     const unsigned int type_size = sizeof(T);
00487     assert( data ); // Can we read from pointer ?
00488     assert( length );
00489     assert( _is ); // Is stream valid ?
00490     _is.read( reinterpret_cast<char*>(data+0), type_size);
00491     for(unsigned long i=1; i<length; ++i) {
00492       if( _is )
00493       _is.read( reinterpret_cast<char*>(data+i), type_size );
00494     }
00495     //ByteSwap<T>::SwapRangeFromSwapCodeIntoSystem(data,
00496     //  _is.GetSwapCode(), length);
00497     SwapperNoOp::SwapArray(data,length);
00498   }
00499   template<typename T>
00500   static inline void Write(const T* data, unsigned long length,
00501     std::ostream &_os) {
00502     const unsigned int type_size = sizeof(T);
00503     assert( data ); // Can we write into pointer ?
00504     assert( length );
00505     assert( _os ); // Is stream valid ?
00506     //ByteSwap<T>::SwapRangeFromSwapCodeIntoSystem((T*)data,
00507     //  _os.GetSwapCode(), length);
00508     T swappedData = SwapperNoOp::Swap(data[0]);
00509     _os.write( reinterpret_cast<const char*>(&swappedData), type_size);
00510     for(unsigned long i=1; i<length;++i) {
00511       assert( _os );
```

```
00512       swappedData = SwapperNoOp::Swap(data[i]);
00513       _os.write( reinterpret_cast<const char*>(&swappedData), type_size );
00514     }
00515     //ByteSwap<T>::SwapRangeFromSwapCodeIntoSystem((T*)data,
00516     //  _os.GetSwapCode(), length);
00517   }
00518 };
00519
00520 // For particular case for ASCII string
00521 // WARNING: This template explicitly instantiates a particular
00522 // EncodingImplementation THEREFORE it is required to be declared after the
00523 // EncodingImplementation is needs (doh!)
00524 #if 0
00525 template<int TVM>
00526 class Element<TVM>
00527 {
00528 public:
00529   Element(const char array[])
00530     {
00531     unsigned int i = 0;
00532     const char sep = '\\';
00533     std::string sarray = array;
00534     std::string::size_type pos1 = 0;
00535     std::string::size_type pos2 = sarray.find(sep, pos1+1);
00536     while(pos2 != std::string::npos)
00537       {
00538       Internal[i++] = sarray.substr(pos1, pos2-pos1);
00539       pos1 = pos2+1;
00540       pos2 = sarray.find(sep, pos1+1);
00541       }
00542     Internal[i] = sarray.substr(pos1, pos2-pos1);
00543     // Shouldn't we do the contrary, since we know how many separators
00544     // (and default behavior is to discard anything after the VM declared
00545     assert( GetLength()-1 == i );
00546     }
00547
00548   unsigned long GetLength() const {
00549     return VMToLength<TVM>::Length;
00550   }
00551   // Implementation of Print is common to all Mode (ASCII/Binary)
00552   void Print(std::ostream &_os) const {
00553     _os « Internal[0]; // VM is at least guarantee to be one
00554     for(int i=1; i<VMToLength<TVM>::Length; ++i)
00555       _os « "," « Internal[i];
00556     }
00557
00558   void Read(std::istream &_is) {
00559     EncodingImplementation<VR::VRASCII>::Read(Internal, GetLength(),_is);
00560     }
00561   void Write(std::ostream &_os) const {
00562     EncodingImplementation<VR::VRASCII>::Write(Internal, GetLength(),_os);
00563     }
00564 private:
00565   typename String Internal[VMToLength<TVM>::Length];
00566 };
00567
00568 template< int TVM>
00569 class Element<VR::PN, TVM> : public StringElement<TVM>
00570 {
00571   enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<VR::PN, TVM> ) };
00572 };
00573 #endif
00574
00575 // Implementation for the undefined length (dynamically allocated array)
00576 template<long long TVR>
00577 class Element<TVR, VM::VM1_n>
00578 {
00579   enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, VM::VM1_n> ) };
00580 public:
00581   // This the way to prevent default initialization
00582   explicit Element() { Internal=nullptr; Length=0; Save = false; }
00583   ~Element() {
00584     if( Save ) {
00585       delete[] Internal;
00586     }
00587     Internal = nullptr;
00588   }
00589
00590   static VR  GetVR()  { return (VR::VRType)TVR; }
00591   static VM  GetVM()  { return VM::VM1_n; }
00592
```

```
00593   // Length manipulation
00594   // SetLength should really be protected anyway...all operation
00595   // should go through SetArray
00596   unsigned long GetLength() const { return Length; }
00597   typedef typename VRToType<TVR>::Type Type;
00598
00599   void SetLength(unsigned long len) {
00600     const unsigned int size = sizeof(Type);
00601     if( len ) {
00602       if( len > Length ) {
00603         // perform realloc
00604         assert( (len / size) * size == len );
00605         Type *internal = new Type[len / size];
00606         assert( Save == false );
00607         Save = true; // ????
00608         if( Internal )
00609           {
00610           memcpy(internal, Internal, len);
00611           delete[] Internal;
00612           }
00613         Internal = internal;
00614         }
00615       }
00616     Length = len / size;
00617   }
00618
00619   // If save is set to zero user should not delete the pointer
00620   //void SetArray(const typename VRToType<TVR>::Type *array, int len, bool save = false)
00621   void SetArray(const Type *array, unsigned long len,
00622     bool save = false) {
00623     if( save ) {
00624       SetLength(len); // realloc
00625       memcpy(Internal, array, len/*/sizeof(Type)*/);
00626       assert( Save == false );
00627       }
00628     else {
00629       // TODO rewrite this stupid code:
00630       assert( Length == 0 );
00631       assert( Internal == nullptr );
00632       assert( Save == false );
00633       Length = len / sizeof(Type);
00634       //assert( (len / sizeof(Type)) * sizeof(Type) == len );
00635       // MR00010001.dcm is a tough kid: 0019,105a is supposed to be VR::FL, VM::VM3 but
00636       // length is 14 bytes instead of 12 bytes. Simply consider value is total garbage.
00637       if( (len / sizeof(Type)) * sizeof(Type) != len ) { Internal = nullptr; Length = 0; }
00638       else Internal = const_cast<Type*>(array);
00639       }
00640       Save = save;
00641   }
00642   void SetValue(typename VRToType<TVR>::Type v, unsigned int idx = 0) {
00643     assert( idx < Length );
00644     Internal[idx] = v;
00645   }
00646   const typename VRToType<TVR>::Type &GetValue(unsigned int idx = 0) const {
00647     assert( idx < Length );
00648     return Internal[idx];
00649   }
00650   typename VRToType<TVR>::Type &GetValue(unsigned int idx = 0) {
00651     //assert( idx < Length );
00652     return Internal[idx];
00653   }
00654   typename VRToType<TVR>::Type operator[] (unsigned int idx) const {
00655     return GetValue(idx);
00656   }
00657   void Set(Value const &v) {
00658     const ByteValue *bv = dynamic_cast<const ByteValue*>(&v);
00659     assert( bv ); // That would be bad...
00660     if( (VR::VRType)(VRToEncoding<TVR>::Mode) == VR::VRBINARY )
00661       {
00662       const Type* array = (const Type*)bv->GetVoidPointer();
00663       if( array ) {
00664         assert( array ); // That would be bad...
00665         assert( Internal == nullptr );
00666         SetArray(array, bv->GetLength() ); }
00667       }
00668     else
00669       {
00670       std::stringstream ss;
00671       std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00672       ss.str( s );
00673       EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
```

```
00674         GetLength(),ss);
00675       }
00676   }
00677   void SetFromDataElement(DataElement const &de) {
00678     const ByteValue *bv = de.GetByteValue();
00679     if( !bv ) return;
00680 #ifdef GDCM_WORDS_BIGENDIAN
00681     if( de.GetVR() == VR::UN /*|| de.GetVR() == VR::INVALID*/ )
00682 #else
00683     if( de.GetVR() == VR::UN || de.GetVR() == VR::INVALID )
00684 #endif
00685       {
00686       Set(de.GetValue());
00687       }
00688     else
00689       {
00690       SetNoSwap(de.GetValue());
00691       }
00692   }
00693
00694
00695   // Need to be placed after definition of EncodingImplementation<VR::VRASCII>
00696   void WriteASCII(std::ostream &os) const {
00697     return EncodingImplementation<VR::VRASCII>::Write(Internal, GetLength(), os);
00698     }
00699
00700   // Implementation of Print is common to all Mode (ASCII/Binary)
00701   void Print(std::ostream &_os) const {
00702     assert( Length );
00703     assert( Internal );
00704     _os « Internal[0]; // VM is at least guarantee to be one
00705     const unsigned long length = GetLength() < 25 ? GetLength() : 25;
00706     for(unsigned long i=1; i<length; ++i)
00707       _os « "," « Internal[i];
00708     }
00709   void Read(std::istream &_is) {
00710     if( !Internal ) return;
00711     EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00712       GetLength(),_is);
00713     }
00714   //void ReadComputeLength(std::istream &_is) {
00715   //  if( !Internal ) return;
00716   //  EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadComputeLength(Internal,
00717   //    Length,_is);
00718   //  }
00719   void Write(std::ostream &_os) const {
00720     EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00721       GetLength(),_os);
00722     }
00723
00724   DataElement GetAsDataElement() const {
00725     DataElement ret;
00726     ret.SetVR( (VR::VRType)TVR );
00727     assert( ret.GetVR() != VR::SQ );
00728     if( Internal )
00729       {
00730       std::ostringstream os;
00731       EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00732         GetLength(),os);
00733       if( (VR::VRType)VRToEncoding<TVR>::Mode == VR::VRASCII )
00734         {
00735         if( GetVR() != VR::UI )
00736           {
00737           if( os.str().size() % 2 )
00738             {
00739             os « " ";
00740             }
00741           }
00742         }
00743       VL::Type osStrSize = (VL::Type)os.str().size();
00744       ret.SetByteValue( os.str().c_str(), osStrSize );
00745       }
00746     return ret;
00747   }
00748
00749   Element(const Element&_val) {
00750     if( this != &_val) {
00751       *this = _val;
00752       }
00753     }
00754
```

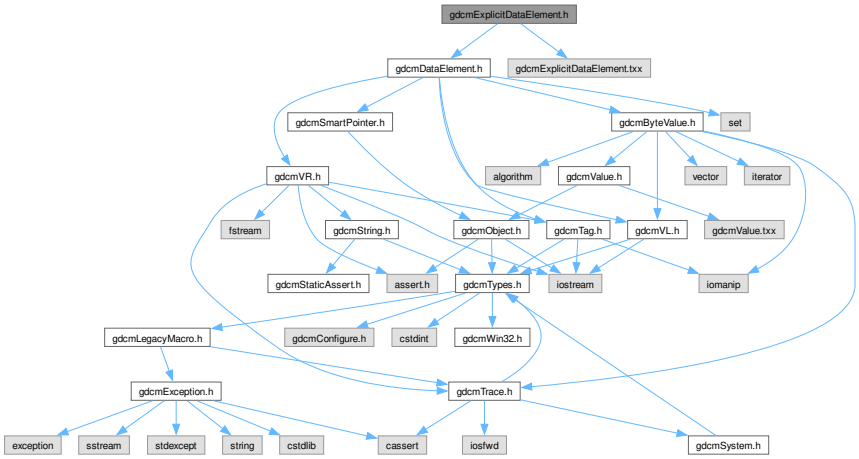
```
00755   Element &operator=(const Element &_val) {
00756     Length = 0; // SYITF
00757     Internal = 0;
00758     SetArray(_val.Internal, _val.Length, true);
00759     return *this;
00760     }
00761 protected:
00762   void SetNoSwap(Value const &v) {
00763     const ByteValue *bv = dynamic_cast<const ByteValue*>(&v);
00764     assert( bv ); // That would be bad...
00765     if( (VR::VRType)(VRToEncoding<TVR>::Mode) == VR::VRBINARY )
00766       {
00767       const Type* array = (const Type*)bv->GetPointer();
00768       if( array ) {
00769         assert( array ); // That would be bad...
00770         assert( Internal == nullptr );
00771         SetArray(array, bv->GetLength() ); }
00772       }
00773     else
00774       {
00775       std::stringstream ss;
00776       std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00777       ss.str( s );
00778       EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadNoSwap(Internal,
00779         GetLength(),ss);
00780       }
00781   }
00782
00783 private:
00784   typename VRToType<TVR>::Type *Internal;
00785   unsigned long Length; // unsigned int ??
00786   bool Save;
00787 };
00788
00789 //template <int TVM = VM::VM1_n>
00790 //class Element<VR::OB, TVM > : public Element<VR::OB, VM::VM1_n> {};
00791
00792 // Partial specialization for derivatives of 1-n : 2-n, 3-n ...
00793 template<long long TVR>
00794 class Element<TVR, VM::VM1_2> : public Element<TVR, VM::VM1_n>
00795 {
00796 public:
00797   typedef Element<TVR, VM::VM1_n> Parent;
00798   void SetLength(int len) {
00799     if( len != 1 && len != 2 ) return;
00800     Parent::SetLength(len);
00801   }
00802 };
00803 template<long long TVR>
00804 class Element<TVR, VM::VM2_n> : public Element<TVR, VM::VM1_n>
00805 {
00806   enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, VM::VM2_n> ) };
00807 public:
00808   typedef Element<TVR, VM::VM1_n> Parent;
00809   void SetLength(int len) {
00810     if( len <= 1 ) return;
00811     Parent::SetLength(len);
00812   }
00813 };
00814 template<long long TVR>
00815 class Element<TVR, VM::VM2_2n> : public Element<TVR, VM::VM2_n>
00816 {
00817   enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, VM::VM2_2n> ) };
00818 public:
00819   typedef Element<TVR, VM::VM2_n> Parent;
00820   void SetLength(int len) {
00821     if( len % 2 ) return;
00822     Parent::SetLength(len);
00823   }
00824 };
00825 template<long long TVR>
00826 class Element<TVR, VM::VM3_n> : public Element<TVR, VM::VM1_n>
00827 {
00828   enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, VM::VM3_n> ) };
00829 public:
00830   typedef Element<TVR, VM::VM1_n> Parent;
00831   void SetLength(int len) {
00832     if( len <= 2 ) return;
00833     Parent::SetLength(len);
00834   }
00835 };
```

```
00836 template<long long TVR>
00837 class Element<TVR, VM::VM3_3n> : public Element<TVR, VM::VM3_n>
00838 {
00839   enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, VM::VM3_3n> ) };
00840 public:
00841   typedef Element<TVR, VM::VM3_n> Parent;
00842   void SetLength(int len) {
00843     if( len % 3 ) return;
00844     Parent::SetLength(len);
00845   }
00846 };
00847 template<long long TVR>
00848 class Element<TVR, VM::VM3_4> : public Element<TVR, VM::VM1_n>
00849 {
00850 public:
00851   typedef Element<TVR, VM::VM1_n> Parent;
00852   void SetLength(int len) {
00853     if( len != 3 && len != 4 ) return;
00854     Parent::SetLength(len);
00855   }
00856 };
00857
00858
00859 //template<int T> struct VRToLength;
00860 //template <> struct VRToLength<VR::AS>
00861 //{ enum { Length  = VM::VM1 }; }
00862 //template<>
00863 //class Element<VR::AS> : public Element<VR::AS, VRToLength<VR::AS>::Length >
00864
00865 // only 0010 1010 AS 1 Patient's Age
00866 template<>
00867 class Element<VR::AS, VM::VM5>
00868 {
00869   enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<VR::AS, VM::VM5> ) };
00870 public:
00871   char Internal[VMToLength<VM::VM5>::Length * sizeof( VRToType<VR::AS>::Type )];
00872   void Print(std::ostream &_os) const {
00873     _os << Internal;
00874     }
00875   unsigned long GetLength() const {
00876     return VMToLength<VM::VM5>::Length;
00877   }
00878 };
00879
00880
00881 template <>
00882 class Element<VR::OB, VM::VM1> : public Element<VR::OB, VM::VM1_n> {};
00883
00884 // Same for OW:
00885 template <>
00886 class Element<VR::OW, VM::VM1> : public Element<VR::OW, VM::VM1_n> {};
00887
00888
00889 } // namespace gdcm_ns
00890
00891 #endif //GDCMELEMENT_H
```

13.135 gdcmExplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmExplicitDataElement.txx"
```

Include dependency graph for gdcmExplicitDataElement.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::ExplicitDataElement

  Class to read/write a DataElement as Explicit Data Element.

Namespaces

- namespace gdcm

13.136 gdcmExplicitDataElement.h

Go to the documentation of this file.

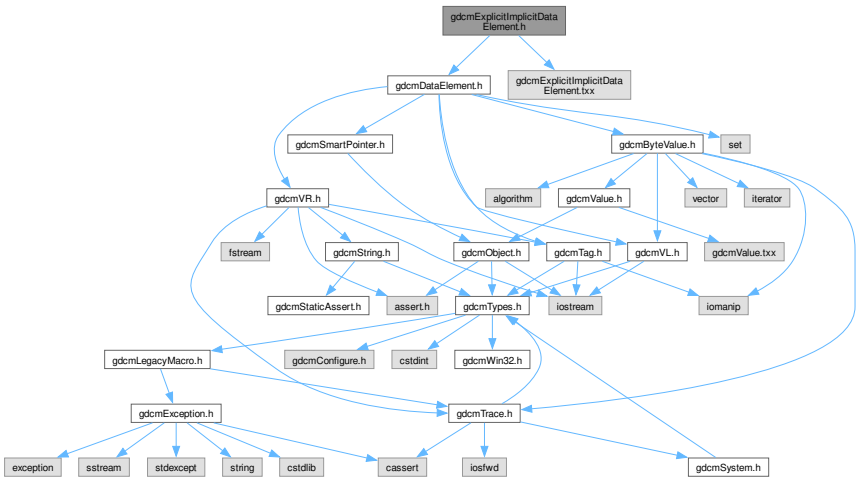
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
```

```
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMEXPLICITDATAELEMENT_H
00015 #define GDCMEXPLICITDATAELEMENT_H
00016
00017 #include "gdcmDataElement.h"
00018
00019 namespace gdcm_ns
00020 {
00025 class GDCM_EXPORT ExplicitDataElement : public DataElement
00026 {
00027 public:
00028   VL GetLength() const;
00029
00030   template <typename TSwap>
00031   std::istream &Read(std::istream &is);
00032
00033   template <typename TSwap>
00034   std::istream &ReadPreValue(std::istream &is);
00035
00036   template <typename TSwap>
00037   std::istream &ReadValue(std::istream &is, bool readvalues = true);
00038
00039   template <typename TSwap>
00040   std::istream &ReadWithLength(std::istream &is, VL & length);
00041
00042   template <typename TSwap>
00043   const std::ostream &Write(std::ostream &os) const;
00044 };
00045
00046 } // end namespace gdcm_ns
00047
00048 #include "gdcmExplicitDataElement.txx"
00049
00050 #endif //GDCMEXPLICITDATAELEMENT_H
```

13.137 gdcmExplicitImplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmExplicitImplicitDataElement.txx"
```

Include dependency graph for gdcmExplicitImplicitDataElement.h:



Classes

- class gdcm::ExplicitImplicitDataElement

  Class to read/write a DataElement as ExplicitImplicit Data Element.

Namespaces

- namespace gdcm

13.138 gdcmExplicitImplicitDataElement.h

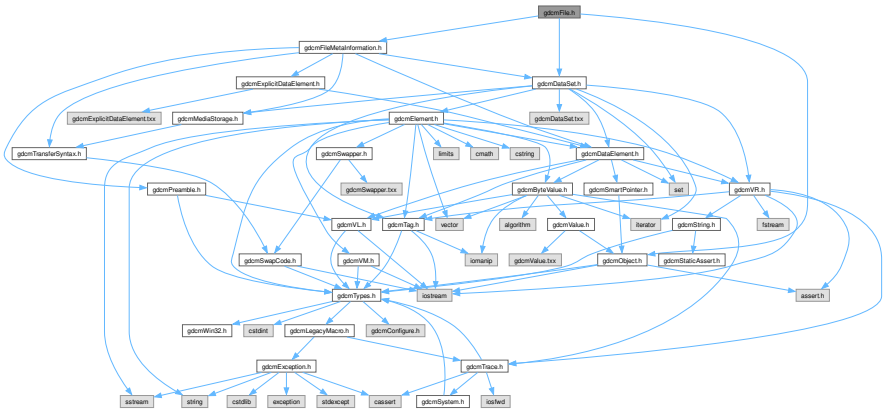
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMEXPLICITIMPLICITDATAELEMENT_H
00015 #define GDCMEXPLICITIMPLICITDATAELEMENT_H
00016
00017 #include "gdcmDataElement.h"
00018
00019 namespace gdcm
00020 {
00021 // Data Element (ExplicitImplicit)
00029 class GDCM_EXPORT ExplicitImplicitDataElement : public DataElement
00030 {
00031 public:
00032   VL GetLength() const;
00033
00034   template <typename TSwap>
00035   std::istream &Read(std::istream &is);
00036
00037   template <typename TSwap>
00038   std::istream &ReadPreValue(std::istream &is);
00039
00040   template <typename TSwap>
00041   std::istream &ReadValue(std::istream &is, bool readvalues = true);
00042
00043   template <typename TSwap>
00044   std::istream &ReadWithLength(std::istream &is, VL & length)
00045     {
00046     (void)length;
00047     return Read<TSwap>(is);
00048     }
00049
00050   // PURPOSELY do not provide an implementation for writing !
00051   //template <typename TSwap>
00052   //const std::ostream &Write(std::ostream &os) const;
00053 };
00054
00055 } // end namespace gdcm
00056
00057 #include "gdcmExplicitImplicitDataElement.txx"
00058
00059 #endif //GDCMEXPLICITIMPLICITDATAELEMENT_H
```

13.139 gdcmFile.h File Reference

```
#include "gdcmObject.h"
#include "gdcmDataSet.h"
#include "gdcmFileMetaInformation.h"
```

Include dependency graph for gdcmFile.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::File

  a DICOM File

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const File &val)

13.140 gdcmFile.h

Go to the documentation of this file.

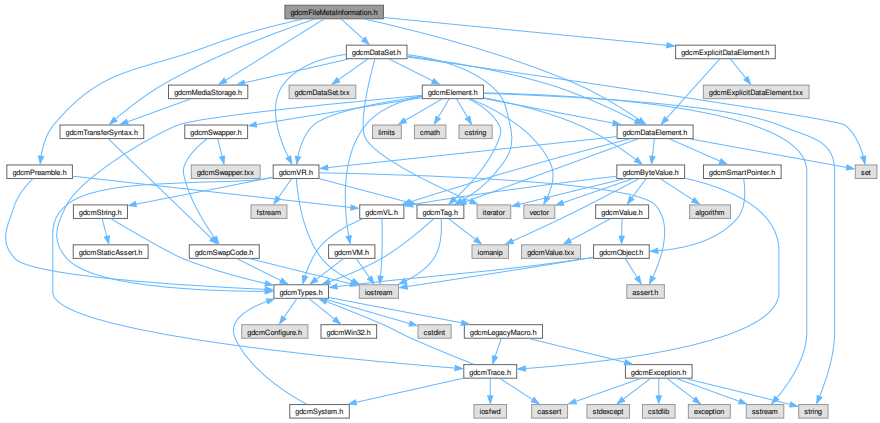
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILE_H
00015 #define GDCMFILE_H
00016
00017 #include "gdcmObject.h"
00018 #include "gdcmDataSet.h"
00019 #include "gdcmFileMetaInformation.h"
00020
00021 namespace gdcm_ns
00022 {
00023
00033 class GDCM_EXPORT File : public Object
00034 {
00035 public:
00036   File();
00037   ~File() override;
00038
00039   friend std::ostream &operator<<(std::ostream &os, const File &val);
00040
00042   std::istream &Read(std::istream &is);
00043
00045   std::ostream const &Write(std::ostream &os) const;
00046
00048   const FileMetaInformation &GetHeader() const { return Header; }
00049
00051   FileMetaInformation &GetHeader() { return Header; }
00052
00054   void SetHeader( const FileMetaInformation &fmi ) { Header = fmi; }
00055
00057   const DataSet &GetDataSet() const { return DS; }
00058
00060   DataSet &GetDataSet() { return DS; }
00061
00063   void SetDataSet( const DataSet &ds) { DS = ds; }
00064
00065 private:
00066   FileMetaInformation Header;
00067   DataSet DS;
00068 };
00069 //-----------------------------------------------------------------------------
00070 inline std::ostream& operator<<(std::ostream &os, const File &val)
00071 {
00072   os << val.GetHeader() << std::endl;
00073   //os << val.GetDataSet() << std::endl; // FIXME
00074   assert(0);
00075   return os;
00076 }
00077
00078 } // end namespace gdcm_ns
00079
00080 #endif //GDCMFILE_H
```

13.141 gdcmFileMetaInformation.h File Reference

```
#include "gdcmPreamble.h"
#include "gdcmDataSet.h"
```

```
#include "gdcmDataElement.h"
#include "gdcmMediaStorage.h"
#include "gdcmTransferSyntax.h"
#include "gdcmExplicitDataElement.h"
```

Include dependency graph for gdcmFileMetaInformation.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::FileMetaInformation

  Class to represent a File Meta Information.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const FileMetaInformation &val)

13.142 gdcmFileMetaInformation.h

Go to the documentation of this file.

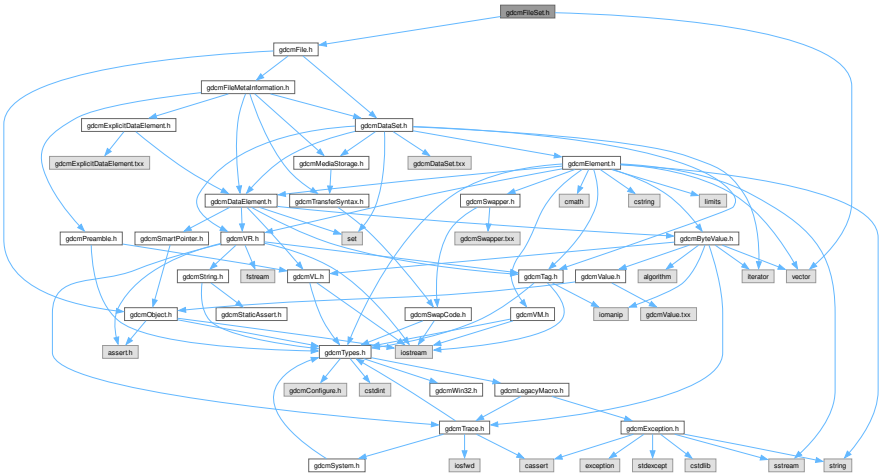
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILEMETAINFORMATION_H
00015 #define GDCMFILEMETAINFORMATION_H
00016
00017 #include "gdcmPreamble.h"
00018 #include "gdcmDataSet.h"
00019 #include "gdcmDataElement.h"
00020 #include "gdcmMediaStorage.h"
00021 #include "gdcmTransferSyntax.h"
00022 #include "gdcmExplicitDataElement.h"
00023
00024 namespace gdcm_ns
00025 {
00040 class GDCM_EXPORT FileMetaInformation : public DataSet
00041 {
00042 public:
00043   // FIXME: TransferSyntax::TS_END -> TransferSyntax::ImplicitDataElement
00044   FileMetaInformation();
00045   ~FileMetaInformation();
00046
00047   friend std::ostream &operator<<(std::ostream &_os, const FileMetaInformation &_val);
00048
00049   bool IsValid() const { return true; }
00050
00051   TransferSyntax::NegociatedType GetMetaInformationTS() const { return MetaInformationTS; }
00052   void SetDataSetTransferSyntax(const TransferSyntax &ts);
00053   const TransferSyntax &GetDataSetTransferSyntax() const { return DataSetTS; }
00054   MediaStorage GetMediaStorage() const;
00055   std::string GetMediaStorageAsString() const;
00056
00057   // FIXME: no virtual function means: duplicate code...
00058   void Insert(const DataElement& de) {
00059     if( de.GetTag().GetGroup() == 0x0002 )
00060       {
00061       InsertDataElement( de );
00062       }
00063     else
00064       {
00065       gdcmErrorMacro( "Cannot add element with group != 0x0002 in the file meta header: " << de );
00066       }
00067   }
00068   void Replace(const DataElement& de) {
00069     Remove(de.GetTag());
00070     Insert(de);
00071   }
00072
00074   std::istream &Read(std::istream &is);
00075   std::istream &ReadCompat(std::istream &is);
00076
00078   std::ostream &Write(std::ostream &os) const;
00079
00081   void FillFromDataSet(DataSet const &ds);
00082
00084   const Preamble &GetPreamble() const { return P; }
00085   Preamble &GetPreamble() { return P; }
00086   void SetPreamble(const Preamble &p) { P = p; }
00087
00089   static void SetImplementationClassUID(const char * imp);
00090   static void AppendImplementationClassUID(const char * imp);
00091   static const char *GetImplementationClassUID();
00092   static void SetImplementationVersionName(const char * version);
00093   static const char *GetImplementationVersionName();
00094   static void SetSourceApplicationEntityTitle(const char * title);
```

```
00095   static const char *GetSourceApplicationEntityTitle();
00096
00097   FileMetaInformation(FileMetaInformation const& fmi) = default;
00098   FileMetaInformation& operator=(const FileMetaInformation& fmi) = default;
00099
00100     VL GetFullLength() const {
00101       return P.GetLength() + DataSet::GetLength<ExplicitDataElement>();
00102     }
00103
00104 protected:
00105   void ComputeDataSetTransferSyntax(); // FIXME
00106
00107   template <typename TSwap>
00108   std::istream &ReadCompatInternal(std::istream &is);
00109
00110   void Default();
00111   void ComputeDataSetMediaStorageSOPClass();
00112
00113   TransferSyntax DataSetTS;
00114   TransferSyntax::NegociatedType MetaInformationTS;
00115   MediaStorage::MSType DataSetMS;
00116
00117 protected:
00118   static const char * GetFileMetaInformationVersion();
00119   static const char * GetGDCMImplementationClassUID();
00120   static const char * GetGDCMImplementationVersionName();
00121   static const char * GetGDCMSourceApplicationEntityTitle();
00122
00123 private:
00124   Preamble P;
00125
00126 //static stuff:
00127   static const char GDCM_FILE_META_INFORMATION_VERSION[];
00128   static const char GDCM_IMPLEMENTATION_CLASS_UID[];
00129   static const char GDCM_IMPLEMENTATION_VERSION_NAME[];
00130   static const char GDCM_SOURCE_APPLICATION_ENTITY_TITLE[];
00131   static std::string ImplementationClassUID;
00132   static std::string ImplementationVersionName;
00133   static std::string SourceApplicationEntityTitle;
00134 };
00135 //-----------------------------------------------------------------------------
00136 inline std::ostream& operator<<(std::ostream &os, const FileMetaInformation &val)
00137 {
00138   os << val.GetPreamble() << std::endl;
00139   val.Print( os );
00140   return os;
00141 }
00142
00143 } // end namespace gdcm_ns
00144
00145 #endif //GDCMFILEMETAINFORMATION_H
```

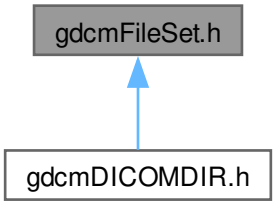
13.143 gdcmFileSet.h File Reference

```
#include "gdcmFile.h"
#include <vector>
```

Include dependency graph for gdcmFileSet.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::FileSet

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const FileSet &f)

13.144 gdcmFileSet.h

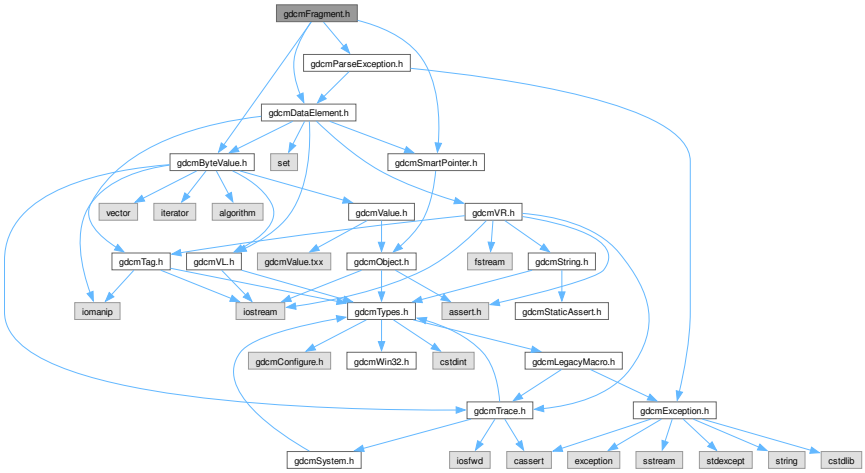
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILESET_H
00015 #define GDCMFILESET_H
00016
00017 #include "gdcmFile.h"
00018 #include <vector>
00019
00020 namespace gdcm
00021 {
00026 class GDCM_EXPORT FileSet
00027 {
00028   friend std::ostream& operator<<(std::ostream &_os, const FileSet &d);
00029 public:
00030   FileSet():Files() {}
00031   typedef std::string FileType;
00032   typedef std::vector<FileType> FilesType;
00033
00035   void AddFile(File const & ) {}
00036
00039   bool AddFile(const char *filename);
00040
00041   void SetFiles(FilesType const &files);
00042   FilesType const &GetFiles() const {
00043     return Files;
00044   }
00045
00046 private:
00047   FilesType Files;
00048 };
00049 //-----------------------------------------------------------------------------
00050 inline std::ostream& operator<<(std::ostream &os, const FileSet &f)
00051 {
00052   (void)f; // FIXME
00053   return os;
00054 }
00055
00056 } // end namespace gdcm
00057
00058 #endif //GDCMFILESET_H
```

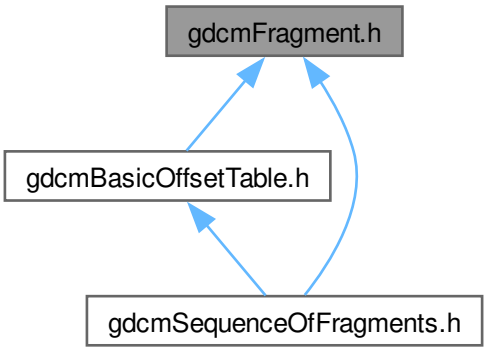
13.145 gdcmFragment.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"
#include "gdcmParseException.h"
```

Include dependency graph for gdcmFragment.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Fragment

  Class to represent a Fragment.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Fragment &val)

13.146 gdcmFragment.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFRAGMENT_H
00015 #define GDCMFRAGMENT_H
00016
00017 #include "gdcmDataElement.h"
00018 #include "gdcmByteValue.h"
00019 #include "gdcmSmartPointer.h"
00020 #include "gdcmParseException.h"
00021
00022 namespace gdcm_ns
00023 {
00024
00025 // Implementation detail:
00026 // I think Fragment should be a protected subclass of DataElement:
00027 // looking somewhat like this:
00028 /*
00029 class GDCM_EXPORT Fragment : protected DataElement
00030 {
00031 public:
00032   using DataElement::GetTag;
00033   using DataElement::GetVL;
00034   using DataElement::SetByteValue;
00035   using DataElement::GetByteValue;
00036   using DataElement::GetValue;
00037 */
00038 // Instead I am only hiding the SetTag member...
00039
00043 class GDCM_EXPORT Fragment : public DataElement
00044 {
00045 //protected:
00046 //  void SetTag(const Tag &t);
00047 public:
00048   Fragment() : DataElement(Tag(0xfffe, 0xe000), 0) {}
00049   friend std::ostream &operator«(std::ostream &os, const Fragment &val);
00050
00051   VL GetLength() const;
00052
00053   VL ComputeLength() const;
00054
00055   template <typename TSwap>
00056   std::istream &Read(std::istream &is)
00057     {
00058     ReadPreValue<TSwap>(is);
00059     return ReadValue<TSwap>(is);
00060     }
00061
00062   template <typename TSwap>
00063   std::istream &ReadPreValue(std::istream &is)
00064     {
00065     TagField.Read<TSwap>(is);
00066     if( !is )
00067       {
00068       //  BogusItemStartItemEnd.dcm
00069       throw Exception( "Problem #1" );
```

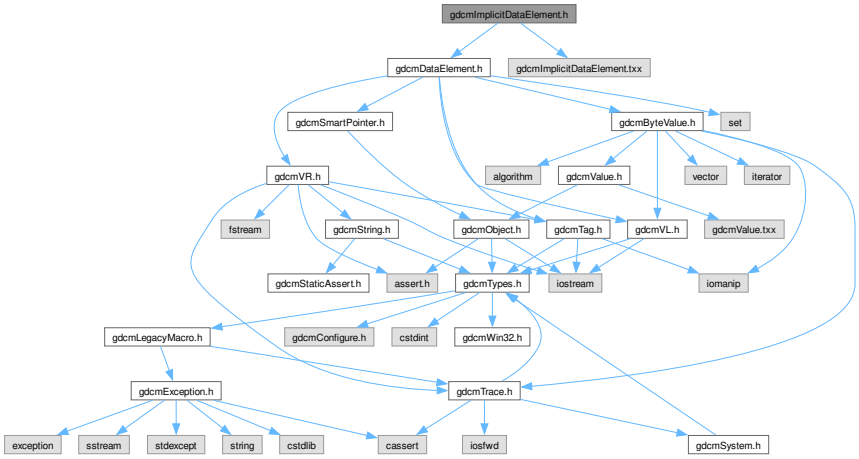
```
00070       }
00071     if( !ValueLengthField.Read<TSwap>(is) )
00072       {
00073       // GENESIS_SIGNA-JPEG-CorruptFrag.dcm
00074       // JPEG fragment is declared to have 61902, but in fact really is only 61901
00075       // so we end up reading 0xddff,0x00e0, and VL = 0x0 (1 byte)
00076       throw Exception( "Problem #2" );
00077       }
00078 #ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
00079     const Tag itemStart(0xfffe, 0xe000);
00080     const Tag seqDelItem(0xfffe,0xe0dd);
00081     if( TagField != itemStart && TagField != seqDelItem )
00082       {
00083       throw Exception( "Problem #3" );
00084       }
00085 #endif
00086     return is;
00087     }
00088
00089   template <typename TSwap>
00090   std::istream &ReadValue(std::istream &is)
00091     {
00092     // Self
00093     SmartPointer<ByteValue> bv = new ByteValue;
00094     bv->SetLength(ValueLengthField);
00095     if( !bv->Read<TSwap>(is) )
00096       {
00097       // Fragment is incomplete, but is a itemStart, let's try to push it anyway...
00098       gdcmWarningMacro( "Fragment could not be read" );
00099       //bv->SetLength(is.gcount());
00100       ValueField = bv;
00101       ParseException pe;
00102       pe.SetLastElement( *this );
00103       throw pe;
00104       }
00105     ValueField = bv;
00106     return is;
00107     }
00108
00109   template <typename TSwap>
00110   std::istream &ReadBacktrack(std::istream &is)
00111     {
00112     const Tag itemStart(0xfffe, 0xe000);
00113     const Tag seqDelItem(0xfffe,0xe0dd);
00114
00115     bool cont = true;
00116     const std::streampos start = is.tellg();
00117     const int max = 10;
00118     int offset = 0;
00119     while( cont )
00120       {
00121       TagField.Read<TSwap>(is);
00122       assert( is );
00123       if( TagField != itemStart && TagField != seqDelItem )
00124         {
00125         ++offset;
00126         is.seekg( (std::streampos)((size_t)start - offset) );
00127         gdcmWarningMacro( "Fuzzy Search, backtrack: " << (start - is.tellg()) << " Offset: " << is.tellg() );
00128         if( offset > max )
00129           {
00130           gdcmErrorMacro( "Giving up" );
00131           throw "Impossible to backtrack";
00132           }
00133         }
00134       else
00135         {
00136         cont = false;
00137         }
00138       }
00139     assert( TagField == itemStart || TagField == seqDelItem );
00140     if( !ValueLengthField.Read<TSwap>(is) )
00141       {
00142       return is;
00143       }
00144
00145     // Self
00146     SmartPointer<ByteValue> bv = new ByteValue;
00147     bv->SetLength(ValueLengthField);
00148     if( !bv->Read<TSwap>(is) )
00149       {
00150       // Fragment is incomplete, but is a itemStart, let's try to push it anyway...
```

```
00151       gdcmWarningMacro( "Fragment could not be read" );
00152       //bv->SetLength(is.gcount());
00153       ValueField = bv;
00154       ParseException pe;
00155       pe.SetLastElement( *this );
00156       throw pe;
00157       }
00158     ValueField = bv;
00159     return is;
00160     }
00161
00162
00163   template <typename TSwap>
00164   std::ostream &Write(std::ostream &os) const {
00165     const Tag itemStart(0xfffe, 0xe000);
00166     const Tag seqDelItem(0xfffe,0xe0dd);
00167     if( !TagField.Write<TSwap>(os) )
00168       {
00169       assert(0 && "Should not happen");
00170       return os;
00171       }
00172     assert( TagField == itemStart
00173         || TagField == seqDelItem );
00174     const ByteValue *bv = GetByteValue();
00175     // VL
00176     // The following piece of code is hard to read in order to support such broken file as:
00177     // CompressedLossy.dcm
00178     if( IsEmpty() )
00179       {
00180       //assert( bv );
00181       VL zero = 0;
00182       if( !zero.Write<TSwap>(os) )
00183         {
00184         assert(0 && "Should not happen");
00185         return os;
00186         }
00187       }
00188     else
00189       {
00190       assert( ValueLengthField );
00191       assert( !ValueLengthField.IsUndefined() );
00192       const VL actuallen = bv->ComputeLength();
00193       assert( actuallen == ValueLengthField || actuallen == ValueLengthField + 1 );
00194       if( !actuallen.Write<TSwap>(os) )
00195         {
00196         assert(0 && "Should not happen");
00197         return os;
00198         }
00199       }
00200     // Value
00201     if( ValueLengthField && bv )
00202       {
00203       // Self
00204       assert( bv );
00205       assert( bv->GetLength() == ValueLengthField );
00206       if( !bv->Write<TSwap>(os) )
00207         {
00208         assert(0 && "Should not happen");
00209         return os;
00210         }
00211       }
00212     return os;
00213     }
00214 };
00215 //-----------------------------------------------------------------------------
00216 inline std::ostream &operator«(std::ostream &os, const Fragment &val)
00217 {
00218   os « "Tag: " « val.TagField;
00219   os « "\tVL: " « val.ValueLengthField;
00220   if( val.ValueField )
00221     {
00222     os « "\t" « *(val.ValueField);
00223     }
00224
00225   return os;
00226 }
00227
00228 } // end namespace gdcm_ns
00229
00230 #endif //GDCMFRAGMENT_H
```

13.147 gdcmImplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmImplicitDataElement.txx"
```

Include dependency graph for gdcmImplicitDataElement.h:



Classes

- class gdcm::ImplicitDataElement

  Class to represent an Implicit VR Data Element.

Namespaces

- namespace gdcm

13.148 gdcmImplicitDataElement.h

Go to the documentation of this file.

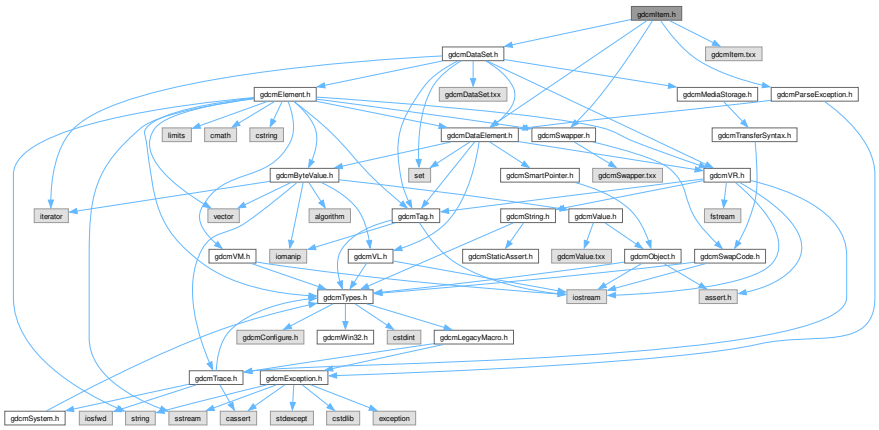
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMPLICITDATAELEMENT_H
00015 #define GDCMIMPLICITDATAELEMENT_H
00016
00017 #include "gdcmDataElement.h"
```

```
00018
00019 namespace gdcm_ns
00020 {
00021
00026 class GDCM_EXPORT ImplicitDataElement : public DataElement
00027 {
00028 public:
00029   VL GetLength() const;
00030
00031   template <typename TSwap>
00032   std::istream &Read(std::istream& is);
00033
00034   template <typename TSwap>
00035   std::istream &ReadPreValue(std::istream& is);
00036
00037   template <typename TSwap>
00038   std::istream &ReadValue(std::istream& is, bool readvalues = true);
00039
00040   template <typename TSwap>
00041   std::istream &ReadWithLength(std::istream& is, VL & length, bool readvalues = true);
00042
00043   template <typename TSwap>
00044   std::istream &ReadValueWithLength(std::istream& is, VL & length, bool readvalues = true);
00045
00046   template <typename TSwap>
00047   const std::ostream &Write(std::ostream& os) const;
00048 };
00049
00050 } // end namespace gdcm_ns
00051
00052 #include "gdcmImplicitDataElement.txx"
00053
00054 #endif //GDCMIMPLICITDATAELEMENT_H
```

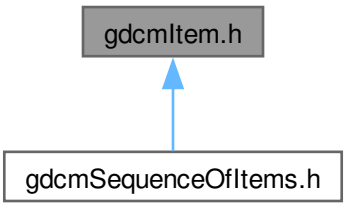
13.149 gdcmItem.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmDataSet.h"
#include "gdcmParseException.h"
#include "gdcmSwapper.h"
#include "gdcmItem.txx"
```

Include dependency graph for gdcmItem.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Item

  Class to represent an Item.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Item &val)

13.150 gdcmItem.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMITEM_H
00016 #define GDCMITEM_H
00017
00018 #include "gdcmDataElement.h"
00019 #include "gdcmDataSet.h"
00020 #include "gdcmParseException.h"
00021 #include "gdcmSwapper.h"
00022
```

```
00023 #ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
00024 #include "gdcmByteSwapFilter.h"
00025 #endif
00026
00027 namespace gdcm_ns
00028 {
00029
00030 class DataSet;
00045 class GDCM_EXPORT Item : public DataElement
00046 {
00047 public:
00048   Item() : DataElement(Tag(0xfffe, 0xe000), 0xFFFFFFFF), NestedDataSet() {}
00049   friend std::ostream& operator« (std::ostream &os, const Item &val);
00050
00051   void Clear() {
00052     this->DataElement::Clear();
00053     NestedDataSet.Clear();
00054     }
00055
00056   template <typename TDE>
00057   VL GetLength() const;
00058
00059   void InsertDataElement(const DataElement & de) {
00060     NestedDataSet.Insert(de);
00061     // Update the length
00062     if( !IsUndefinedLength() )
00063       {
00064       assert( 0 && "InsertDataElement" );
00065       //ValueLengthField += de.GetLength();
00066       }
00067     }
00068   const DataElement& GetDataElement(const Tag& t) const
00069     {
00070     return NestedDataSet.GetDataElement(t);
00071     }
00072
00073   // Completely defines it with the nested dataset
00074   // destroy anything present
00075   void SetNestedDataSet(const DataSet& nested)
00076     {
00077     NestedDataSet = nested;
00078     }
00079   // Return a const ref to the Nested Data Set
00080   const DataSet &GetNestedDataSet() const
00081     {
00082     return NestedDataSet;
00083     }
00084   DataSet &GetNestedDataSet()
00085     {
00086     return NestedDataSet;
00087     }
00088
00089   //Value const & GetValue() const { return *NestedDataSet; }
00090
00091   Item(Item const &val):DataElement(val)
00092     {
00093     NestedDataSet = val.NestedDataSet;
00094     }
00095
00096   template <typename TDE, typename TSwap>
00097   std::istream &Read(std::istream &is) {
00098     // Superclass
00099     {
00100         DataSet &nested = NestedDataSet;
00101         nested.Clear();
00102         assert( nested.IsEmpty() );
00103     }
00104     if( !TagField.Read<TSwap>(is) )
00105       {
00106       throw Exception("Should not happen (item)");
00107       return is;
00108       }
00109 #ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
00110     // MR_Philips_Intera_SwitchIndianess_noLgtSQItem_in_trueLgtSeq.dcm
00111     if( TagField == Tag(0xfeff, 0x00e0)
00112       || TagField == Tag(0xfeff, 0xdde0) )
00113       {
00114       gdcmWarningMacro( "ByteSwaping Private SQ: " « TagField );
00115       // Invert previously read TagField since wrong endianness:
00116       TagField = Tag( SwapperDoOp::Swap( TagField.GetGroup() ), SwapperDoOp::Swap( TagField.GetElement() )
      );
```

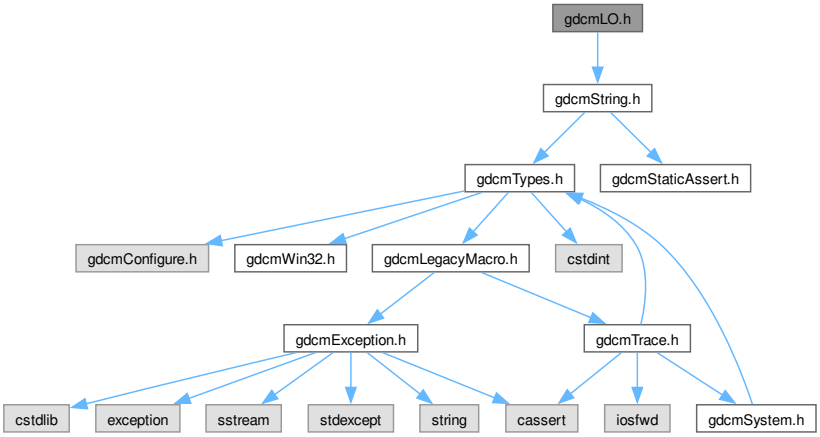
```
00117       assert ( TagField == Tag(0xfffe, 0xe000)
00118         || TagField == Tag(0xfffe, 0xe0dd) );
00119
00120       if( !ValueLengthField.Read<SwapperDoOp>(is) )
00121         {
00122         assert(0 && "Should not happen");
00123         return is;
00124         }
00125       // Self
00126       // Some file written by GDCM 1.0 we write 0xFFFFFFFF instead of 0x0
00127       if( TagField == Tag(0xfffe,0xe0dd) )
00128         {
00129         if( ValueLengthField )
00130           {
00131           gdcmErrorMacro( "ValueLengthField is not 0" );
00132           }
00133         }
00134       //else if( ValueLengthField == 0 )
00135       //  {
00136       //  //assert( TagField == Tag( 0xfffe, 0xe0dd) );
00137       //  if( TagField != Tag( 0xfffe, 0xe0dd) )
00138       //    {
00139       //    gdcmErrorMacro( "SQ: " « TagField « " has a length of 0" );
00140       //    }
00141       //  }
00142       else if( ValueLengthField.IsUndefined() )
00143         {
00144         DataSet &nested = NestedDataSet;
00145         nested.Clear();
00146         assert( nested.IsEmpty() );
00147         std::streampos start = is.tellg();
00148         try
00149           {
00150           nested.template ReadNested<TDE,SwapperDoOp>(is);
00151           ByteSwapFilter bsf(nested);
00152           bsf.ByteSwap();
00153           }
00154         catch(ParseException &pe)
00155           {
00156           (void)pe;
00157           //
      MR_Philips_Intera_PrivateSequenceExplicitVR_in_SQ_2001_e05f_item_wrong_lgt_use_NOSHADOWSEQ.dcm
00158           // You have to byteswap the length but not the tag...sigh
00159           gdcmWarningMacro( "Attempt to read nested Item without byteswapping the Value Length." );
00160           start -= is.tellg();
00161           assert( start < 0 );
00162           is.seekg( start, std::ios::cur );
00163           nested.Clear();
00164           nested.template ReadNested<TDE,SwapperNoOp>(is);
00165           ByteSwapFilter bsf(nested);
00166           // Tag are read in big endian, need to byteswap them back...
00167           bsf.SetByteSwapTag(true);
00168           bsf.ByteSwap();
00169           }
00170         catch(Exception &e)
00171           {
00172           // MR_Philips_Intera_No_PrivateSequenceImplicitVR.dcm
00173           throw e;
00174           }
00175         catch(...)
00176           {
00177           assert(0);
00178           }
00179         }
00180       else /* if( ValueLengthField.IsUndefined() ) */
00181         {
00182         DataSet &nested = NestedDataSet;
00183         nested.Clear();
00184         assert( nested.IsEmpty() );
00185         nested.template ReadWithLength<TDE,SwapperDoOp>(is, ValueLengthField);
00186         ByteSwapFilter bsf(nested);
00187         bsf.ByteSwap();
00188         }
00189       return is;
00190       }
00191     // http://groups.google.com/group/comp.protocols.dicom/msg/c07efcf5e759fc83
00192     // Bug_Philips_ItemTag_3F3F.dcm
00193     if( TagField == Tag(0x3f3f, 0x3f00) )
00194       {
00195       //TagField = Tag(0xfffe, 0xe000);
00196       }
```

```
00197 #endif
00198     if( TagField != Tag(0xfffe, 0xe000) && TagField != Tag(0xfffe, 0xe0dd) )
00199       {
00200       gdcmDebugMacro( "Invalid Item, found tag: " << TagField);
00201       throw Exception( "Not a valid Item" );
00202       }
00203     assert( TagField == Tag(0xfffe, 0xe000) || TagField == Tag(0xfffe, 0xe0dd) );
00204
00205     if( !ValueLengthField.Read<TSwap>(is) )
00206       {
00207       assert(0 && "Should not happen");
00208       return is;
00209       }
00210     // Self
00211     if( TagField == Tag(0xfffe,0xe0dd) )
00212       {
00213       // Some file written by GDCM 1.0 were written with 0xFFFFFFFF instead of 0x0
00214       if( ValueLengthField )
00215         {
00216         gdcmDebugMacro( "ValueLengthField is not 0 but " << ValueLengthField );
00217         }
00218       }
00219     else if( ValueLengthField.IsUndefined() )
00220       {
00221       DataSet &nested = NestedDataSet;
00222       nested.Clear();
00223       assert( nested.IsEmpty() );
00224       nested.template ReadNested<TDE,TSwap>(is);
00225       }
00226     else /* if( ValueLengthField.IsUndefined() ) */
00227       {
00228       assert( !ValueLengthField.IsUndefined() );
00229       DataSet &nested = NestedDataSet;
00230       nested.Clear();
00231       assert( nested.IsEmpty() );
00232       nested.template ReadWithLength<TDE,TSwap>(is, ValueLengthField);
00233       }
00234
00235     return is;
00236   }
00237
00238   template <typename TDE, typename TSwap>
00239   const std::ostream &Write(std::ostream &os) const {
00240 #ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
00241     if( TagField == Tag(0x3f3f,0x3f00) && false )
00242       {
00243       Tag t(0xfffe, 0xe000);
00244       t.Write<TSwap>(os);
00245       }
00246     else
00247 #endif
00248       {
00249       assert ( TagField == Tag(0xfffe, 0xe000)
00250         || TagField == Tag(0xfffe, 0xe0dd) );
00251       // Not sure how this happen
00252       if( TagField == Tag(0xfffe, 0xe0dd) )
00253         {
00254         gdcmWarningMacro( "SeqDelItem found in defined length Sequence" );
00255         assert( ValueLengthField == 0 );
00256         assert( NestedDataSet.Size() == 0 );
00257         }
00258       if( !TagField.Write<TSwap>(os) )
00259         {
00260         assert(0 && "Should not happen");
00261         return os;
00262         }
00263       }
00264     if( ValueLengthField.IsUndefined() )
00265       {
00266       if( !ValueLengthField.Write<TSwap>(os) )
00267         {
00268         assert(0 && "Should not happen");
00269         return os;
00270         }
00271       }
00272     else
00273       {
00274       const VL dummy = NestedDataSet.GetLength<TDE>();
00275       assert( dummy % 2 == 0 );
00276       //assert( ValueLengthField == dummy );
00277       if( !dummy.Write<TSwap>(os) )
```

```
00278         {
00279         assert(0 && "Should not happen");
00280         return os;
00281         }
00282       }
00283     // Self
00284     NestedDataSet.Write<TDE,TSwap>(os);
00285     if( ValueLengthField.IsUndefined() )
00286       {
00287       const Tag itemDelItem(0xfffe,0xe00d);
00288       itemDelItem.Write<TSwap>(os);
00289       VL zero = 0;
00290       zero.Write<TSwap>(os);
00291       }
00292
00293     return os;
00294   }
00295
00296 /*
00297 There are three special SQ related Data Elements that are not ruled by the VR encoding rules conveyed
00298 by the Transfer Syntax. They shall be encoded as Implicit VR. These special Data Elements are Item
00299 (FFFE,E000), Item Delimitation Item (FFFE,E00D), and Sequence Delimitation Item (FFFE,E0DD).
00300 However, the Data Set within the Value Field of the Data Element Item (FFFE,E000) shall be encoded
00301 according to the rules conveyed by the Transfer Syntax.
00302 */
00303   bool FindDataElement(const Tag &t) const {
00304     return NestedDataSet.FindDataElement( t );
00305   }
00306
00307 private:
00308   /* NESTED DATA SET  a Data Set contained within a Data Element of an other Data Set.
00309    * May be nested recursively.
00310    * Only Data Elements with VR = SQ  may, themselves, contain Data Sets
00311    */
00312   DataSet NestedDataSet;
00313 };
00314 //-----------------------------------------------------------------------------
00315 inline std::ostream& operator«(std::ostream& os, const Item &val)
00316 {
00317   os « val.TagField;
00318   os « "\t" « val.ValueLengthField « "\n";
00319   val.NestedDataSet.Print( os, "\t" );
00320
00321   return os;
00322 }
00323
00324
00325 } // end namespace gdcm_ns
00326
00327 #include "gdcmItem.txx"
00328
00329 #endif //GDCMITEM_H
```

13.151 gdcmLO.h File Reference

`#include "gdcmString.h"`
Include dependency graph for gdcmLO.h:



Classes

- class gdcm::LO
  LO.

Namespaces

- namespace gdcm

13.152 gdcmLO.h

Go to the documentation of this file.

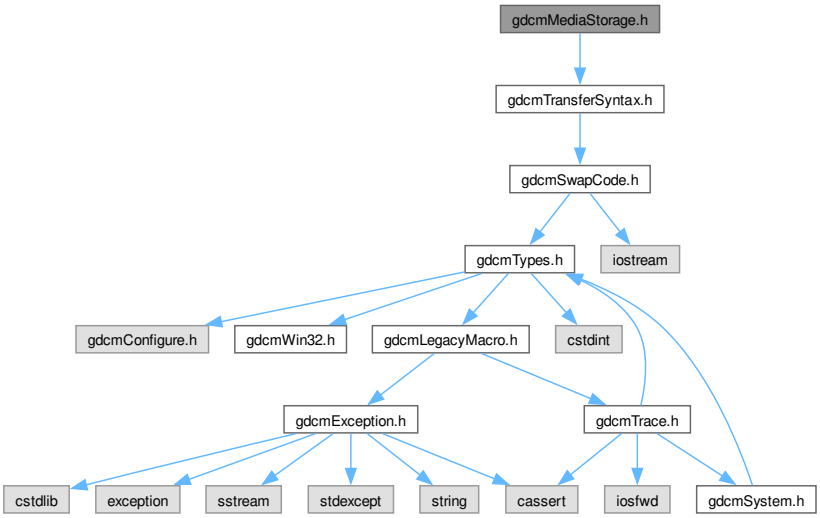
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMLO_H
00015 #define GDCMLO_H
00016
00017 #include "gdcmString.h"
```

```
00018
00019 namespace gdcm
00020 {
00021
00027 class /*GDCM_EXPORT*/ LO : public String<'\\',64> /* PLEASE do not export me */
00028 {
00029 public:
00030   // typedef are not inherited:
00031   typedef String<'\\',64> Superclass;
00032   typedef Superclass::value_type             value_type;
00033   typedef Superclass::pointer                pointer;
00034   typedef Superclass::reference              reference;
00035   typedef Superclass::const_reference        const_reference;
00036   typedef Superclass::size_type              size_type;
00037   typedef Superclass::difference_type        difference_type;
00038   typedef Superclass::iterator               iterator;
00039   typedef Superclass::const_iterator         const_iterator;
00040   typedef Superclass::reverse_iterator       reverse_iterator;
00041   typedef Superclass::const_reverse_iterator const_reverse_iterator;
00042
00043   // LO constructors.
00044   LO(): Superclass() {}
00045   LO(const value_type* s): Superclass(s) {}
00046   LO(const value_type* s, size_type n): Superclass(s, n) {}
00047   LO(const Superclass& s, size_type pos=0, size_type n=npos):
00048     Superclass(s, pos, n) {}
00049
00050   bool IsValid() const {
00051     if( !Superclass::IsValid() ) return false;
00052     // Implementation specific:
00053     return true;
00054   }
00055 };
00056
00057 } // end namespace gdcm
00058
00059 #endif //GDCMLO_H
```

13.153 gdcmMediaStorage.h File Reference

`#include "gdcmTransferSyntax.h"`

Include dependency graph for gdcmMediaStorage.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::MediaStorage

  MediaStorage.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const MediaStorage &ms)

13.154 gdcmMediaStorage.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMEDIASTORAGE_H
00015 #define GDCMMEDIASTORAGE_H
00016
00017 #include "gdcmTransferSyntax.h"
00018
00019 namespace gdcm { class Tag; }
00020 namespace gdcm_ns
00021 {
00022 #if !defined(SWIGPYTHON) && !defined(SWIGCSHARP) && !defined(SWIGJAVA) && !defined(SWIGPHP)
00023 using namespace gdcm;
00024 #endif
00025 class DataSet;
00026 class FileMetaInformation;
00027 class File;
00028
00029 // WARNING: This class will be deprecated in the future. There is no reason to extend this class.
00030 // Please check the gdcm::UIDs class if adding new well known UID.
00031
00043 class GDCM_EXPORT MediaStorage
00044 {
00045 public:
00046   typedef enum {
00047     MediaStorageDirectoryStorage = 0,
00048     ComputedRadiographyImageStorage,
00049     DigitalXRayImageStorageForPresentation,
```

```
00050     DigitalXRayImageStorageForProcessing,
00051     DigitalMammographyImageStorageForPresentation,
00052     DigitalMammographyImageStorageForProcessing,
00053     DigitalIntraoralXrayImageStorageForPresentation,
00054     DigitalIntraoralXRayImageStorageForProcessing,
00055     CTImageStorage,
00056     EnhancedCTImageStorage,
00057     UltrasoundImageStorageRetired,
00058     UltrasoundImageStorage,
00059     UltrasoundMultiFrameImageStorageRetired,
00060     UltrasoundMultiFrameImageStorage,
00061     MRImageStorage,
00062     EnhancedMRImageStorage,
00063     MRSpectroscopyStorage,
00064     NuclearMedicineImageStorageRetired,
00065     SecondaryCaptureImageStorage,
00066     MultiframeSingleBitSecondaryCaptureImageStorage,
00067     MultiframeGrayscaleByteSecondaryCaptureImageStorage,
00068     MultiframeGrayscaleWordSecondaryCaptureImageStorage,
00069     MultiframeTrueColorSecondaryCaptureImageStorage,
00070     StandaloneOverlayStorage,
00071     StandaloneCurveStorage,
00072     LeadECGWaveformStorage, // 12-
00073     GeneralECGWaveformStorage,
00074     AmbulatoryECGWaveformStorage,
00075     HemodynamicWaveformStorage,
00076     CardiacElectrophysiologyWaveformStorage,
00077     BasicVoiceAudioWaveformStorage,
00078     StandaloneModalityLUTStorage,
00079     StandaloneVOILUTStorage,
00080     GrayscaleSoftcopyPresentationStateStorageSOPClass,
00081     XRayAngiographicImageStorage,
00082     XRayRadiofluoroscopingImageStorage,
00083     XRayAngiographicBiPlaneImageStorageRetired,
00084     NuclearMedicineImageStorage,
00085     RawDataStorage,
00086     SpacialRegistrationStorage, // Spatial
00087     SpacialFiducialsStorage, // Spatial..
00088     PETImageStorage,
00089     RTImageStorage,
00090     RTDoseStorage,
00091     RTStructureSetStorage,
00092     RTPlanStorage,
00093     CSANonImageStorage,
00094     Philips3D,
00095     EnhancedSR,
00096     BasicTextSR,
00097     HardcopyGrayscaleImageStorage,
00098     ComprehensiveSR,
00099     DetachedStudyManagementSOPClass,
00100     EncapsulatedPDFStorage,
00101     EncapsulatedCDAStorage,
00102     StudyComponentManagementSOPClass,
00103     DetachedVisitManagementSOPClass,
00104     DetachedPatientManagementSOPClass,
00105     VideoEndoscopicImageStorage,
00106     GeneralElectricMagneticResonanceImageStorage,
00107     GEPrivate3DModelStorage,
00108     ToshibaPrivateDataStorage,
00109     MammographyCADSR,
00110     KeyObjectSelectionDocument,
00111     HangingProtocolStorage,
00112     ModalityPerformedProcedureStepSOPClass,
00113     PhilipsPrivateMRSyntheticImageStorage,
00114     VLPhotographicImageStorage,
00115     SegmentationStorage, // "1.2.840.10008.5.1.4.1.1.66.4"
00116     RTIonPlanStorage, // 1.2.840.10008.5.1.4.1.1.481.8
00117     XRay3DAngiographicImageStorage, // 1.2.840.10008.5.1.4.1.1.13.1.1
00118     EnhancedXAImageStorage,
00119     RTIonBeamsTreatmentRecordStorage, // 1.2.840.10008.5.1.4.1.1.481.9
00120     SurfaceSegmentationStorage, // "1.2.840.10008.5.1.4.1.1.66.5"
00121     VLWholeSlideMicroscopyImageStorage, // 1.2.840.10008.5.1.4.1.1.77.1.6
00122     RTTreatmentSummaryRecordStorage, // 1.2.840.10008.5.1.4.1.1.481.7
00123     EnhancedUSVolumeStorage, // 1.2.840.10008.5.1.4.1.1.6.2
00124     XRayRadiationDoseSR, // 1.2.840.10008.5.1.4.1.1.88.67
00125     VLEndoscopicImageStorage, // 1.2.840.10008.5.1.4.1.1.77.1.1
00126     BreastTomosynthesisImageStorage, // 1.2.840.10008.5.1.4.1.1.13.1.3
00127     FujiPrivateCRImageStorage, // 1.2.392.200036.9125.1.1.2
00128     OphthalmicPhotography8BitImageStorage, // 1.2.840.10008.5.1.4.1.1.77.1.5.1
00129     OphthalmicTomographyImageStorage, // 1.2.840.10008.5.1.4.1.1.77.1.5.4
00130     VLMicroscopicImageStorage,
```

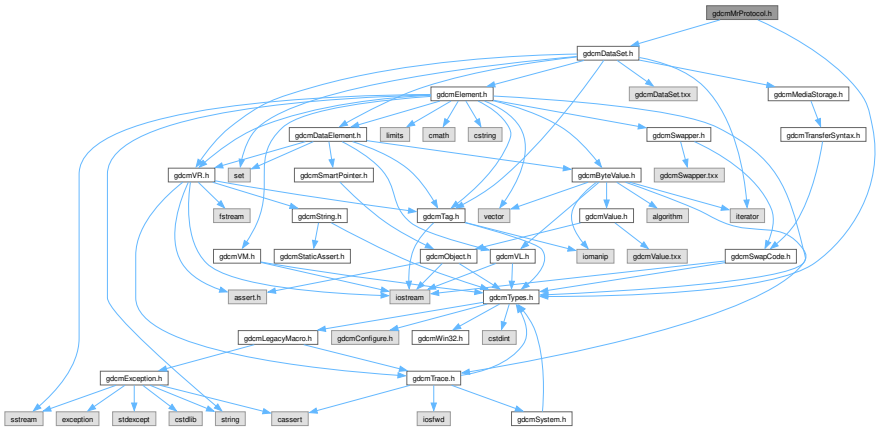
```
00131     EnhancedPETImageStorage,
00132     VideoPhotographicImageStorage,
00133     XRay3DCraniofacialImageStorage,
00134     IVOCTForPresentation,
00135     IVOCTForProcessing,
00136     LegacyConvertedEnhancedCTImageStorage,
00137     LegacyConvertedEnhancedMRImageStorage,
00138     LegacyConvertedEnhancedPETImageStorage,
00139     BreastProjectionXRayImageStorageForPresentation,
00140     BreastProjectionXRayImageStorageForProcessing,
00141     HardcopyColorImageStorage,
00142     EnhancedMRColorImageStorage,
00143     FujiPrivateMammoCRImageStorage,
00144     OphthalmicPhotography16BitImageStorage,
00145     VideoMicroscopicImageStorage,
00146     MS_END
00147   } MSType; // Media Storage Type
00148
00149 typedef enum {
00150     NoObject = 0, // DICOMDIR
00151     Video, // Most common, include image, video and volume
00152     Waveform, // Isn't it simply a 1D video ?
00153     Audio, // ???
00154     PDF,
00155     URI, // URL...
00156     Segmentation, // TODO
00157     ObjectEnd
00158   } ObjectType;
00159
00161   static const char* GetMSString(MSType ts);
00162
00164   const char* GetString() const;
00165   static MSType GetMSType(const char *str);
00166
00167   MediaStorage(MSType type = MS_END):MSField(type) {}
00168
00171   static bool IsImage(MSType ts);
00172
00173   operator MSType () const { return MSField; }
00174
00175   const char *GetModality() const;
00176   unsigned int GetModalityDimension() const;
00177
00178   static unsigned int GetNumberOfMSType();
00179   static unsigned int GetNumberOfMSString();
00180   static unsigned int GetNumberOfModality();
00181
00182
00187   bool SetFromFile(File const &file);
00188
00191   bool SetFromDataSet(DataSet const &ds); // Will get the SOP Class UID
00192   bool SetFromHeader(FileMetaInformation const &fmi); // Will get the Media Storage SOP Class UID
00193   bool SetFromModality(DataSet const &ds);
00194   void GuessFromModality(const char *modality, unsigned int dimension = 2);
00195
00196   friend std::ostream &operator«(std::ostream &os, const MediaStorage &ms);
00197
00198   bool IsUndefined() const { return MSField == MS_END; }
00199
00200 protected:
00201   void SetFromSourceImageSequence(DataSet const &ds);
00202
00203 private:
00204   bool SetFromDataSetOrHeader(DataSet const &ds, const Tag & tag);
00205
00206   std::string GetFromDataSetOrHeader(DataSet const &ds, const Tag & tag);
00207   std::string GetFromHeader(FileMetaInformation const &fmi);
00208   std::string GetFromDataSet(DataSet const &ds);
00209
00210 private:
00211   MSType MSField;
00212 };
00213 //-----------------------------------------------------------------------------
00214 inline std::ostream &operator«(std::ostream &_os, const MediaStorage &ms)
00215 {
00216   const char *msstring = MediaStorage::GetMSString(ms);
00217   _os « (msstring ? msstring : "INVALID MEDIA STORAGE");
00218   return _os;
00219
00220 }
00221
```

```
00222 } // end namespace gdcm_ns
00223
00224 #endif // GDCMMEDIASTORAGE_H
```

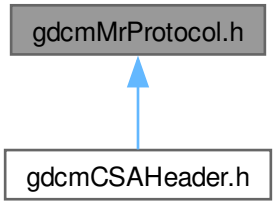
13.155 gdcmMrProtocol.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmMrProtocol.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::MrProtocol

  Class for MrProtocol.
- struct gdcm::MrProtocol::Slice
- struct gdcm::MrProtocol::SliceArray
- struct gdcm::MrProtocol::Vector3

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const MrProtocol &d)

13.156 gdcmMrProtocol.h

Go to the documentation of this file.

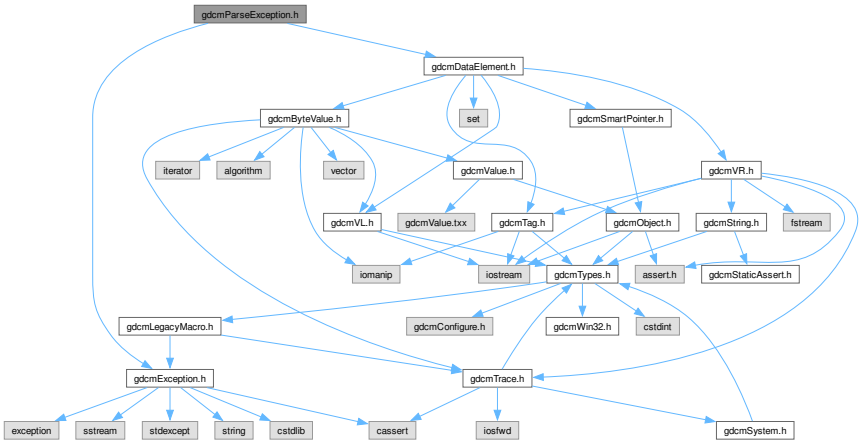
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMRPROTOCOL_H
00015 #define GDCMMRPROTOCOL_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmDataSet.h"
00019
00020 namespace gdcm
00021 {
00022 class ByteValue;
00023 /*
00024  * Everything done in this code is for the sole purpose of writing interoperable
00025  * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
00026  * If you believe anything in this code violates any law or any of your rights,
00027  * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
00028  * find a solution.
00029  */
00030 //-----------------------------------------------------------------------------
00031
00032 class DataElement;
00036 class GDCM_EXPORT MrProtocol
00037 {
00038   friend std::ostream& operator<<(std::ostream &_os, const MrProtocol &d);
00039 public :
00040   MrProtocol();
00041   ~MrProtocol();
00042
00043   bool Load( const ByteValue * bv, const char * str, int version );
00044   void Print(std::ostream &os) const;
00045
00046   int GetVersion() const;
00047
00048   const char * GetMrProtocolByName(const char *name) const;
00049
00050   bool FindMrProtocolByName(const char *name) const;
00051
00052   struct Vector3
00053   {
00054     double dSag;
00055     double dCor;
00056     double dTra;
00057   };
00058   struct Slice
00059   {
00060     Vector3 Normal;
00061     Vector3 Position;
00062   };
```

```
00063   struct SliceArray
00064   {
00065     std::vector< Slice > Slices;
00066   };
00067   bool GetSliceArray( MrProtocol::SliceArray & sa ) const;
00068
00069 private:
00070   struct Element;
00071   struct Internals;
00072   Internals *Pimpl;
00073 };
00074 //-----------------------------------------------------------------------------
00075 inline std::ostream& operator«(std::ostream &os, const MrProtocol &d)
00076 {
00077   d.Print( os );
00078   return os;
00079 }
00080
00081 } // end namespace gdcm
00082 //-----------------------------------------------------------------------------
00083 #endif //GDCMMRPROTOCOL_H
```

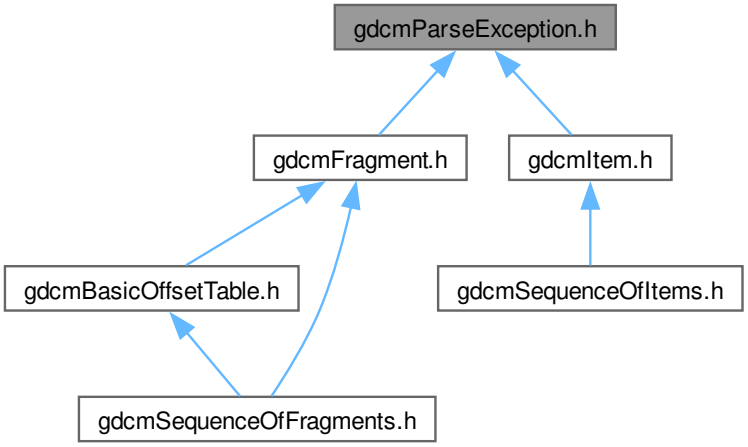
13.157 gdcmParseException.h File Reference

```
#include "gdcmException.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmParseException.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::ParseException

  ParseException Standard exception handling object.

Namespaces

- namespace gdcm

13.158 gdcmParseException.h

Go to the documentation of this file.

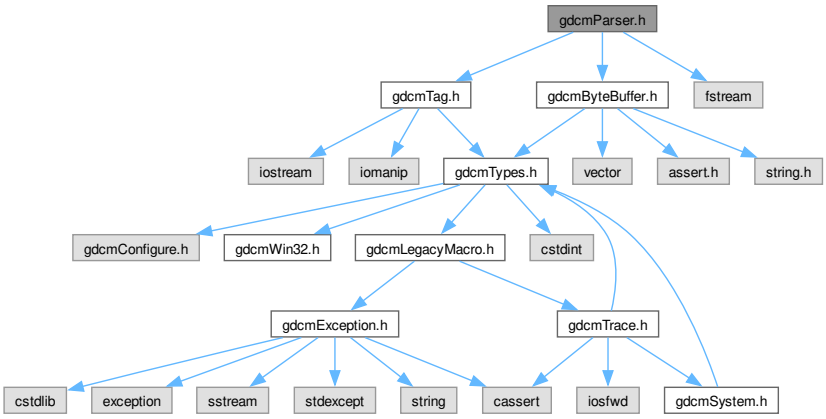
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPARSEEXCEPTION_H
00015 #define GDCMPARSEEXCEPTION_H
00016
00017 #include "gdcmException.h"
00018 #include "gdcmDataElement.h"
00019
```

```
00020 // Disable clang warning "dynamic exception specifications are deprecated".
00021 // We need to be C++03 and C++11 compatible, and if we remove the 'throw()'
00022 // specifier we'll get an error in C++03 by not matching the superclass.
00023 #if defined(__clang__) && defined(__has_warning)
00024 # if __has_warning("-Wdeprecated")
00025 #  pragma clang diagnostic push
00026 #  pragma clang diagnostic ignored "-Wdeprecated"
00027 # endif
00028 #endif
00029
00030 namespace gdcm_ns
00031 {
00036 class ParseException : public Exception
00037 {
00038 public:
00039   ParseException() = default;
00040   ~ParseException() throw() override {}
00041
00043   ParseException &operator= ( const ParseException &orig )
00044     {
00045     LastElement = orig.LastElement;
00046     return *this;
00047     }
00048   ParseException(const ParseException& orig):Exception(orig)
00049     {
00050     LastElement = orig.LastElement;
00051     }
00052
00054 /*  virtual bool operator==( const ParseException &orig )
00055   {
00056     return true;
00057   }*/
00058
00059 /*
00060   // Multiple calls to what ??
00061   const char* what() const throw()
00062     {
00063     static std::string strwhat;
00064     std::ostringstream oswhat;
00065     oswhat « File « ":" « Line « ":\n";
00066     oswhat « Description;
00067     strwhat = oswhat.str();
00068     return strwhat.c_str();
00069     }
00070 */
00071   void SetLastElement(DataElement& de)
00072     {
00073     LastElement = de;
00074     }
00075   const DataElement& GetLastElement() const { return LastElement; }
00076
00077 private:
00078   // Store last parsed element before error:
00079   DataElement LastElement;
00080 };
00081
00082 } // end namespace gdcm_ns
00083
00084 // Undo warning suppression.
00085 #if defined(__clang__) && defined(__has_warning)
00086 # if __has_warning("-Wdeprecated")
00087 #  pragma clang diagnostic pop
00088 # endif
00089 #endif
00090
00091 #endif
```

13.159 gdcmParser.h File Reference

```
#include "gdcmTag.h"
#include "gdcmByteBuffer.h"
```

`#include <fstream>`
Include dependency graph for gdcmParser.h:



Classes

- class gdcm::Parser

  Parser ala XML_Parser from expat (SAX).

Namespaces

- namespace gdcm

13.160 gdcmParser.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMPARSER_H
00016 #define GDCMPARSER_H
00017
00018 #include "gdcmTag.h"
00019 #error do not use
00020 #include "gdcmByteBuffer.h"
00021
00022 #include <fstream> // std::ifstream
00023
```

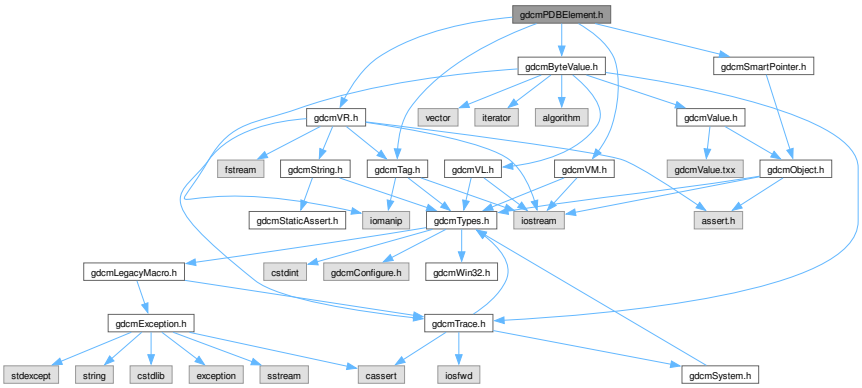
```
00024 namespace gdcm
00025 {
00032 class GDCM_EXPORT Parser /*: private IStream*/
00033 {
00034 public:
00035   typedef enum {
00036     NoError,
00037     NoMemoryError,
00038     SyntaxError,
00039     NoElementsError,
00040     TagMismatchError,
00041     DuplicateAttributeError,
00042     JunkAfterDocElementError,
00043     UndefinedEntityError,
00044     UnexpectedStateError
00045   } ErrorType;
00046
00047   Parser() : UserData(0),Buffer(),ErrorCode(NoError) {}
00048   ~Parser() {}
00049
00050   // Parse some more of the document. The string s is a buffer containing
00051   // part (or perhaps all) of the document. The number of bytes of s that
00052   // are part of the document is indicated by len. This means that s
00053   // doesn't have to be null terminated. It also means that if len is
00054   // larger than the number of bytes in the block of memory that s points
00055   // at, then a memory fault is likely. The isFinal parameter informs the
00056   // parser that this is the last piece of the document. Frequently, the
00057   // last piece is empty (i.e. len is zero.) If a parse error occurred,
00058   // it returns 0. Otherwise it returns a non-zero value.
00059   bool Parse(const char* s, int len, bool isFinal);
00060
00061   // Set handlers for start and end tags. Attributes are passed to the
00062   // start handler as a pointer to a vector of char pointers. Each
00063   // attribute seen in a start (or empty) tag occupies 2 consecutive places
00064   // in this vector: the attribute name followed by the attribute value.
00065   // These pairs are terminated by a null pointer.
00066   typedef void (*StartElementHandler) (void *userData,
00067                                        const Tag &tag,
00068                                        const char *atts[]);
00069   typedef void (*EndElementHandler) (void *userData, const Tag &name);
00070   void SetElementHandler(StartElementHandler start, EndElementHandler end);
00071
00072   // Return what type of error has occurred.
00073   ErrorType GetErrorCode() const;
00074
00075   // Return a string describing the error corresponding to code.
00076   // The code should be one of the enums that can be returned from
00077   // GetErrorCode.
00078   static const char *GetErrorString(ErrorType const &err);
00079
00080   // Return the byte offset of the position.
00081   unsigned long GetCurrentByteIndex() const;
00082
00083   // Miscellaneous functions
00084
00085   // The functions in this section either obtain state information from
00086   // the parser or can be used to dynamically set parser options.
00087
00088   // This sets the user data pointer that gets passed to handlers.
00089   void SetUserData(void *userData);
00090
00091   // This returns the user data pointer that gets passed to handlers.
00092   void * GetUserData() const;
00093
00094 protected:
00095
00096   // This is just like Parse, except in this case expat provides the buffer.
00097   // By obtaining the buffer from expat with the GetBuffer function,
00098   // the application can avoid double copying of the input.
00099   bool ParseBuffer(int len, bool isFinal);
00100
00101   // Obtain a buffer of size len to read a piece of the document into.
00102   // A NULL value is returned if expat can't allocate enough memory for
00103   // this buffer. This has to be called prior to every call to ParseBuffer.
00104   char *GetBuffer(int len);
00105
00106   ErrorType Process();
00107
00108 private:
00109   std::ifstream Stream;
00110   void* UserData;
```

```
00111   ByteBuffer Buffer;
00112   ErrorType ErrorCode;
00113
00114   StartElementHandler StartElement;
00115   EndElementHandler EndElement;
00116 };
00117
00118 } // end namespace gdcm
00119
00120 #endif //GDCMPARSER_H
```

13.161 gdcmPDBElement.h File Reference

```
#include "gdcmTag.h"
#include "gdcmVM.h"
#include "gdcmVR.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"
```

Include dependency graph for gdcmPDBElement.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::PDBElement

  Class to represent a PDB Element.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const PDBElement &val)

13.162 gdcmPDBElement.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPDBELEMENT_H
00015 #define GDCMPDBELEMENT_H
00016
00017 #include "gdcmTag.h"
00018 #include "gdcmVM.h"
00019 #include "gdcmVR.h"
00020 #include "gdcmByteValue.h"
00021 #include "gdcmSmartPointer.h"
00022
00023 namespace gdcm
00024 {
00029 class GDCM_EXPORT PDBElement
00030 {
00031 public:
00032   PDBElement() = default;
00033
00034   friend std::ostream& operator<<(std::ostream &os, const PDBElement &val);
00035
00037   const char *GetName() const { return NameField.c_str(); }
00038   void SetName(const char *name) { NameField = name; }
00039
00041   const char *GetValue() const { return ValueField.c_str(); }
00042   void SetValue(const char *value) { ValueField = value; }
00043
00044   bool operator==(const PDBElement &de) const
00045     {
00046     return ValueField == de.ValueField
00047       && NameField == de.NameField;
00048     }
00049
00050 protected:
00051   std::string NameField;
00052   std::string ValueField;
00053 };
00054 //-----------------------------------------------------------------------------
00055 inline std::ostream& operator<<(std::ostream &os, const PDBElement &val)
```
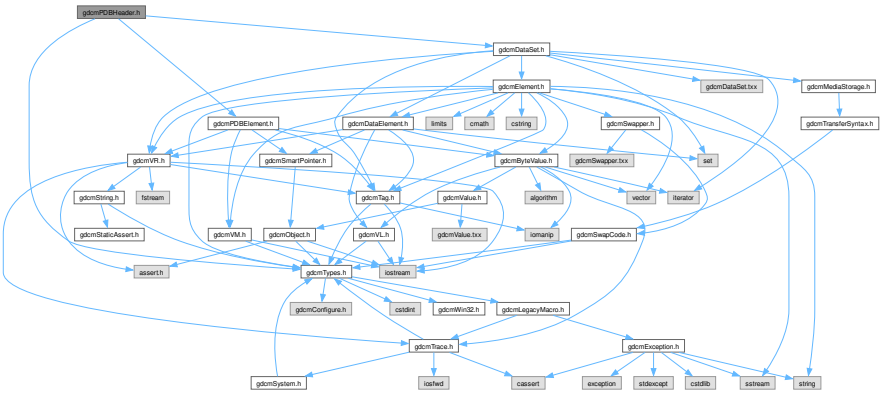

```
00056 {
00057   os « val.NameField;
00058   os « " \"";
00059   os « val.ValueField;
00060   os « "\"";
00061
00062   return os;
00063 }
00064
00065 } // end namespace gdcm
00066
00067 #endif //GDCMPDBELEMENT_H
```

13.163 gdcmPDBHeader.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDataSet.h"
#include "gdcmPDBElement.h"
```

Include dependency graph for gdcmPDBHeader.h:



Classes

- class gdcm::PDBHeader

  Class for PDBHeader.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const PDBHeader &d)

13.164 gdcmPDBHeader.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPDBHEADER_H
00015 #define GDCMPDBHEADER_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmDataSet.h"
00019 #include "gdcmPDBElement.h"
00020
00021 namespace gdcm
00022 {
00023
00024 /*
00025  * Everything done in this code is for the sole purpose of writing interoperable
00026  * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
00027  * If you believe anything in this code violates any law or any of your rights,
00028  * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
00029  * find a solution.
00030  */
00031 //-----------------------------------------------------------------------------
00032
00033 class DataElement;
00034 class PrivateTag;
00053 class GDCM_EXPORT PDBHeader
00054 {
00055   friend std::ostream& operator<<(std::ostream &_os, const PDBHeader &d);
00056 public :
00057   PDBHeader() = default;
00058   ~PDBHeader() = default;
00059
00061   bool LoadFromDataElement(DataElement const &de);
00062
00064   void Print(std::ostream &os) const;
00065
00067   static const PrivateTag & GetPDBInfoTag();
00068
00071   const PDBElement &GetPDBElementByName(const char *name);
00072
00074   bool FindPDBElementByName(const char *name);
00075
00076 protected:
00077   const PDBElement& GetPDBEEnd() const;
00078
00079 private:
00080   int readprotocoldatablock(const char *input, size_t inputlen, bool verbose);
00081   std::vector<PDBElement> InternalPDBDataSet;
00082   static PDBElement PDBEEnd;
00083   bool IsXML;
00084   std::string xmltxt;
00085 };
00086 //-----------------------------------------------------------------------------
00087 inline std::ostream& operator<<(std::ostream &os, const PDBHeader &d)
00088 {
00089   d.Print( os );
00090   return os;
00091 }
00092
00093 } // end namespace gdcm
00094 //-----------------------------------------------------------------------------
00095 #endif //GDCMPDBHEADER_H
```
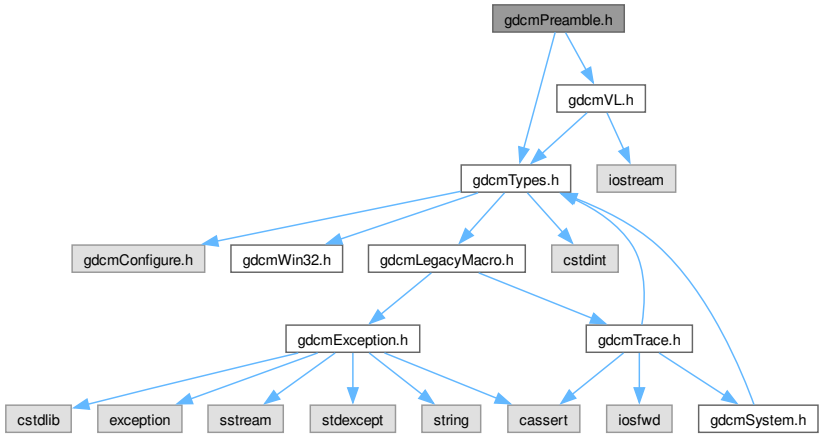

13.165 gdcmPreamble.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVL.h"
```

Include dependency graph for gdcmPreamble.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Preamble

  DICOM Preamble (Part 10).

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Preamble &val)

13.166 gdcmPreamble.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPREAMBLE_H
00015 #define GDCMPREAMBLE_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmVL.h"
00019
00020 namespace gdcm
00021 {
00022
00026 class GDCM_EXPORT Preamble
00027 {
00028 public:
00029   Preamble();
00030   ~Preamble();
00031
00032   friend std::ostream &operator<<(std::ostream &_os, const Preamble &_val);
00033
00035   void Clear();
00036
00038   void Valid();
00039   void Create();
00040   void Remove();
00041
00043   std::istream &Read(std::istream &is);
00044
00046   std::ostream const &Write(std::ostream &os) const;
00047
00049   void Print(std::ostream &os) const;
00050
00052   const char *GetInternal() const { return Internal; }
00053
00055   bool IsEmpty() const { return !Internal; }
00056
00058   VL GetLength() const { return 128 + 4; }
00059
00060   Preamble(Preamble const &):Internal(nullptr)
00061     {
00062     Create();
00063     }
00064   Preamble& operator=(Preamble const &)
00065     {
00066     Create();
00067     return *this;
00068     }
00069 protected:
00070   //
00071   bool IsValid() const {
00072     // is (IsValid == true) => Internal was read
00073     return true;
00074   }
00075
00076 private:
00077   char *Internal;
00078 };
00079 //-----------------------------------------------------------------------------
00080 inline std::ostream& operator<<(std::ostream &os, const Preamble &val)
00081 {
00082   os << val.Internal;
00083   return os;
00084 }
00085
00086 } // end namespace gdcm
```
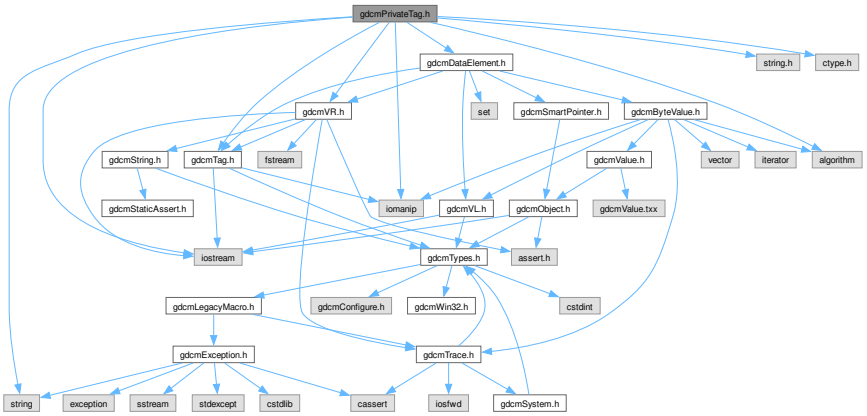

```
00087
00088 #endif //GDCMPREAMBLE_H
```

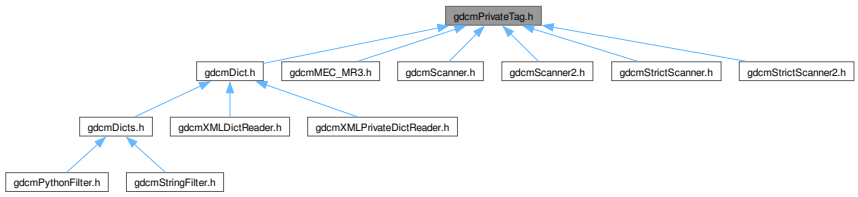
13.167 gdcmPrivateTag.h File Reference

```
#include "gdcmTag.h"
#include "gdcmVR.h"
#include "gdcmDataElement.h"
#include <iostream>
#include <iomanip>
#include <string>
#include <algorithm>
#include <string.h>
#include <ctype.h>
```

Include dependency graph for gdcmPrivateTag.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::PrivateTag

  Class to represent a Private DICOM Data Element (Attribute) Tag (Group, Element, Owner).

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const PrivateTag &val)

13.168 gdcmPrivateTag.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPRIVATETAG_H
00015 #define GDCMPRIVATETAG_H
00016
00017 #include "gdcmTag.h"
00018 #include "gdcmVR.h"
00019 #include "gdcmDataElement.h"
00020
00021 #include <iostream>
00022 #include <iomanip>
00023 #include <string>
00024 #include <algorithm>
00025
00026 #include <string.h> // strlen
00027 #include <ctype.h> // tolower
00028
00029 namespace gdcm_ns
00030 {
00031
00036
00037 // TODO: We could save some space since we only store 8bits for element
00038 class GDCM_EXPORT PrivateTag : public Tag
00039 {
00040   friend std::ostream& operator«(std::ostream &_os, const PrivateTag &_val);
00041 public:
00042   PrivateTag(uint16_t group = 0, uint16_t element = 0, const char *owner =
      "");:Tag(group,element),Owner(owner ? LOComp::Trim(owner) : "") {
00043     // truncate the high bits
00044     SetElement( (uint8_t)element );
00045   }
00046   PrivateTag( Tag const & t, const char *owner = "");:Tag(t),Owner(owner ? LOComp::Trim(owner) : "") {
00047     // truncate the high bits
00048     SetElement( (uint8_t)t.GetElement());
00049   }
00050
00051   const char *GetOwner() const { return Owner.c_str(); }
00052   void SetOwner(const char *owner) { if(owner) Owner = LOComp::Trim(owner); }
00053
00054   PrivateTag &operator=(const PrivateTag &_val)
00055     {
00056     SetElementTag( _val.GetElementTag() );
00057     Owner = _val.Owner;
00058     return *this;
00059     }
00060
00061   bool operator==(const Tag &_val) const
00062     {
```
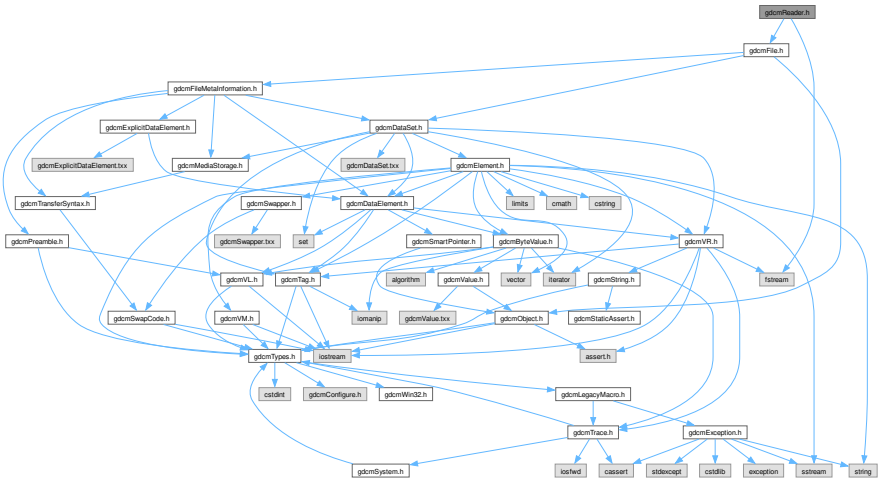

```
00063     return GetElementTag() == _val.GetElementTag();
00064     }
00065   bool operator==(const PrivateTag &_val) const
00066     {
00067     return GetElementTag() == _val.GetElementTag() && Owner == _val.Owner;
00068     }
00069   bool operator!=(const Tag &_val) const
00070     {
00071     return GetElementTag() != _val.GetElementTag();
00072     }
00073   bool operator!=(const PrivateTag &_val) const
00074     {
00075     return GetElementTag() != _val.GetElementTag() || Owner != _val.Owner;
00076     }
00077
00078   bool operator<(const PrivateTag &_val) const;
00079
00082   bool ReadFromCommaSeparatedString(const char *str);
00083
00084   DataElement GetAsDataElement() const;
00085
00086 private:
00087   // SIEMENS MED, GEMS_PETD_01 ...
00088   std::string Owner;
00089 };
00090
00091 inline std::ostream& operator«(std::ostream &os, const PrivateTag &val)
00092 {
00093   //assert( !val.Owner.empty() );
00094   os.setf( std::ios::right );
00095   os « std::hex « '(' « std::setw( 4 ) « std::setfill( '0' )
00096     « val[0] « ',' « std::setw( 2 ) « std::setfill( '0' )
00097     « val[1] « ',';
00098   os « val.Owner;
00099   os « ')' « std::setfill( ' ' ) « std::dec;
00100   return os;
00101 }
00102
00103 } // end namespace gdcm_ns
00104
00105 #endif //GDCMPRIVATETAG_H
```

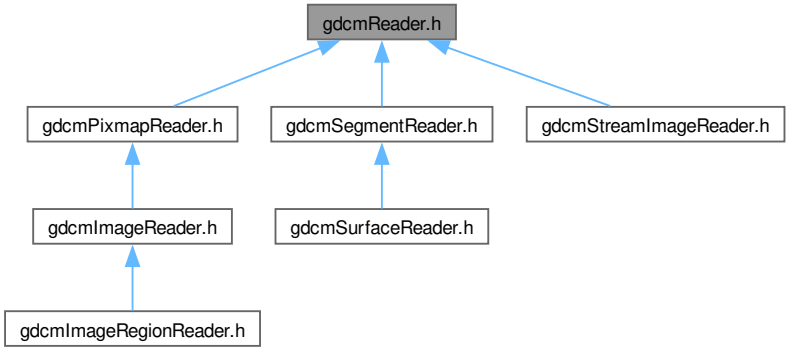
13.169 gdcmReader.h File Reference

```
#include "gdcmFile.h"
#include <fstream>
```

Include dependency graph for gdcmReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Reader

  Reader ala DOM (Document Object Model).

Namespaces

- namespace gdcm

13.170 gdcmReader.h

Go to the documentation of this file.

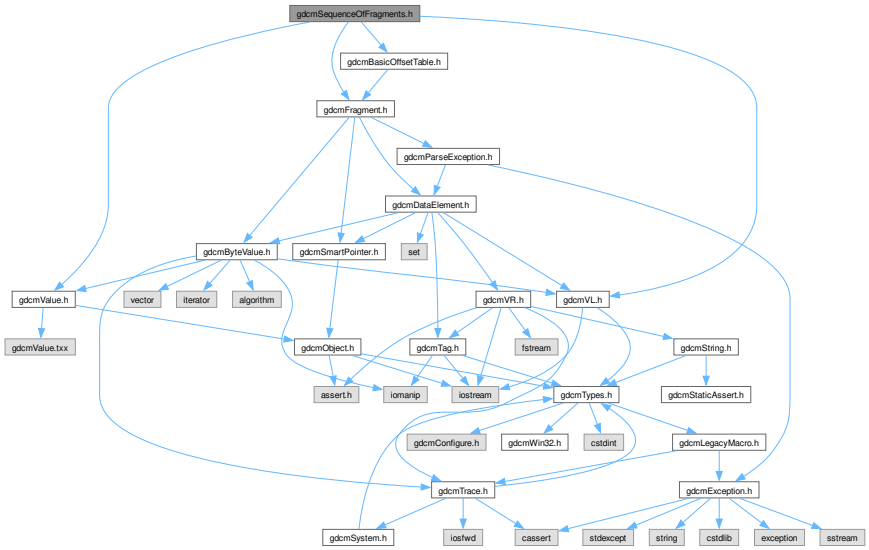
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMREADER_H
00015 #define GDCMREADER_H
00016
00017 #include "gdcmFile.h"
00018
00019 #include <fstream>
00020
00021 namespace gdcm_ns
00022 {
00023   class StreamImageReader;
00053 class GDCM_EXPORT Reader
00054 {
00055 public:
```

```
00056   Reader();
00057   virtual ~Reader();
00058
00060   virtual bool Read(); // Execute()
00061
00064   void SetFileName(const char *filename_native);
00065
00067   void SetStream(std::istream &input_stream) {
00068     Stream = &input_stream;
00069   }
00070
00072   const File &GetFile() const { return *F; }
00073
00075   File &GetFile() { return *F; }
00076
00078   void SetFile(File& file) { F = &file; }
00079
00082   bool ReadUpToTag(const Tag & tag, std::set<Tag> const & skiptags = std::set<Tag>() );
00083
00085   bool ReadSelectedTags(std::set<Tag> const & tags, bool readvalues = true);
00086
00088   bool ReadSelectedPrivateTags(std::set<PrivateTag> const & ptags, bool readvalues = true);
00089
00092   bool CanRead() const;
00093
00096   size_t GetStreamCurrentPosition() const;
00097
00098 protected:
00099   bool ReadPreamble();
00100   bool ReadMetaInformation();
00101   bool ReadDataSet();
00102
00103   SmartPointer<File> F;
00104
00105   friend class StreamImageReader; //need to be friended to be able to grab the GetStreamPtr
00106
00107   //this function is added for the StreamImageReader, which needs to read
00108   //up to the pixel data and then stops right before reading the pixel data.
00109   //it's used to get that position, so that reading can continue
00110   //apace once the read function is called.
00111   //so, this function gets the stream directly, and then allows for position information
00112   //from the tellg function, and allows for stream/pointer manip in order
00113   //to read the pixel data.  Note, of course, that reading pixel elements
00114   //will still have to be subject to endianness swaps, if necessary.
00115   std::istream* GetStreamPtr() const { return Stream; }
00116
00117 private:
00118   template <typename T_Caller>
00119   bool InternalReadCommon(const T_Caller &caller);
00120   TransferSyntax GuessTransferSyntax();
00121   std::istream *Stream;
00122   std::ifstream *Ifstream;
00123
00124   // prevent copy/move to avoid 2 ifstream leak
00125   Reader(const Reader &) = delete;
00126   Reader &operator=(const Reader &) = delete;
00127   Reader(const Reader &&) = delete;
00128   Reader &operator=(const Reader &&) = delete;
00129 };
00130
00136
00137 } // end namespace gdcm_ns
00138
00139
00140 #endif //GDCMREADER_H
```

13.171 gdcmSequenceOfFragments.h File Reference

```
#include "gdcmValue.h"
#include "gdcmVL.h"
#include "gdcmFragment.h"
```

`#include "gdcmBasicOffsetTable.h"`
Include dependency graph for gdcmSequenceOfFragments.h:



Classes

- class gdcm::SequenceOfFragments

  Class to represent a Sequence Of Fragments.

Namespaces

- namespace gdcm

13.172 gdcmSequenceOfFragments.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSEQUENCEOFFRAGMENTS_H
00015 #define GDCMSEQUENCEOFFRAGMENTS_H
00016
00017 #include "gdcmValue.h"
00018 #include "gdcmVL.h"
00019 #include "gdcmFragment.h"
```

```
00020 #include "gdcmBasicOffsetTable.h"
00021
00022 namespace gdcm_ns
00023 {
00024
00025   // FIXME gdcmSequenceOfItems and gdcmSequenceOfFragments
00026   // should be rethink (duplicate code)
00031 class GDCM_EXPORT SequenceOfFragments : public Value
00032 {
00033 public:
00034   // Typdefs:
00035   typedef std::vector<Fragment> FragmentVector;
00036   typedef FragmentVector::size_type SizeType;
00037   typedef FragmentVector::iterator Iterator;
00038   typedef FragmentVector::const_iterator ConstIterator;
00039   Iterator Begin() { return Fragments.begin(); }
00040   Iterator End() { return Fragments.end(); }
00041   ConstIterator Begin() const { return Fragments.begin(); }
00042   ConstIterator End() const { return Fragments.end(); }
00043
00045   SequenceOfFragments():Table(),SequenceLengthField(0xFFFFFFFF) { }
00046
00048   VL GetLength() const override {
00049     return SequenceLengthField;
00050   }
00051
00053   void SetLength(VL length) override {
00054     SequenceLengthField = length;
00055   }
00056
00058   void Clear() override;
00059
00061   void AddFragment(Fragment const &item);
00062
00063   // Compute the length of all fragments (and fragments only!).
00064   // Basically the size of the PixelData as stored (in bytes).
00065   unsigned long ComputeByteLength() const;
00066
00067   // Compute the length of fragments (in bytes)+ length of tag...
00068   // to be used for computation of Group Length
00069   VL ComputeLength() const;
00070
00071   // Get the buffer
00072   bool GetBuffer(char *buffer, unsigned long length) const;
00073   bool GetFragBuffer(unsigned int fragNb, char *buffer, unsigned long &length) const;
00074
00075   SizeType GetNumberOfFragments() const;
00076   const Fragment& GetFragment(SizeType num) const;
00077
00078   // Write the buffer of each fragment (call WriteBuffer on all Fragments, which are
00079   // ByteValue). No Table information is written.
00080   bool WriteBuffer(std::ostream &os) const;
00081
00082   const BasicOffsetTable &GetTable() const { return Table; }
00083   BasicOffsetTable &GetTable() { return Table; }
00084
00085 template <typename TSwap>
00086 std::istream& Read(std::istream &is, bool readvalues = true)
00087 {
00088   assert( SequenceLengthField.IsUndefined() );
00089   ReadPreValue<TSwap>(is);
00090   return ReadValue<TSwap>(is, readvalues);
00091 }
00092
00093 template <typename TSwap>
00094 std::istream& ReadPreValue(std::istream &is)
00095 {
00096   // First item is the basic offset table:
00097 #if 0
00098   try
00099     {
00100     Table.Read<TSwap>(is);
00101     gdcmDebugMacro( "Table: " « Table );
00102     }
00103   catch(...)
00104     {
00105     // throw "SIEMENS Icon thingy";
00106     // Bug_Siemens_PrivateIconNoItem.dcm
00107     // First thing first let's rewind
00108     is.seekg(-4, std::ios::cur);
00109     // FF D8 <=> Start of Image (SOI) marker
```

```
00110     // FF E0 <=> APP0 Reserved for Application Use
00111     if ( Table.GetTag() == Tag(0xd8ff,0xe0ff) )
00112       {
00113       Table = BasicOffsetTable(); // clear up stuff
00114       //Table.SetByteValue( "", 0 );
00115       Fragment frag;
00116       if( FillFragmentWithJPEG( frag, is ) )
00117         {
00118         Fragments.push_back( frag );
00119         }
00120       return is;
00121       }
00122     else
00123       {
00124       throw "Catch me if you can";
00125       //assert(0);
00126       }
00127     }
00128 #else
00129   Table.Read<TSwap>(is);
00130   gdcmDebugMacro( "Table: " << Table );
00131 #endif
00132   return is;
00133 }
00134
00135 template <typename TSwap>
00136 std::istream& ReadValue(std::istream &is, bool /*readvalues*/)
00137 {
00138   const Tag seqDelItem(0xfffe,0xe0dd);
00139   // not used for now...
00140   Fragment frag;
00141   try
00142     {
00143     while( frag.Read<TSwap>(is) && frag.GetTag() != seqDelItem )
00144       {
00145       //gdcmDebugMacro( "Frag: " << frag );
00146       Fragments.push_back( frag );
00147       }
00148     assert( frag.GetTag() == seqDelItem && frag.GetVL() == 0 );
00149     }
00150   catch(Exception &ex)
00151     {
00152     (void)ex;
00153 #ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
00154     // that's ok ! In all cases the whole file was read, because
00155     // Fragment::Read only fail on eof() reached 1.
00156     // SIEMENS-JPEG-CorruptFrag.dcm is more difficult to deal with, we have a
00157     // partial fragment, read we decide to add it anyway to the stack of
00158     // fragments (eof was reached so we need to clear error bit)
00159     if( frag.GetTag() == Tag(0xfffe,0xe000)  )
00160       {
00161       gdcmWarningMacro( "Pixel Data Fragment could be corrupted. Use file at own risk" );
00162       Fragments.push_back( frag );
00163       is.clear(); // clear the error bit
00164       }
00165     // 2. GENESIS_SIGNA-JPEG-CorruptFrag.dcm
00166     else if ( frag.GetTag() == Tag(0xddff,0x00e0) )
00167       {
00168       assert( Fragments.size() == 1 );
00169       const ByteValue *bv = Fragments[0].GetByteValue();
00170       assert( (unsigned char)bv->GetPointer()[ bv->GetLength() - 1 ] == 0xfe );
00171       // Yes this is an extra copy, this is a bug anyway, go fix YOUR code
00172       Fragments[0].SetByteValue( bv->GetPointer(), bv->GetLength() - 1 );
00173       gdcmWarningMacro( "JPEG Fragment length was declared with an extra byte"
00174         " at the end: stripped !" );
00175       is.clear(); // clear the error bit
00176       }
00177     // 3. LEICA/WSI
00178     else if ( (frag.GetTag().GetGroup() == 0x00ff)
00179       && ((frag.GetTag().GetElement() & 0x00ff) == 0xe0) )
00180       {
00181       // Looks like there is a mess with offset and odd byte array
00182       // We are going first to backtrack one byte back, and then use a
00183       // ReadBacktrack function which in turn may backtrack up to 10 bytes
00184       // backward. This appears to be working on a set of DICOM/WSI files from
00185       // LEICA
00186       gdcmWarningMacro( "Trying to fix the even-but-odd value length bug #1" );
00187       assert( Fragments.size() );
00188       const size_t lastf = Fragments.size() - 1;
00189       const ByteValue *bv = Fragments[ lastf ].GetByteValue();
00190       const char *a = bv->GetPointer();
```

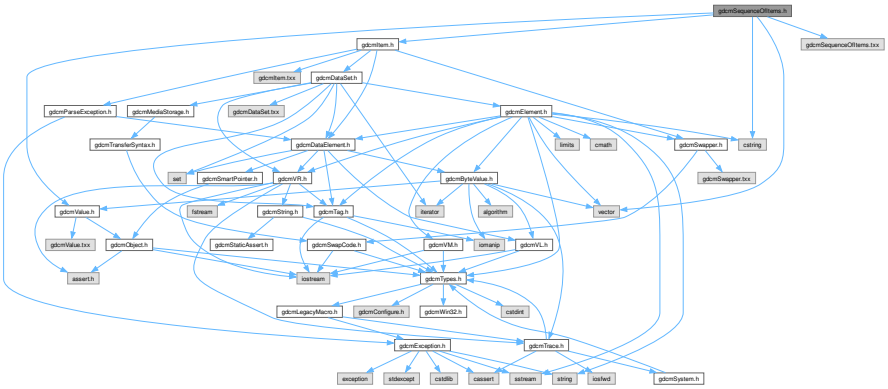
```
00191       gdcmAssertAlwaysMacro( (unsigned char)a[ bv->GetLength() - 1 ] == 0xfe );
00192       Fragments[ lastf ].SetByteValue( bv->GetPointer(), bv->GetLength() - 1 );
00193       is.seekg( -9, std::ios::cur );
00194       assert( is.good() );
00195       while( frag.ReadBacktrack<TSwap>(is) && frag.GetTag() != seqDelItem )
00196         {
00197         gdcmDebugMacro( "Frag: " << frag );
00198         Fragments.push_back( frag );
00199         }
00200       assert( frag.GetTag() == seqDelItem && frag.GetVL() == 0 );
00201       }
00202     // 4. LEICA/WSI (bis)
00203     else if ( frag.GetTag().GetGroup() == 0xe000 )
00204       {
00205       // Looks like there is a mess with offset and odd byte array
00206       // We are going first to backtrack one byte back, and then use a
00207       // ReadBacktrack function which in turn may backtrack up to 10 bytes
00208       // backward. This appears to be working on a set of DICOM/WSI files from
00209       // LEICA
00210       gdcmWarningMacro( "Trying to fix the even-but-odd value length bug #2" );
00211       assert( Fragments.size() );
00212       const size_t lastf = Fragments.size() - 1;
00213       const ByteValue *bv = Fragments[ lastf ].GetByteValue();
00214       const char *a = bv->GetPointer();
00215       gdcmAssertAlwaysMacro( (unsigned char)a[ bv->GetLength() - 2 ] == 0xfe );
00216       Fragments[ lastf ].SetByteValue( bv->GetPointer(), bv->GetLength() - 2 );
00217       is.seekg( -10, std::ios::cur );
00218       assert( is.good() );
00219       while( frag.ReadBacktrack<TSwap>(is) && frag.GetTag() != seqDelItem )
00220         {
00221         gdcmDebugMacro( "Frag: " << frag );
00222         Fragments.push_back( frag );
00223         }
00224       assert( frag.GetTag() == seqDelItem && frag.GetVL() == 0 );
00225       }
00226     // 5. LEICA/WSI (ter)
00227     else if ( (frag.GetTag().GetGroup() & 0x00ff) == 0x00e0
00228     && (frag.GetTag().GetElement() & 0xff00) == 0x0000 )
00229       {
00230       // Looks like there is a mess with offset and odd byte array
00231       // We are going first to backtrack one byte back, and then use a
00232       // ReadBacktrack function which in turn may backtrack up to 10 bytes
00233       // backward. This appears to be working on a set of DICOM/WSI files from
00234       // LEICA
00235       gdcmWarningMacro( "Trying to fix the even-but-odd value length bug #3" );
00236       assert( Fragments.size() );
00237       const size_t lastf = Fragments.size() - 1;
00238       const ByteValue *bv = Fragments[ lastf ].GetByteValue();
00239       const char *a = bv->GetPointer();
00240       gdcmAssertAlwaysMacro( bv->GetLength() >= 3 && (unsigned char)a[ bv->GetLength() - 3 ] == 0xfe );
00241       Fragments[ lastf ].SetByteValue( bv->GetPointer(), bv->GetLength() - 3 );
00242       is.seekg( -11, std::ios::cur );
00243       assert( is.good() );
00244       while( frag.ReadBacktrack<TSwap>(is) && frag.GetTag() != seqDelItem )
00245         {
00246         gdcmDebugMacro( "Frag: " << frag );
00247         Fragments.push_back( frag );
00248         }
00249       assert( frag.GetTag() == seqDelItem && frag.GetVL() == 0 );
00250       }
00251     else
00252       {
00253       // 3. gdcm-JPEG-LossLess3a.dcm: easy case, an extra tag was found
00254       // instead of terminator (eof is the next char)
00255       gdcmWarningMacro( "Reading failed at Tag:" << frag.GetTag() << " Index #"
00256         << Fragments.size() << " Offset " << is.tellg() << ". Use file at own risk."
00257         << ex.what() );
00258       }
00259 #endif /* GDCM_SUPPORT_BROKEN_IMPLEMENTATION */
00260     }
00261
00262   return is;
00263 }
00264
00265 template <typename TSwap>
00266 std::ostream const &Write(std::ostream &os) const
00267 {
00268   if( !Table.Write<TSwap>(os) )
00269     {
00270     assert(0 && "Should not happen");
00271     return os;
```

```
00272     }
00273   for(ConstIterator it = Begin();it != End(); ++it)
00274     {
00275     it->Write<TSwap>(os);
00276     }
00277   // seq del item is not stored, write it !
00278   const Tag seqDelItem(0xfffe,0xe0dd);
00279   seqDelItem.Write<TSwap>(os);
00280   VL zero = 0;
00281   zero.Write<TSwap>(os);
00282
00283   return os;
00284 }
00285
00286 //#if defined(SWIGPYTHON) || defined(SWIGCSHARP) || defined(SWIGJAVA)
00287   // For now leave it there, this does not make sense in the C++ layer
00288   // Create a new object
00289   static SmartPointer<SequenceOfFragments> New()
00290   {
00291      return new SequenceOfFragments();
00292   }
00293 //#endif
00294
00295 protected:
00296 public:
00297   void Print(std::ostream &os) const override {
00298     os « "SQ L= " « SequenceLengthField « "\n";
00299     os « "Table:" « Table « "\n";
00300     for(ConstIterator it = Begin();it != End(); ++it)
00301       {
00302       os « "  " « *it « "\n";
00303       }
00304     assert( SequenceLengthField.IsUndefined() );
00305       {
00306       const Tag seqDelItem(0xfffe,0xe0dd);
00307       VL zero = 0;
00308       os « seqDelItem;
00309       os « "\t" « zero;
00310       }
00311   }
00312   bool operator==(const Value &val) const override
00313     {
00314     const SequenceOfFragments &sqf = dynamic_cast<const SequenceOfFragments&>(val);
00315     return Table == sqf.Table &&
00316       SequenceLengthField == sqf.SequenceLengthField &&
00317       Fragments == sqf.Fragments;
00318     }
00319
00320 private:
00321   BasicOffsetTable Table;
00322   VL SequenceLengthField;
00324   FragmentVector Fragments;
00325
00326 private:
00327   bool FillFragmentWithJPEG( Fragment & frag, std::istream & is );
00328 };
00329
00334
00335 } // end namespace gdcm_ns
00336
00337 #endif //GDCMSEQUENCEOFFRAGMENTS_H
```

13.173 gdcmSequenceOfItems.h File Reference

```
#include "gdcmValue.h"
#include "gdcmItem.h"
#include <vector>
#include <cstring>
#include "gdcmSequenceOfItems.txx"
```

Include dependency graph for gdcmSequenceOfItems.h:



Classes

- class gdcm::SequenceOfItems

  Class to represent a Sequence Of Items.

Namespaces

- namespace gdcm

13.174 gdcmSequenceOfItems.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMSEQUENCEOFITEMS_H
00016 #define GDCMSEQUENCEOFITEMS_H
00017
00018 #include "gdcmValue.h"
00019 #include "gdcmItem.h"
00020
00021 #include <vector>
00022 #include <cstring> // strcmp
00023
00024 namespace gdcm_ns
00025 {
00026
00039 class GDCM_EXPORT SequenceOfItems : public Value
00040 {
00041 public:
```

```
00042   // Typdefs:
00043   typedef std::vector< Item > ItemVector;
00044   typedef ItemVector::size_type SizeType;
00045   typedef ItemVector::iterator Iterator;
00046   typedef ItemVector::const_iterator ConstIterator;
00047   Iterator Begin() { return Items.begin(); }
00048   Iterator End() { return Items.end(); }
00049   ConstIterator Begin() const { return Items.begin(); }
00050   ConstIterator End() const { return Items.end(); }
00051
00053   SequenceOfItems():SequenceLengthField(0xFFFFFFFF) { }
00054   //SequenceOfItems(VL const &vl = 0xFFFFFFFF):SequenceLengthField(vl),NType(type) { }
00055
00057   VL GetLength() const override { return SequenceLengthField; }
00059   void SetLength(VL length) override {
00060     SequenceLengthField = length;
00061   }
00063   void SetLengthToUndefined();
00065   bool IsUndefinedLength() const {
00066     return SequenceLengthField.IsUndefined();
00067   }
00068
00069   template <typename TDE>
00070   VL ComputeLength() const;
00071
00073   void Clear() override;
00074
00076   void AddItem(Item const &item);
00077
00079   Item & AddNewUndefinedLengthItem();
00080
00083   bool RemoveItemByIndex( const SizeType index );
00084
00085   bool IsEmpty() const { return Items.empty(); }
00086   SizeType GetNumberOfItems() const {  return Items.size(); }
00087   void SetNumberOfItems(SizeType n) {  Items.resize(n); }
00088
00089   /* WARNING: first item is #1 (see DICOM standard)
00090    *  Each Item shall be implicitly assigned an ordinal position starting with the value 1 for the
00091    * first Item in the Sequence, and incremented by 1 with each subsequent Item. The last Item in the
00092    * Sequence shall have an ordinal position equal to the number of Items in the Sequence.
00093    */
00094   const Item &GetItem(SizeType position) const;
00095   Item &GetItem(SizeType position);
00096
00097   SequenceOfItems &operator=(const SequenceOfItems &val) {
00098     SequenceLengthField = val.SequenceLengthField;
00099     Items = val.Items;
00100     return *this;
00101     }
00102
00103   template <typename TDE, typename TSwap>
00104   std::istream &Read(std::istream &is, bool readvalues = true)
00105     {
00106     (void)readvalues;
00107     const Tag seqDelItem(0xfffe,0xe0dd);
00108     if( SequenceLengthField.IsUndefined() )
00109       {
00110       Item item;
00111       while( item.Read<TDE,TSwap>(is) && item.GetTag() != seqDelItem )
00112         {
00113         //gdcmDebugMacro( "Item: " « item );
00114         assert( item.GetTag() != seqDelItem );
00115         Items.push_back( item );
00116         item.Clear();
00117         }
00118       //assert( item.GetTag() == seqDelItem && item.GetVL() == 0 );
00119       }
00120     else
00121       {
00122       Item item;
00123       VL l = 0;
00124       //is.seekg( SequenceLengthField, std::ios::cur ); return is;
00125       while( l != SequenceLengthField )
00126         {
00127         try
00128           {
00129           item.Read<TDE,TSwap>(is);
00130           }
00131         catch( Exception &ex )
00132           {
```

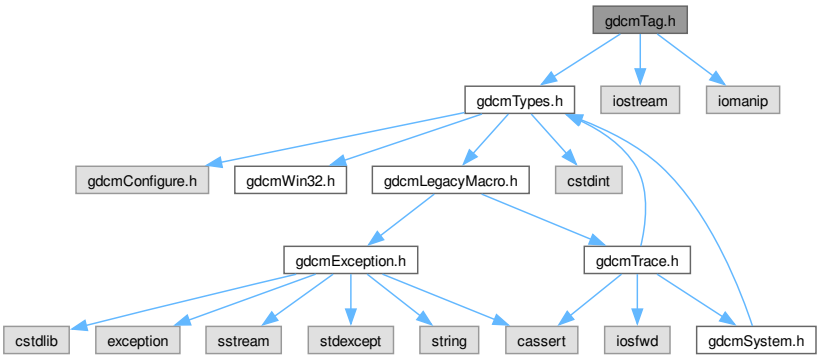
```
00133           if( strcmp( ex.GetDescription(), "Changed Length" ) == 0 )
00134             {
00135             VL newlength = l + item.template GetLength<TDE>();
00136             if( newlength > SequenceLengthField )
00137               {
00138               // BogugsItemAndSequenceLength.dcm
00139               gdcmWarningMacro( "SQ length is wrong" );
00140               SequenceLengthField = newlength;
00141               }
00142             }
00143           else
00144             {
00145             throw ex;
00146             }
00147           }
00148 #ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
00149         if( item.GetTag() == seqDelItem )
00150           {
00151           gdcmWarningMacro( "SeqDelItem found in defined length Sequence. Skipping" );
00152           assert( item.GetVL() == 0 );
00153           assert( item.GetNestedDataSet().Size() == 0 );
00154           // we need to pay attention that the length of the Sequence of Items will be wrong
00155           // this way. Indeed by not adding this item we are changing the size of this sqi
00156           }
00157         else // Not a seq del item marker
00158 #endif
00159           {
00160           // By design we never load them. If we were to load those attribute
00161           // as normal item it would become very complex to convert a sequence
00162           // from defined length to undefined length with the risk to write two
00163           // seq del marker
00164           Items.push_back( item );
00165           }
00166         l += item.template GetLength<TDE>();
00167         if( l > SequenceLengthField )
00168           {
00169           gdcmDebugMacro( "Found: Length of Item larger than expected" );
00170           throw "Length of Item larger than expected";
00171           }
00172         assert( l <= SequenceLengthField );
00173         //std::cerr « "sqi debug len: " « is.tellg() « " " «  l « " " «  SequenceLengthField « std::endl;
00174 #ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
00175         // MR_Philips_Intera_No_PrivateSequenceImplicitVR.dcm
00176         // (0x2005, 0x1080): for some reason computation of length fails...
00177         if( SequenceLengthField == 778 && l == 774 )
00178           {
00179           gdcmWarningMacro( "PMS: Super bad hack" );
00180           SequenceLengthField = l;
00181           throw Exception( "Wrong Length" );
00182           //l = SequenceLengthField;
00183           }
00184         // Bug_Philips_ItemTag_3F3F
00185         // (0x2005, 0x1080): Because we do not handle fully the bug at the item
00186         // level we need to check here too
00187         else if ( SequenceLengthField == 444 && l == 3*71 )
00188           {
00189           // This one is a double bug. Item length is wrong and impact SQ length
00190           gdcmWarningMacro( "PMS: Super bad hack" );
00191           l = SequenceLengthField;
00192           }
00193 #endif
00194         }
00195       assert( l == SequenceLengthField );
00196       }
00197     return is;
00198     }
00199
00200   template <typename TDE,typename TSwap>
00201   std::ostream const &Write(std::ostream &os) const
00202     {
00203     typename ItemVector::const_iterator it = Items.begin();
00204     for(;it != Items.end(); ++it)
00205       {
00206       it->Write<TDE,TSwap>(os);
00207       }
00208     if( SequenceLengthField.IsUndefined() )
00209       {
00210       // seq del item is not stored, write it !
00211       const Tag seqDelItem(0xfffe,0xe0dd);
00212       seqDelItem.Write<TSwap>(os);
00213       VL zero = 0;
```

```
00214       zero.Write<TSwap>(os);
00215       }
00216
00217     return os;
00218     }
00219
00220 //protected:
00221   void Print(std::ostream &os) const override {
00222     os « "\t(" « SequenceLengthField « ")\n";
00223     ItemVector::const_iterator it =
00224       Items.begin();
00225     for(;it != Items.end(); ++it)
00226       {
00227       os « "  " « *it;
00228       }
00229     if( SequenceLengthField.IsUndefined() )
00230       {
00231       const Tag seqDelItem(0xfffe,0xe0dd);
00232       VL zero = 0;
00233       os « seqDelItem;
00234       os « "\t" « zero;
00235       }
00236   }
00237
00238   static SmartPointer<SequenceOfItems> New()
00239   {
00240      return new SequenceOfItems;
00241   }
00242   bool FindDataElement(const Tag &t) const;
00243
00244   bool operator==(const Value &val) const override
00245     {
00246     const SequenceOfItems &sqi = dynamic_cast<const SequenceOfItems&>(val);
00247     return SequenceLengthField == sqi.SequenceLengthField &&
00248       Items == sqi.Items;
00249     }
00250
00251 private:
00252 public:
00254   VL SequenceLengthField;
00256   ItemVector Items;
00257 };
00258
00259 } // end namespace gdcm_ns
00260
00261 #include "gdcmSequenceOfItems.txx"
00262
00263 #endif //GDCMSEQUENCEOFITEMS_H
```

13.175 gdcmTag.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
#include <iomanip>
```

Include dependency graph for gdcmTag.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Tag

  Class to represent a DICOM Data Element (Attribute) Tag (Group, Element).

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Tag &_val)
- std::istream & gdcm::operator>> (std::istream &_is, Tag &_val)

13.176 gdcmTag.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTAG_H
00015 #define GDCMTAG_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <iostream>
00020 #include <iomanip>
00021
00022 namespace gdcm
00023 {
00024
00038 class GDCM_EXPORT Tag
00039 {
00040 public:
00042   Tag(uint16_t group, uint16_t element) {
00043     ElementTag.tags[0] = group; ElementTag.tags[1] = element;
00044   }
00047   Tag(uint32_t tag = 0) {
00048     SetElementTag(tag);
00049   }
00050
00051   friend std::ostream& operator<<(std::ostream &_os, const Tag &_val);
00052   friend std::istream& operator>>(std::istream &_is, Tag &_val);
00053
00055   uint16_t GetGroup() const { return ElementTag.tags[0]; }
00057   uint16_t GetElement() const { return ElementTag.tags[1]; }
00059   void SetGroup(uint16_t group) { ElementTag.tags[0] = group; }
00061   void SetElement(uint16_t element) { ElementTag.tags[1] = element; }
00063   void SetElementTag(uint16_t group, uint16_t element) {
00064     ElementTag.tags[0] = group; ElementTag.tags[1] = element;
00065   }
00066
00068   uint32_t GetElementTag() const {
00069 #ifndef GDCM_WORDS_BIGENDIAN
00070     return (ElementTag.tag<<16) | (ElementTag.tag>>16);
00071 #else
00072     return ElementTag.tag;
00073 #endif
00074   }
00075
00077   void SetElementTag(uint32_t tag) {
00078 #ifndef GDCM_WORDS_BIGENDIAN
00079     tag = ( (tag<<16) | (tag>>16) );
00080 #endif
00081     ElementTag.tag = tag;
00082   }
00083
00085   const uint16_t &operator[](const unsigned int &_id) const
00086     {
00087     assert(_id<2);
00088     return ElementTag.tags[_id];
00089     }
00091   uint16_t &operator[](const unsigned int &_id)
00092     {
00093     assert(_id<2);
00094     return ElementTag.tags[_id];
00095     }
00096
00097   Tag &operator=(const Tag &_val)
00098     {
00099     ElementTag.tag = _val.ElementTag.tag;
00100     return *this;
```

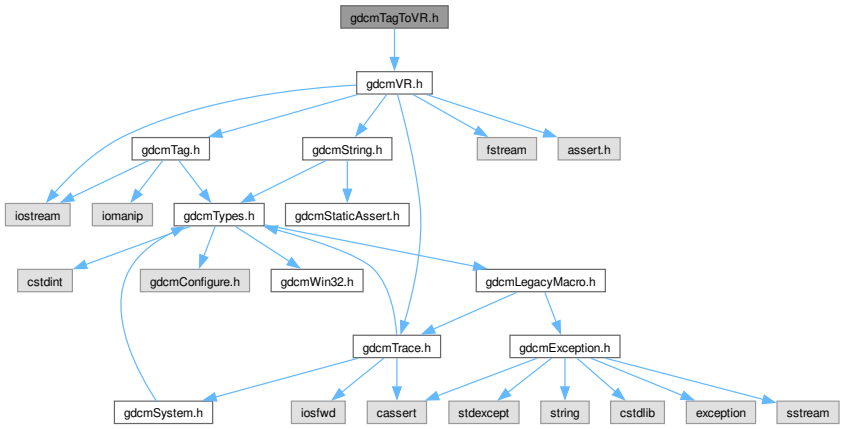
```
00101     }
00102
00103   bool operator==(const Tag &_val) const
00104     {
00105     return ElementTag.tag == _val.ElementTag.tag;
00106     }
00107   bool operator!=(const Tag &_val) const
00108     {
00109     return ElementTag.tag != _val.ElementTag.tag;
00110     }
00111
00114   // FIXME FIXME FIXME TODO
00115   // the following is pretty dumb. Since we have control over who is group
00116   // and who is element, we should reverse them in little endian and big endian case
00117   // since what we really want is fast comparison and not guarantee that group is in #0
00118   // ...
00119   bool operator<(const Tag &_val) const
00120     {
00121 #ifndef GDCM_WORDS_BIGENDIAN
00122     if( ElementTag.tags[0] < _val.ElementTag.tags[0] )
00123       return true;
00124     if( ElementTag.tags[0] == _val.ElementTag.tags[0]
00125       && ElementTag.tags[1] <  _val.ElementTag.tags[1] )
00126       return true;
00127     return false;
00128 #else
00129     // Plain comparison is enough!
00130     return ( ElementTag.tag < _val.ElementTag.tag );
00131 #endif
00132     }
00133   bool operator<=(const Tag &t2) const
00134     {
00135     const Tag &t1 = *this;
00136     return t1 == t2 || t1 < t2;
00137     }
00138
00139   Tag(const Tag &_val)
00140     {
00141     ElementTag.tag = _val.ElementTag.tag;
00142     }
00144   uint32_t GetLength() const { return 4; }
00145
00150   bool IsPublic() const { return !(ElementTag.tags[0] % 2); }
00151
00155   bool IsPrivate() const { return !IsPublic(); }
00156
00157   //-----------------------------------------------------------------------------
00159   template <typename TSwap>
00160   std::istream &Read(std::istream &is)
00161     {
00162     if( is.read(ElementTag.bytes, 4) )
00163       TSwap::SwapArray(ElementTag.tags, 2);
00164     return is;
00165     }
00166
00168   template <typename TSwap>
00169   const std::ostream &Write(std::ostream &os) const
00170     {
00171     uint16_t copy[2];
00172     copy[0]= ElementTag.tags[0];
00173     copy[1]= ElementTag.tags[1];
00174     TSwap::SwapArray(copy, 2);
00175     return os.write((char*)(&copy), 4);
00176     }
00177
00179   Tag GetPrivateCreator() const
00180     {
00181     // See PS 3.5 - 7.8.1 PRIVATE DATA ELEMENT TAGS
00182     // eg: 0x0123,0x1425 -> 0x0123,0x0014
00183     if( IsPrivate() && !IsPrivateCreator() )
00184       {
00185       Tag r = *this;
00186       r.SetElement( (uint16_t)(GetElement() » 8) );
00187       return r;
00188       }
00189     if( IsPrivateCreator() ) return *this;
00190     return Tag(0x0,0x0);
00191     }
00193   void SetPrivateCreator(Tag const &t)
00194     {
00195     // See PS 3.5 - 7.8.1 PRIVATE DATA ELEMENT TAGS
```

```
00196     // eg: 0x0123,0x0045 -> 0x0123,0x4567
00197     assert( t.IsPrivate() /*&& t.IsPrivateCreator()*/ );
00198     const uint16_t element = (uint16_t)(t.GetElement() << 8);
00199     const uint16_t base = (uint16_t)(GetElement() << 8);
00200     SetElement( (uint16_t)((base >> 8) + element) );
00201     SetGroup( t.GetGroup() );
00202     }
00203
00206   bool IsPrivateCreator() const
00207     {
00208     return IsPrivate() && (GetElement() <= 0xFF && GetElement() >= 0x10);
00209     }
00210
00212   bool IsIllegal() const
00213     {
00214     // DICOM reserved those groups:
00215     return GetGroup() == 0x0001 || GetGroup() == 0x0003 || GetGroup() == 0x0005 || GetGroup() == 0x0007
00216     // This is a very special case, in private group, one cannot use element [0x01,0x09] ...
00217 //      || (IsPrivate() && !IsPrivateCreator() && !IsGroupLength());
00218       || (IsPrivate() && GetElement() > 0x0 && GetElement() < 0x10 );
00219     }
00220
00222   bool IsGroupLength() const
00223     {
00224     return GetElement() == 0x0;
00225     }
00226
00228   bool IsGroupXX(const Tag &t) const
00229     {
00230     if( t.GetElement() == GetElement() )
00231       {
00232       if( t.IsPrivate() ) return false;
00233       uint16_t group = (uint16_t)((GetGroup() >> 8 ) << 8);
00234       return group == t.GetGroup();
00235       }
00236     return false;
00237     }
00238
00244   bool ReadFromCommaSeparatedString(const char *str);
00245
00248   bool ReadFromContinuousString(const char *str);
00249
00252   std::string PrintAsContinuousString() const;
00253
00255   std::string PrintAsContinuousUpperCaseString() const;
00256
00259   bool ReadFromPipeSeparatedString(const char *str);
00260
00263   std::string PrintAsPipeSeparatedString() const;
00264
00265 private:
00266   union { uint32_t tag; uint16_t tags[2]; char bytes[4]; } ElementTag;
00267 };
00268 //-----------------------------------------------------------------------------
00269 inline std::istream& operator>>(std::istream &_is, Tag &_val)
00270 {
00271   char c;
00272   _is >> c;
00273   uint16_t a, b;
00274   _is >> std::hex >> a;
00275   //_is >> std::hex >> _val[0];
00276   //_is >> std::hex >> _val.ElementTag.tags[0];
00277   _is >> c;
00278   //_is >> _val[1];
00279   //_is >> std::hex >> _val.ElementTag.tags[1];
00280   _is >> std::hex >> b;
00281   _is >> c;
00282   _val.SetGroup( a );
00283   _val.SetElement( b );
00284   return _is;
00285 }
00286
00287 inline std::ostream& operator<<(std::ostream &_os, const Tag &_val)
00288 {
00289   _os.setf( std::ios::right);
00290   _os << std::hex << '(' << std::setw( 4 ) << std::setfill( '0' )
00291     << _val[0] << ',' << std::setw( 4 ) << std::setfill( '0' )
00292     << _val[1] << ')' << std::setfill( ' ' ) << std::dec;
00293   return _os;
00294 }
00295
```

```
00296 } // end namespace gdcm
00297
00298 #endif //GDCMTAG_H
```

13.177 gdcmTagToVR.h File Reference

`#include "gdcmVR.h"`
Include dependency graph for gdcmTagToVR.h:



Namespaces

- namespace gdcm

Functions

- VR::VRType gdcm::GetVRFromTag (Tag const &tag)

13.178 gdcmTagToVR.h

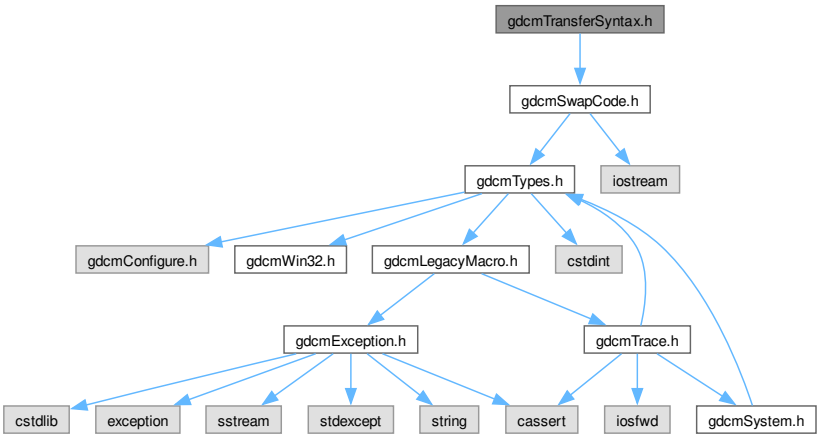
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
```

```
00014 #ifndef GDCMTAGTOVR_H
00015 #define GDCMTAGTOVR_H
00016
00017 #include "gdcmVR.h"
00018
00019 namespace gdcm
00020 {
00021   class Tag;
00022   VR::VRType GetVRFromTag( Tag const & tag );
00023 }
00024
00025 #endif // GDCMTAGTOVR_H
```

13.179 gdcmTransferSyntax.h File Reference

`#include "gdcmSwapCode.h"`
Include dependency graph for gdcmTransferSyntax.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::TransferSyntax

  Class to manipulate Transfer Syntax.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const TransferSyntax &ts)

13.180 gdcmTransferSyntax.h

Go to the documentation of this file.

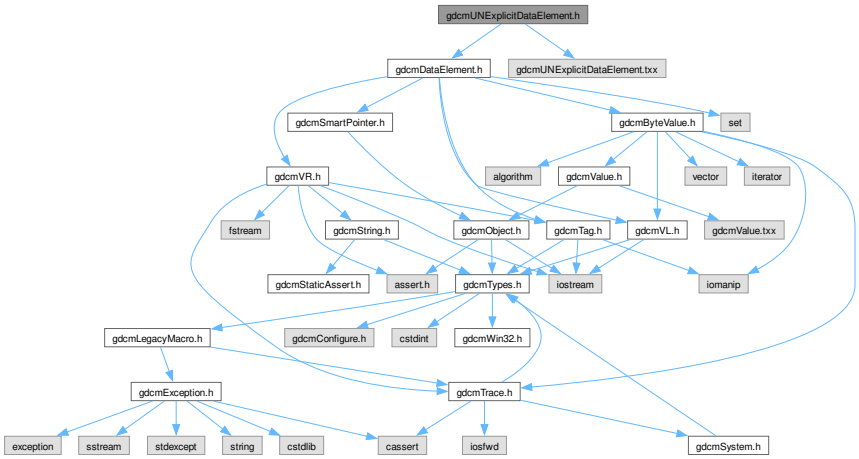
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTRANSFERSYNTAX_H
00015 #define GDCMTRANSFERSYNTAX_H
00016
00017 #include "gdcmSwapCode.h"
00018
00019 namespace gdcm
00020 {
00021
00039 class GDCM_EXPORT TransferSyntax
00040 {
00041 public:
00042   typedef enum {
00043     Unknown = 0,
00044     Explicit,
00045     Implicit
00046   } NegociatedType;
00047
00048 #if 0
00049   //NOT FLEXIBLE, since forces user to update lib every time new module
00050   //comes out...
00051   // TODO
00052   typedef enum {
00053     NoSpacing = 0,
00054     PixelSpacing,
00055     ImagerPixelSpacing,
00056     PixelAspectRatio
00057   } ImageSpacingType;
00058   ImageSpacingType GetImageSpacing();
00059 #endif
00060
00061   typedef enum {
00062     ImplicitVRLittleEndian = 0,
00063     ImplicitVRBigEndianPrivateGE,
00064     ExplicitVRLittleEndian,
00065     DeflatedExplicitVRLittleEndian,
00066     ExplicitVRBigEndian,
00067     JPEGBaselineProcess1,
00068     JPEGExtendedProcess2_4,
00069     JPEGExtendedProcess3_5,
00070     JPEGSpectralSelectionProcess6_8,
00071     JPEGFullProgressionProcess10_12,
00072     JPEGLosslessProcess14,
00073     JPEGLosslessProcess14_1,
00074     JPEGLSLossless,
00075     JPEGLSNearLossless,
00076     JPEG2000Lossless,
00077     JPEG2000,
00078     JPEG2000Part2Lossless,
00079     JPEG2000Part2,
00080     RLELossless,
00081     MPEG2MainProfile,
00082     ImplicitVRBigEndianACRNEMA,
00083     WeirdPapryus,
```

```
00084     CT_private_ELE,
00085     JPIPReferenced,
00086     MPEG2MainProfileHighLevel,
00087     MPEG4AVCH264HighProfileLevel4_1,
00088     MPEG4AVCH264BDcompatibleHighProfileLevel4_1,
00089     TS_END
00090   } TSType;
00091
00092   // Return the string as written in the official DICOM dict from
00093   // a custom enum type
00094   static const char* GetTSString(TSType ts);
00095   static TSType GetTSType(const char *str);
00096
00097   NegociatedType GetNegociatedType() const;
00098
00102   SwapCode GetSwapCode() const;
00103
00104   bool IsValid() const { return TSField != TS_END; }
00105
00106   operator TSType () const { return TSField; }
00107
00108   // FIXME: ImplicitVRLittleEndian used to be the default, but nowadays
00109   // this is rather the ExplicitVRLittleEndian instead...should be change the default ?
00110   TransferSyntax(TSType type = ImplicitVRLittleEndian):TSField(type) {}
00111
00112   // return if dataset is encoded or not (Deflate Explicit VR)
00113   bool IsEncoded() const;
00114
00115   bool IsImplicit() const;
00116   bool IsExplicit() const;
00117
00118   bool IsEncapsulated() const;
00119
00121   bool IsLossy() const;
00123   bool IsLossless() const;
00125   bool CanStoreLossy() const;
00126
00127   const char *GetString() const { return TransferSyntax::GetTSString(TSField); }
00128
00129   friend std::ostream &operator<<(std::ostream &os, const TransferSyntax &ts);
00130 private:
00131   // DO NOT EXPOSE the following. Internal details of TransferSyntax
00132 bool IsImplicit(TSType ts) const;
00133 bool IsExplicit(TSType ts) const;
00134 bool IsLittleEndian(TSType ts) const;
00135 bool IsBigEndian(TSType ts) const;
00136
00137   TSType TSField;
00138 };
00139 //-----------------------------------------------------------------------------
00140 inline std::ostream &operator<<(std::ostream &_os, const TransferSyntax &ts)
00141 {
00142   _os << TransferSyntax::GetTSString(ts);
00143   return _os;
00144
00145 }
00146
00147 } // end namespace gdcm
00148
00149 #endif //GDCMTRANSFERSYNTAX_H
```

13.181 gdcmUNExplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmUNExplicitDataElement.txx"
```

Include dependency graph for gdcmUNExplicitDataElement.h:



Classes

- class gdcm::UNExplicitDataElement

  Class to read/write a DataElement as UNExplicit Data Element.

Namespaces

- namespace gdcm

13.182 gdcmUNExplicitDataElement.h

Go to the documentation of this file.

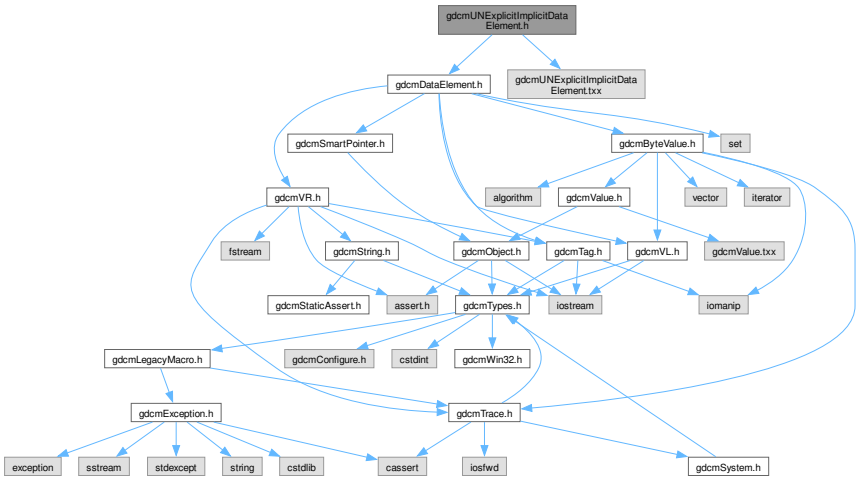
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMUNEXPLICITDATAELEMENT_H
00015 #define GDCMUNEXPLICITDATAELEMENT_H
00016
00017 #include "gdcmDataElement.h"
00018
00019 namespace gdcm
00020 {
00021 // Data Element (UNExplicit)
00026 class GDCM_EXPORT UNExplicitDataElement : public DataElement
00027 {
00028 public:
```

```
00029   VL GetLength() const;
00030
00031   template <typename TSwap>
00032   std::istream &Read(std::istream &is);
00033
00034   template <typename TSwap>
00035   std::istream &ReadPreValue(std::istream &is);
00036
00037   template <typename TSwap>
00038   std::istream &ReadValue(std::istream &is, bool readvalues = true);
00039
00040   template <typename TSwap>
00041   std::istream &ReadWithLength(std::istream &is, VL & length);
00042
00043   // PURPOSELY do not provide an implementation for writing !
00044   //template <typename TSwap>
00045   //const std::ostream &Write(std::ostream &os) const;
00046 };
00047
00048 } // end namespace gdcm
00049
00050 #include "gdcmUNExplicitDataElement.txx"
00051
00052 #endif //GDCMUNEXPLICITDATAELEMENT_H
```

13.183 gdcmUNExplicitImplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmUNExplicitImplicitDataElement.txx"
```

Include dependency graph for gdcmUNExplicitImplicitDataElement.h:



Classes

- class gdcm::UNExplicitImplicitDataElement

  Class to read/write a DataElement as ExplicitImplicit Data Element.

Namespaces

- namespace gdcm

13.184 gdcmUNExplicitImplicitDataElement.h

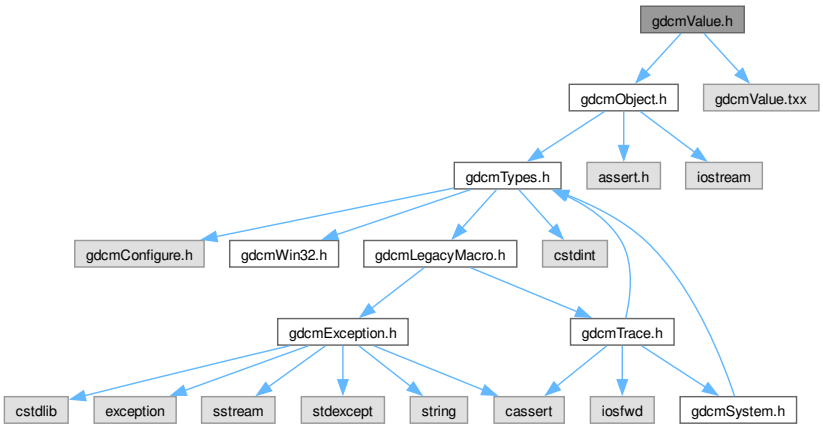
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMUNEXPLICITIMPLICITDATAELEMENT_H
00015 #define GDCMUNEXPLICITIMPLICITDATAELEMENT_H
00016
00017 #include "gdcmDataElement.h"
00018
00019 namespace gdcm
00020 {
00021 // Data Element (ExplicitImplicit)
00032 class GDCM_EXPORT UNExplicitImplicitDataElement : public DataElement
00033 {
00034 public:
00035   VL GetLength() const;
00036
00037   template <typename TSwap>
00038   std::istream &Read(std::istream &is);
00039
00040   template <typename TSwap>
00041   std::istream &ReadPreValue(std::istream &is);
00042
00043   template <typename TSwap>
00044   std::istream &ReadValue(std::istream &is);
00045
00046   // PURPOSELY do not provide an implementation for writing !
00047   //template <typename TSwap>
00048   //const std::ostream &Write(std::ostream &os) const;
00049 };
00050
00051 } // end namespace gdcm
00052
00053 #include "gdcmUNExplicitImplicitDataElement.txx"
00054
00055 #endif //GDCMUNEXPLICITIMPLICITDATAELEMENT_H
```

13.185 gdcmValue.h File Reference

```
#include "gdcmObject.h"
#include "gdcmValue.txx"
```

Include dependency graph for gdcmValue.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Value

  Class to represent the value of a Data Element.

Namespaces

- namespace gdcm

13.186 gdcmValue.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
```
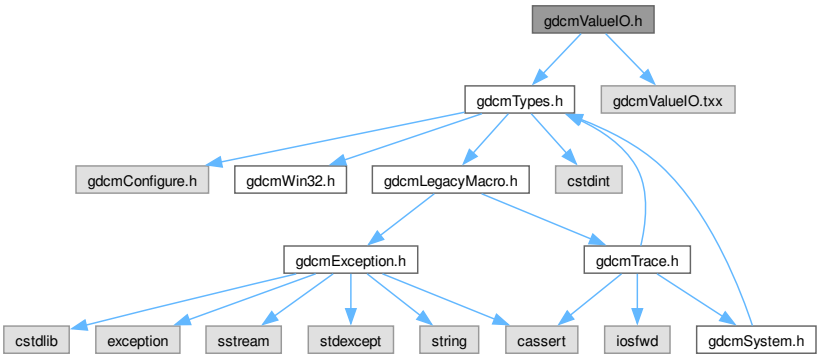

```
00012
00013 =========================================================================*/
00014 #ifndef GDCMVALUE_H
00015 #define GDCMVALUE_H
00016
00017 #include "gdcmObject.h"
00018
00019 namespace gdcm { class VL; }
00020 namespace gdcm_ns
00021 {
00022 #if !defined(SWIGPYTHON) && !defined(SWIGCSHARP) && !defined(SWIGJAVA) && !defined(SWIGPHP)
00023 using namespace gdcm;
00024 #endif
00031 class GDCM_EXPORT Value : public Object
00032 {
00033 public:
00034   Value() = default;
00035   ~Value() override = default;
00036
00037   virtual VL GetLength() const = 0;
00038   virtual void SetLength(VL l) = 0;
00039
00040   virtual void Clear() = 0;
00041
00042   virtual bool operator==(const Value &val) const = 0;
00043
00044 protected:
00045   friend class DataElement;
00046   virtual void SetLengthOnly(VL l);
00047 };
00048
00049 } // end namespace gdcm_ns
00050
00051 #include "gdcmValue.txx"
00052
00053 #endif //GDCMVALUE_H
```

13.187 gdcmValueIO.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmValueIO.txx"
```

Include dependency graph for gdcmValueIO.h:



Classes

- class gdcm::ValueIO< TDE, TSwap, TType >

  Class to dispatch template calls.

Namespaces

- namespace gdcm

13.188 gdcmValueIO.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMVALUEIO_H
00015 #define GDCMVALUEIO_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm_ns
00020 {
00024 template <typename TDE, typename TSwap, typename TType=uint8_t>
00025 class /*GDCM_EXPORT*/ ValueIO
00026 {
00027 public:
00028   static std::istream &Read(std::istream &is, Value& v, bool readvalues);
00029
00030   static const std::ostream &Write(std::ostream &os, const Value& v);
00031 };
00032
00033 } // end namespace gdcm_ns
00034
00035 #include "gdcmValueIO.txx"
00036
00037 #endif //GDCMVALUEIO_H
```
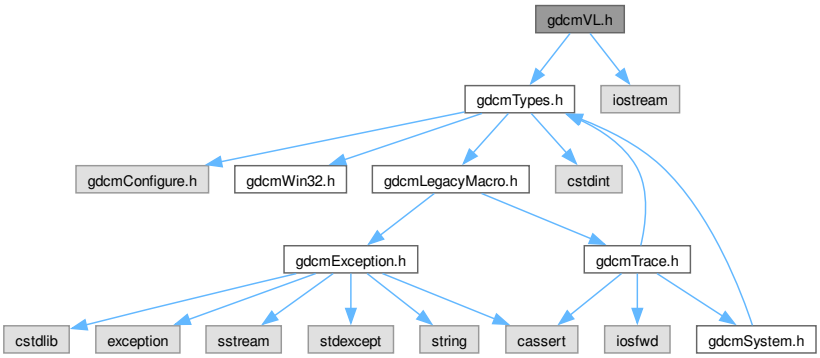

13.189 gdcmVL.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmVL.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::VL

  Value Length.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const VL &val)

13.190 gdcmVL.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00006   All rights reserved.
```

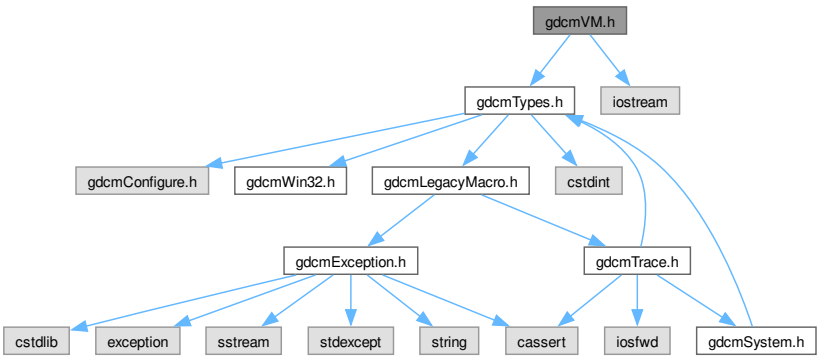
```
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMVL_H
00015 #define GDCMVL_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <iostream>
00020
00021 namespace gdcm
00022 {
00023
00029 class GDCM_EXPORT VL
00030 {
00031 public:
00032   typedef uint32_t Type;
00033   VL(uint32_t vl = 0) : ValueLength(vl) { }
00034
00035   // FIXME: ugly
00036   static uint32_t GetVL32Max() { return 0xFFFFFFFF; }
00037   static uint16_t GetVL16Max() { return 0xFFFF; }
00038
00039   bool IsUndefined() const {
00040     return ValueLength == 0xFFFFFFFF;
00041   }
00042   void SetToUndefined() {
00043     ValueLength = 0xFFFFFFFF;
00044   }
00045
00047   bool IsOdd() const {
00048     return !IsUndefined() && ValueLength % 2;
00049   }
00050
00052   VL& operator+=(VL const &vl) {
00053     ValueLength += vl.ValueLength;
00054     return *this;
00055   }
00056   VL& operator++() {
00057     ++ValueLength;
00058     return *this;
00059   }
00060   VL operator++(int) {
00061     uint32_t tmp(ValueLength);
00062     ++ValueLength;
00063     return tmp;
00064   }
00065
00066   operator uint32_t () const { return ValueLength; }
00067
00068   VL GetLength() const {
00069     // VL cannot know it's length...well in implicit yes...
00070     // TODO: need to check we cannot call this function from an Explicit element
00071     return 4;
00072   }
00073
00074   friend std::ostream& operator<<(std::ostream& os, const VL& vl);
00075
00076   // PURPOSELY not implemented (could not differentiate 16bits vs 32bits VL)
00077   //friend std::istream& operator>>(std::istream& is, VL& n);
00078
00079   template <typename TSwap>
00080   std::istream &Read(std::istream &is)
00081     {
00082     is.read((char*)(&ValueLength), sizeof(uint32_t));
00083     TSwap::SwapArray(&ValueLength,1);
00084     return is;
00085     }
00086
00087   template <typename TSwap>
00088   std::istream &Read16(std::istream &is)
00089     {
00090     uint16_t copy;
00091     is.read((char*)(&copy), sizeof(uint16_t));
00092     TSwap::SwapArray(&copy,1);
00093     ValueLength = copy;
00094     assert( ValueLength <=  65535 /*UINT16_MAX*/ ); // ?? doh !
```

```
00095     return is;
00096     }
00097
00098   template <typename TSwap>
00099   const std::ostream &Write(std::ostream &os) const
00100     {
00101     uint32_t copy = ValueLength;
00102     if( IsOdd() )
00103       {
00104       ++copy;
00105       }
00106     TSwap::SwapArray(&copy,1);
00107     return os.write((char*)(&copy), sizeof(uint32_t));
00108     }
00109
00110   template <typename TSwap>
00111   const std::ostream &Write16(std::ostream &os) const
00112     {
00113     assert( ValueLength <=   65535 /*UINT16_MAX*/ );
00114     uint16_t copy = (uint16_t)ValueLength;
00115     if( IsOdd() )
00116       {
00117       ++copy;
00118       }
00119     TSwap::SwapArray(&copy,1);
00120     return os.write((char*)(&copy), sizeof(uint16_t));
00121     }
00122
00123 private:
00124   uint32_t ValueLength;
00125 };
00126 //-----------------------------------------------------------------------------
00127 inline std::ostream& operator«(std::ostream& os, const VL& val)
00128 {
00129   os « /*std::hex «*/ val.ValueLength;
00130   return os;
00131 }
00132
00133 } // end namespace gdcm
00134
00135 #endif //GDCMVL_H
```

13.191 gdcmVM.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmVM.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::VM

  Value *Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n.*

Namespaces

- namespace gdcm

Macros

- #define TYPETOLENGTH(type, length)

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const VM &_val)

13.191.1 Macro Definition Documentation

13.191.1.1 TYPETOLENGTH

```
#define TYPETOLENGTH(
              type,
              length)
```

Value:

```
  template<> struct VMToLength<VM::type> \
  { enum { Length = length }; };
```

13.192 gdcmVM.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMVM_H
00015 #define GDCMVM_H
00016
00017 #include "gdcmTypes.h"
00018 #include <iostream>
00019
00020 namespace gdcm
00021 {
00022
00067 class GDCM_EXPORT VM
00068 {
00069 public:
00070   typedef enum {
00071     VM0 = 0, // aka the invalid VM
00072     VM1 = 1,
00073     VM2 = 2,
00074     VM3 = 4,
00075     VM4 = 8,
00076     VM5 = 16,
00077     VM6 = 32,
00078     VM8 = 64,
00079     VM9 = 128,
00080     VM10 = 256,
00081     VM12 = 512, //1024,
00082     VM16 = 1024, //2048,
00083     VM18 = 2048, //4096,
00084     VM24 = 4096, //8192,
00085     VM28 = 8192, //16384,
00086     VM32 = 16384, //32768,
00087     VM35 = 32768, //65536,
00088     VM99 = 65536, //131072,
00089     VM256 = 131072, //262144,
00090     VM1_2  = VM1 | VM2,
00091     VM1_3  = VM1 | VM2 | VM3,
00092     VM1_4  = VM1 | VM2 | VM3 | VM4,
00093     VM1_5  = VM1 | VM2 | VM3 | VM4 | VM5,
00094     VM1_8  = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8,
00095 // The following need some work:
00096     VM1_32 = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32,
00097     VM1_99 = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99,
00098     VM1_n  = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256,
00099     VM2_2n =       VM2       | VM4       | VM6 | VM8       | VM16 | VM24 | VM32       | VM256,
00100     VM2_n  =       VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256,
00101     VM3_4  =             VM3 | VM4,
00102     VM3_3n =             VM3 |             VM6       | VM9       | VM24       | VM99 | VM256,
00103     VM3_n  =             VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256,
00104     VM4_4n =                   VM4                         | VM16 | VM24 | VM32       | VM256,
00105     VM6_6n =                               VM6             | VM12 | VM18 | VM24              ,
00106     VM6_n  =                               VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256,
00107     VM7_7n,
00108     VM30_30n,
00109     VM47_47n,
00110     VM_END = VM1_n + 1  // Custom tag to count number of entry
00111   } VMType;
00112
00115   static const char* GetVMString(VMType vm);
00116   static VMType GetVMType(const char *vm);
00117
00120   static bool IsValid(int vm1, VMType vm2);
00121   //bool IsValid() { return VMField != VM0 && VMField < VM_END; }
00122
00126   bool Compatible(VM const &vm) const;
```

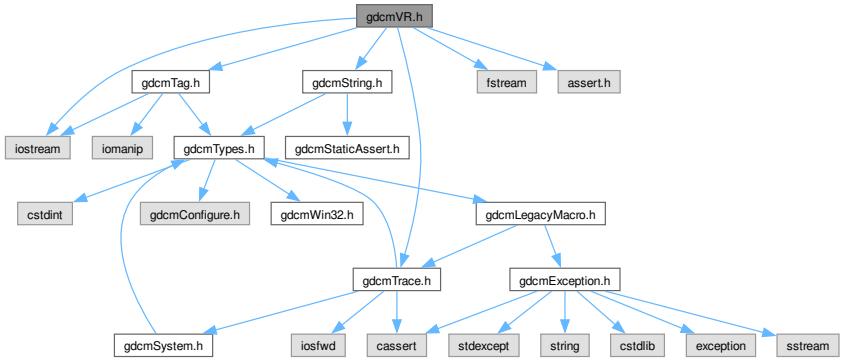
```
00127
00129   static VMType GetVMTypeFromLength(size_t length, unsigned int size);
00130   static size_t GetNumberOfElementsFromArray(const char *array, size_t length);
00131
00132   VM(VMType type = VM0):VMField(type) {}
00133   operator VMType () const { return VMField; }
00134   unsigned int GetLength() const;
00135
00136   friend std::ostream &operator«(std::ostream &os, const VM &vm);
00137 protected:
00138   static unsigned int GetIndex(VMType vm);
00139
00140 private:
00141   VMType VMField;
00142 };
00143 //-----------------------------------------------------------------------------
00144 inline std::ostream& operator«(std::ostream& _os, const VM &_val)
00145 {
00146   assert( VM::GetVMString(_val) );
00147   _os « VM::GetVMString(_val);
00148   return _os;
00149 }
00150
00151 //template <int TVM> struct LengthToVM;
00152 //template <> struct LengthToVM<1>
00153 //{ enum { TVM = VM::VM1 }; };
00154
00155 template<int T> struct VMToLength;
00156 #define TYPETOLENGTH(type,length) \
00157   template<> struct VMToLength<VM::type> \
00158   { enum { Length = length }; };
00159 // TODO: Could be generated from XML file
00160 //TYPETOLENGTH(VM0,1)
00161 TYPETOLENGTH(VM1,1)
00162 TYPETOLENGTH(VM2,2)
00163 TYPETOLENGTH(VM3,3)
00164 TYPETOLENGTH(VM4,4)
00165 TYPETOLENGTH(VM5,5)
00166 TYPETOLENGTH(VM6,6)
00167 TYPETOLENGTH(VM8,8)
00168 TYPETOLENGTH(VM9,9)
00169 TYPETOLENGTH(VM10,10)
00170 TYPETOLENGTH(VM12,12)
00171 TYPETOLENGTH(VM16,16)
00172 TYPETOLENGTH(VM18,18)
00173 TYPETOLENGTH(VM24,24)
00174 TYPETOLENGTH(VM28,28)
00175 TYPETOLENGTH(VM32,32)
00176 TYPETOLENGTH(VM35,35)
00177 TYPETOLENGTH(VM99,99)
00178 TYPETOLENGTH(VM256,256)
00179 //TYPETOLENGTH(VM1_2,2)
00180 //TYPETOLENGTH(VM1_3,3)
00181 //TYPETOLENGTH(VM1_8,8)
00182 //TYPETOLENGTH(VM1_32,32)
00183 //TYPETOLENGTH(VM1_99,99)
00184 //TYPETOLENGTH(VM1_n,
00185 //TYPETOLENGTH(VM2_2n,
00186 //TYPETOLENGTH(VM2_n,
00187 //TYPETOLENGTH(VM3_3n,
00188 //TYPETOLENGTH(VM3_n,
00189
00190 } // end namespace gdcm
00191
00192 #endif //GDCMVM_H
```

13.193 gdcmVR.h File Reference

```
#include "gdcmTag.h"
#include "gdcmTrace.h"
#include "gdcmString.h"
#include <iostream>
#include <fstream>
```

```
#include <assert.h>
```

Include dependency graph for gdcmVR.h:



This graph shows which files directly or indirectly include this file:

Classes

- struct gdcm::UI
- class gdcm::VR

  VR class.

Namespaces

- namespace gdcm

Macros

- #define TYPETOENCODING(type, rep, rtype)
- #define VRTypeTemplateCase(type)

Typedefs

- typedef String<'\\', 16 > gdcm::AEComp
- typedef String<'\\', 64 > gdcm::ASComp
- typedef String<'\\', 16 > gdcm::CSComp
- typedef String<'\\', 64 > gdcm::DAComp
- typedef String<'\\', 64 > gdcm::DTComp
- typedef String<'\\', 64 > gdcm::LOComp
- typedef String<'\\', 64 > gdcm::LTComp
- typedef String<'\\', 64 > gdcm::PNComp
- typedef String<'\\', 64 > gdcm::SHComp
- typedef String<'\\', 64 > gdcm::STComp
- typedef String<'\\', 16 > gdcm::TMComp
- typedef String<'\\', 4294967294 > gdcm::UCComp
- typedef String<'\\', 64, 0 > gdcm::UIComp
- typedef String<'\\', 4294967294 > gdcm::URComp
- typedef String<'\\', 64 > gdcm::UTComp

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const UI &_val)
- std::ostream & gdcm::operator<< (std::ostream &_os, const VR &val)

13.193.1 Macro Definition Documentation

13.193.1.1 TYPETOENCODING

```
#define TYPETOENCODING(
              type,
              rep,
              rtype)
```

Value:

```
  template<> struct VRToEncoding<VR::type>    \
  { enum:long long { Mode = VR::rep }; };                \
  template<> struct VRToType<VR::type>        \
  { typedef rtype Type; };
```

13.193.1.2 VRTypeTemplateCase

```
#define VRTypeTemplateCase(
              type)
```

Value:

```
  case VR::type: \
    return sizeof ( VRToType<VR::type>::Type );
```

Referenced by gdcm::VR::GetSize().

13.194 gdcmVR.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMVR_H
00015 #define GDCMVR_H
00016
00017 #include "gdcmTag.h"
00018 #include "gdcmTrace.h"
00019 #include "gdcmString.h"
00020
00021 #include <iostream>
00022 #include <fstream>
00023 #include <assert.h>
00024
00025 //these defines are here to ensure compilation on sunos gcc
00026 #if defined (CS)
00027 # undef CS
00028 #endif
00029 #if defined (DS)
00030 # undef DS
00031 #endif
00032 #if defined (SS)
00033 # undef SS
00034 #endif
00035
00036
00037 namespace gdcm
00038 {
00039
00054 class GDCM_EXPORT VR
00055 {
00056 public:
00057   enum VRType : long long {
00058     // Warning: Do not write if ( vr & VR::INVALID ) but if ( vr == VR::INVALID )
00059     INVALID = 0, // For Item/(Seq) Item Delimitation Item
00060     AE = 1,
00061     AS = 2,
00062     AT = 4,
00063     CS = 8,
00064     DA = 16,
00065     DS = 32,
00066     DT = 64,
00067     FD = 128,
00068     FL = 256,
00069     IS = 512,
00070     LO = 1024,
00071     LT = 2048,
00072     OB = 4096,
00073     OD = 134217728, // 2^27
00074     OF = 8192,
00075     OL = 268435456, // 2^28
00076     OV = 2147483648, // 2^31
00077     OW = 16384,
00078     PN = 32768,
00079     SH = 65536,
00080     SL = 131072,
00081     SQ = 262144,
00082     SS = 524288,
00083     ST = 1048576,
00084     SV = 4294967296, // 2^32
00085     TM = 2097152,
00086     UC = 536870912, // 2^29
00087     UI = 4194304,
00088     UL = 8388608,
00089     UN = 16777216,
```

```
00090     UR = 1073741824, // 2^30
00091     US = 33554432,
00092     UT = 67108864,
00093     UV = 8589934592, // 2^33
00094     OB_OW = OB | OW,
00095     US_SS = US | SS,
00096     US_SS_OW = US | SS | OW,
00097     US_OW = US | OW,
00098     // The following do not have a VRString equivalent (ie cannot be found in PS 3.6)
00099     VL16 = AE | AS | AT | CS | DA | DS | DT | FD | FL | IS | LO | LT | PN | SH | SL | SS | ST | TM | UI |
      UL | US, // if( VR & VL16 ) => VR has its VL coded over 16bits
00100     VL32 = OB | OW | OD | OF | OL | OV | SQ | SV | UC | UN | UR | UT | UV, // if( VR & VL32 ) => VR has
      its VL coded over 32bits
00101     VRASCII = AE | AS | CS | DA | DS | DT | IS | LO | LT | PN | SH | ST | TM | UC | UI | UR | UT,
00102     VRBINARY = AT | FL | FD | OB | OD | OF | OL | OV | OW | SL | SQ | SS | SV | UL | UN | US | UV, //
      FIXME: UN ?
00103     // PS 3.5:
00104     // Data Elements with a VR of SQ, OD, OF, OL, OW, OB or UN shall always have a Value Multiplicity of
      one.
00105     // GDCM is adding a couple more: AS, LT, ST, UT
00106     VR_VM1 = AS | LT | ST | UT | SQ | OF | OL | OV | OD | OW | OB | UN, // All those VR have a VM1
00107     VRALL = VRASCII | VRBINARY,
00108     VR_END = UV+1  // Invalid VR, need to be max(VRType)+1
00109   };
00110
00111   static const char *GetVRString(VRType vr);
00112
00113   // This function will only look at the very first two chars nothing else
00114   static VRType GetVRTypeFromFile(const char *vr);
00115
00116   // You need to make sure end of string is \0
00117   static VRType GetVRType(const char *vr);
00118   static const char *GetVRStringFromFile(VRType vr);
00119
00120   static bool IsValid(const char *vr);
00121   // Check if vr1 is valid against vr2,
00122   // Typically vr1 is read from the file and vr2 is taken from the dict
00123   static bool IsValid(const char *vr1, VRType vr2);
00124   //static bool IsValid(const VRType &vr1, const VRType &vr2);
00125   // Find out if the string read is byte swapped
00126   static bool IsSwap(const char *vr);
00127
00128   // Size read on disk
00129   // FIXME: int ?
00130   int GetLength() const {
00131     return VR::GetLength(VRField);
00132   }
00133   unsigned int GetSizeof() const;
00134   static uint32_t GetLength(VRType vr) {
00135     //if( vr == VR::INVALID ) return 4;
00136     if( vr & VL32 )
00137       {
00138       return 4;
00139       }
00140     else
00141       return 2;
00142   }
00143
00144   // Some use of template metaprograming with ugly macro
00145   static bool IsBinary(VRType vr);
00146   static bool IsASCII(VRType vr);
00147   // TODO: REMOVE ME
00148   static bool CanDisplay(VRType vr);
00149   // TODO: REMOVE ME
00150   static bool IsBinary2(VRType vr);
00151   // TODO: REMOVE ME
00152   static bool IsASCII2(VRType vr);
00153
00154   VR(VRType vr = INVALID):VRField(vr) { }
00155   //VR(VR const &vr):VRField(vr.VRField) { }
00156   std::istream &Read(std::istream &is)
00157     {
00158     char vr[2];
00159     is.read(vr, 2);
00160     VRField = GetVRTypeFromFile(vr);
00161     assert( VRField != VR::VR_END );
00162     if( VRField == VR::INVALID )
00163     {
00164       // \0\2 Data/TheralysGDCM120Bug.dcm
00165       // \0\0
      Data/MR_Philips_Intera_PrivateSequenceExplicitVR_in_SQ_2001_e05f_item_wrong_lgt_use_NOSHADOWSEQ.dcm
```

```
00166       // \0\4 Data/BugGDCM2_UndefItemWrongVL.dcm
00167       // \44\0 Data/gdcm-MR-PHILIPS-16-Multi-Seq.dcm
00168       // \0\20 Data/ExplicitVRforPublicElementsImplicitVRforShadowElements.dcm
00169       // \0\3 Data/DMCPACS_ExplicitImplicit_BogusIOP.dcm
00170       // \0\4 Data/THERALYS-12-MONO2-Uncompressed-Even_Length_Tag.dcm
00171       // \0\4 Data/PrivateGEImplicitVRBigEndianTransferSyntax16Bits.dcm
00172       // \0\4 Data/GE_DLX-8-MONO2-PrivateSyntax.dcm
00173       throw Exception( "INVALID VR" );
00174     }
00175     if( VRField & VL32 )
00176       {
00177 #if 0
00178       // For some reason this seems slower on my linux box...
00179       is.seekg(2, std::ios::cur );
00180 #else
00181       char dumb[2];
00182       is.read(dumb, 2);
00183       if( !(dumb[0] == 0 && dumb[1] == 0 ))
00184         {
00185         // JDDICOM_Sample4.dcm
00186         gdcmDebugMacro( "32bits VR contains non zero bytes. Skipped" );
00187         }
00188 #endif
00189       }
00190     return is;
00191     }
00192
00193   const std::ostream &Write(std::ostream &os) const
00194     {
00195     VRType vrfield = VRField;
00196     gdcmAssertAlwaysMacro( !IsDual() );
00197     if( vrfield == VR::INVALID )
00198       {
00199       //vrfield = VR::UN;
00200       }
00201     const char *vr = GetVRString(vrfield);
00202     //assert( strlen( vr ) == 2 );
00203     assert( vr[0] && vr[1] && vr[2] == 0 );
00204     os.write(vr, 2);
00205     // See PS 3.5, Data Element Structure With Explicit VR
00206     if( vrfield & VL32 )
00207       {
00208       const char dumb[2] = {0, 0};
00209       os.write(dumb,2);
00210       }
00211     return os;
00212     }
00213   friend std::ostream &operator<<(std::ostream &os, const VR &vr);
00214
00215   operator VRType () const { return VRField; }
00216
00217   unsigned int GetSize() const;
00218
00219   bool Compatible(VR const &vr) const;
00220
00221   bool IsVRFile() const;
00222
00223   bool IsDual() const;
00224
00225 private:
00226   // Internal function that map a VRType to an index in the VRStrings table
00227   static unsigned int GetIndex(VRType vr);
00228   VRType VRField;
00229 };
00230 //-----------------------------------------------------------------------------
00231 inline std::ostream &operator<<(std::ostream &_os, const VR &val)
00232 {
00233   //_os << VR::GetVRStringFromFile(val.VRField);
00234   _os << VR::GetVRString(val.VRField);
00235   return _os;
00236 }
00237
00238 // Apparently SWIG is not happy with something, somewhere below...
00239 #ifndef SWIG
00240
00241 // Tells whether VR Type is ASCII or Binary
00242 template<long long T> struct VRToEncoding;
00243 // Convert from VR Type to real underlying type
00244 template<long long T> struct VRToType;
00245 #define TYPETOENCODING(type,rep, rtype)         \
00246   template<> struct VRToEncoding<VR::type>    \
```

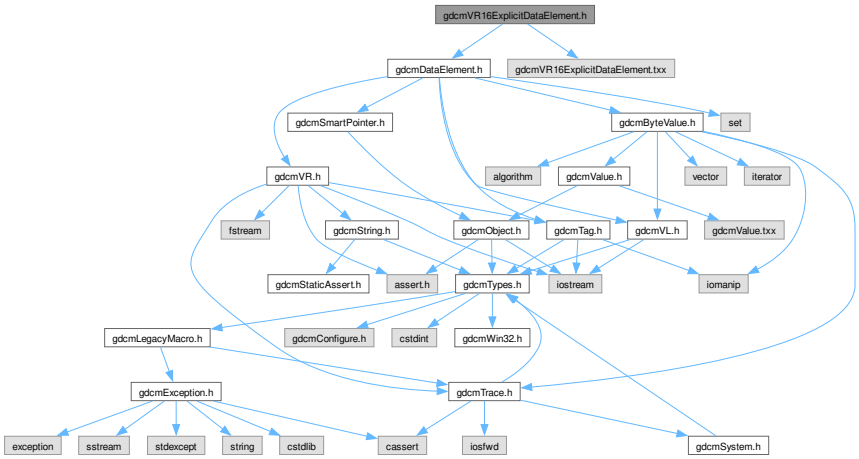
```
00247   { enum:long long { Mode = VR::rep }; };                 \
00248   template<> struct VRToType<VR::type>        \
00249   { typedef rtype Type; };
00250
00251
00252 // Do not use me
00253 struct UI { char Internal[64+1];
00254   friend std::ostream& operator«(std::ostream &_os, const UI &_val);
00255 };
00256 inline std::ostream& operator«(std::ostream &_os, const UI &_val)
00257 {
00258   _os « _val.Internal;
00259   return _os;
00260 }
00261
00262 typedef String<'\\',16> AEComp;
00263 typedef String<'\\',64> ASComp;
00264 typedef String<'\\',16> CSComp;
00265 typedef String<'\\',64> DAComp;
00266 typedef String<'\\',64> DTComp;
00267 typedef String<'\\',64> LOComp;
00268 typedef String<'\\',64> LTComp;
00269 typedef String<'\\',64> PNComp;
00270 typedef String<'\\',64> SHComp;
00271 typedef String<'\\',64> STComp;
00272 typedef String<'\\',4294967294> UCComp;
00273 typedef String<'\\',4294967294> URComp;
00274 typedef String<'\\',16> TMComp;
00275 typedef String<'\\',64,0> UIComp;
00276 typedef String<'\\',64> UTComp;
00277
00278
00279 // TODO: Could be generated from XML file
00280 TYPETOENCODING(AE,VRASCII ,AEComp)
00281 TYPETOENCODING(AS,VRASCII ,ASComp)
00282 TYPETOENCODING(AT,VRBINARY,Tag)
00283 TYPETOENCODING(CS,VRASCII ,CSComp)
00284 TYPETOENCODING(DA,VRASCII ,DAComp)
00285 TYPETOENCODING(DS,VRASCII ,double)
00286 TYPETOENCODING(DT,VRASCII ,DTComp)
00287 TYPETOENCODING(FL,VRBINARY,float)
00288 TYPETOENCODING(FD,VRBINARY,double)
00289 TYPETOENCODING(IS,VRASCII ,int32_t)
00290 TYPETOENCODING(LO,VRASCII ,LOComp)
00291 TYPETOENCODING(LT,VRASCII ,LTComp)
00292 TYPETOENCODING(OB,VRBINARY,uint8_t)
00293 TYPETOENCODING(OD,VRBINARY,double)
00294 TYPETOENCODING(OF,VRBINARY,float)
00295 TYPETOENCODING(OL,VRBINARY,uint32_t)
00296 TYPETOENCODING(OV,VRBINARY,uint64_t)
00297 TYPETOENCODING(OW,VRBINARY,uint16_t)
00298 TYPETOENCODING(PN,VRASCII ,PNComp)
00299 TYPETOENCODING(SH,VRASCII ,SHComp)
00300 TYPETOENCODING(SL,VRBINARY,int32_t)
00301 TYPETOENCODING(SQ,VRBINARY,unsigned char) // FIXME
00302 TYPETOENCODING(SS,VRBINARY,int16_t)
00303 TYPETOENCODING(ST,VRASCII ,STComp)
00304 TYPETOENCODING(SV,VRBINARY,int64_t)
00305 TYPETOENCODING(TM,VRASCII ,TMComp)
00306 TYPETOENCODING(UC,VRASCII ,UCComp)
00307 TYPETOENCODING(UI,VRASCII ,UIComp)
00308 TYPETOENCODING(UL,VRBINARY,uint32_t)
00309 TYPETOENCODING(UN,VRBINARY,uint8_t) // FIXME ?
00310 TYPETOENCODING(UR,VRASCII,URComp)
00311 TYPETOENCODING(US,VRBINARY,uint16_t)
00312 TYPETOENCODING(UT,VRASCII ,UTComp)
00313 TYPETOENCODING(UV,VRBINARY,uint64_t)
00314
00315 #define VRTypeTemplateCase(type) \
00316   case VR::type: \
00317     return sizeof ( VRToType<VR::type>::Type );
00318
00319 inline unsigned int VR::GetSize() const
00320 {
00321   switch(VRField)
00322   {
00323     VRTypeTemplateCase(AE)
00324     VRTypeTemplateCase(AS)
00325     VRTypeTemplateCase(AT)
00326     VRTypeTemplateCase(CS)
00327     VRTypeTemplateCase(DA)
```

```
00328     VRTypeTemplateCase(DS)
00329     VRTypeTemplateCase(DT)
00330     VRTypeTemplateCase(FL)
00331     VRTypeTemplateCase(FD)
00332     VRTypeTemplateCase(IS)
00333     VRTypeTemplateCase(LO)
00334     VRTypeTemplateCase(LT)
00335     VRTypeTemplateCase(OB)
00336     VRTypeTemplateCase(OD)
00337     VRTypeTemplateCase(OF)
00338     VRTypeTemplateCase(OL)
00339     VRTypeTemplateCase(OV)
00340     VRTypeTemplateCase(OW)
00341     VRTypeTemplateCase(PN)
00342     VRTypeTemplateCase(SH)
00343     VRTypeTemplateCase(SL)
00344     VRTypeTemplateCase(SQ)
00345     VRTypeTemplateCase(SS)
00346     VRTypeTemplateCase(ST)
00347     VRTypeTemplateCase(SV)
00348     VRTypeTemplateCase(TM)
00349     VRTypeTemplateCase(UC)
00350     VRTypeTemplateCase(UI)
00351     VRTypeTemplateCase(UL)
00352     VRTypeTemplateCase(UN)
00353     VRTypeTemplateCase(UR)
00354     VRTypeTemplateCase(US)
00355     VRTypeTemplateCase(UT)
00356     VRTypeTemplateCase(UV)
00357     case VR::US_SS:
00358       return 2;
00359
00360     case VR::INVALID:
00361     case VR::OB_OW:
00362     case VR::US_SS_OW:
00363     case VR::US_OW:
00364     case VR::VL16:
00365     case VR::VL32:
00366     case VR::VRASCII:
00367     case VR::VRBINARY:
00368     case VR::VR_VM1:
00369     case VR::VRALL:
00370     case VR::VR_END:
00371     default:
00372        assert( 0 && "should not" );
00373   }
00374   return 0;
00375 }
00376 #endif // SWIG
00377
00378
00379 } // end namespace gdcm
00380
00381 #endif //GDCMVR_H
```

13.195 gdcmVR16ExplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmVR16ExplicitDataElement.txx"
```

Include dependency graph for gdcmVR16ExplicitDataElement.h:



Classes

- class gdcm::VR16ExplicitDataElement

  Class to read/write a DataElement as Explicit Data Element.

Namespaces

- namespace gdcm

13.196 gdcmVR16ExplicitDataElement.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMVR16EXPLICITDATAELEMENT_H
00015 #define GDCMVR16EXPLICITDATAELEMENT_H
00016
00017 #include "gdcmDataElement.h"
00018
00019 namespace gdcm
00020 {
00021 // Data Element (Explicit)
00028 class GDCM_EXPORT VR16ExplicitDataElement : public DataElement
00029 {
00030 public:
```
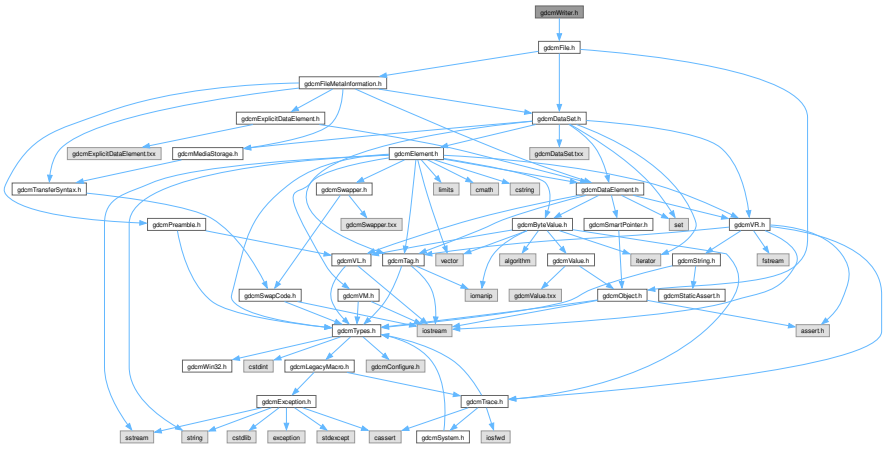

```
00031   VL GetLength() const;
00032
00033   template <typename TSwap>
00034   std::istream &Read(std::istream &is);
00035
00036   template <typename TSwap>
00037   std::istream &ReadPreValue(std::istream &is);
00038
00039   template <typename TSwap>
00040   std::istream &ReadValue(std::istream &is, bool readvalues = true);
00041
00042   template <typename TSwap>
00043   std::istream &ReadWithLength(std::istream &is, VL & length);
00044
00045   // PURPOSELY do not provide an implementation for writing !
00046   //template <typename TSwap>
00047   //const std::ostream &Write(std::ostream &os) const;
00048 };
00049
00050 } // end namespace gdcm
00051
00052 #include "gdcmVR16ExplicitDataElement.txx"
00053
00054 #endif //GDCMVR16EXPLICITDATAELEMENT_H
```

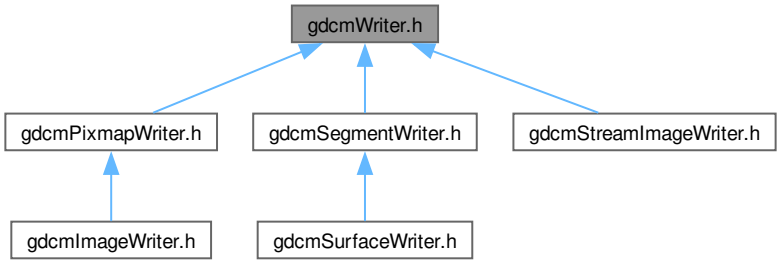
13.197 gdcmWriter.h File Reference

`#include "gdcmFile.h"`

Include dependency graph for gdcmWriter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Writer

  Writer ala DOM (Document Object Model).

Namespaces

- namespace gdcm

13.198 gdcmWriter.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMWRITER_H
00016 #define GDCMWRITER_H
00017
00018 #include "gdcmFile.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class FileMetaInformation;
00048 class GDCM_EXPORT Writer
00049 {
00050 public:
00051   Writer();
00052   virtual ~Writer();
00053
```
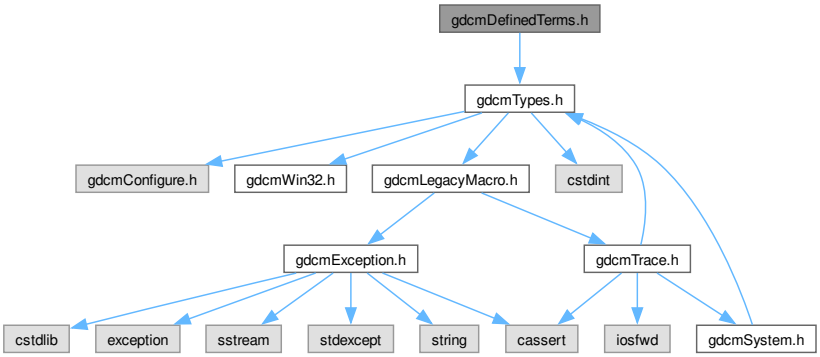

```
00055   virtual bool Write(); // Execute()
00056
00058   void SetFileName(const char *filename_native);
00059
00061   void SetStream(std::ostream &output_stream) {
00062     Stream = &output_stream;
00063   }
00064
00066   void SetFile(const File& f) { F = f; }
00067   File &GetFile() { return *F; }
00068
00070   void SetCheckFileMetaInformation(bool b) { CheckFileMetaInformation = b; }
00071   void CheckFileMetaInformationOff() { CheckFileMetaInformation = false; }
00072   void CheckFileMetaInformationOn() { CheckFileMetaInformation = true; }
00073
00074 protected:
00075   void SetWriteDataSetOnly(bool b) { WriteDataSetOnly = b; }
00076
00077 protected:
00078   friend class StreamImageWriter;
00079   //this function is added for the StreamImageWriter, which needs to write
00080   //up to the pixel data and then stops right before writing the pixel data.
00081   //after that, for the raw codec at least, zeros are written for the length of the data
00082   std::ostream* GetStreamPtr() const { return Stream; }
00083
00084 protected:
00085   std::ostream *Stream;
00086   std::ofstream *Ofstream;
00087   bool GetCheckFileMetaInformation() const { return CheckFileMetaInformation; }
00088
00089 private:
00090   SmartPointer<File> F;
00091   bool CheckFileMetaInformation;
00092   bool WriteDataSetOnly;
00093 };
00094
00095 } // end namespace gdcm
00096
00097 #endif //GDCMWRITER_H
```

13.199 gdcmDefinedTerms.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmDefinedTerms.h:



Classes

- class gdcm::DefinedTerms

Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data Element with Defined Terms that does not contain a Value equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation Type ID (4008,0210) is an example of a Data Element having Defined Terms. It is defined to have a Value that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data Element has Defined Terms other Interpretation Type IDs may be defined by the implementor.

Namespaces

- namespace gdcm

13.200 gdcmDefinedTerms.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDEFINEDTERMS_H
00015 #define GDCMDEFINEDTERMS_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00027 class GDCM_EXPORT DefinedTerms
00028 {
00029 public:
00030   DefinedTerms() = default;
00031 private:
00032 };
00033
00034 } // end namespace gdcm
00035
00036 #endif //GDCMDEFINEDTERMS_H
```
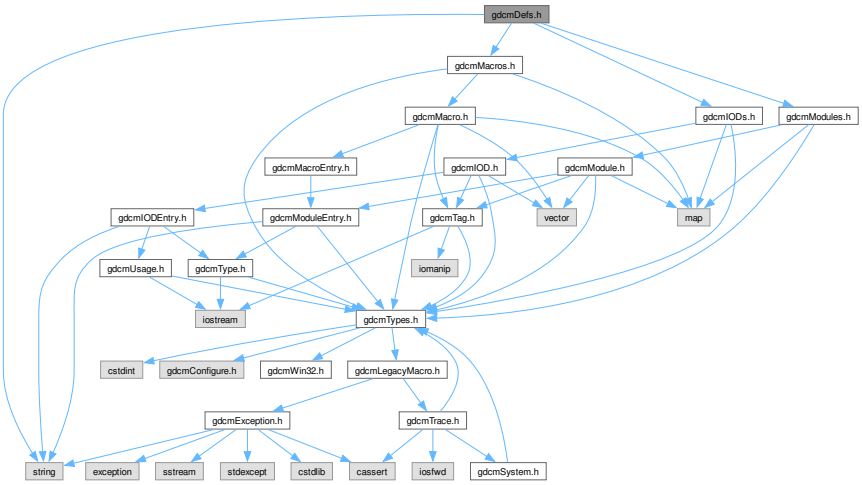

13.201 gdcmDefs.h File Reference

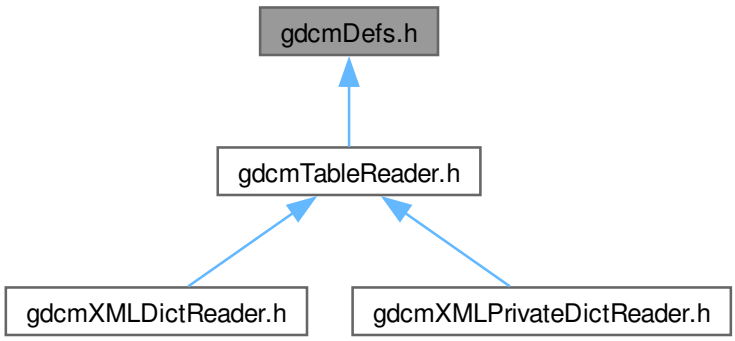
```
#include "gdcmModules.h"
#include "gdcmMacros.h"
#include "gdcmIODs.h"
```

```
#include <string>
```

Include dependency graph for gdcmDefs.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Defs

  FIXME I do not like the name 'Defs'.

Namespaces

- namespace gdcm

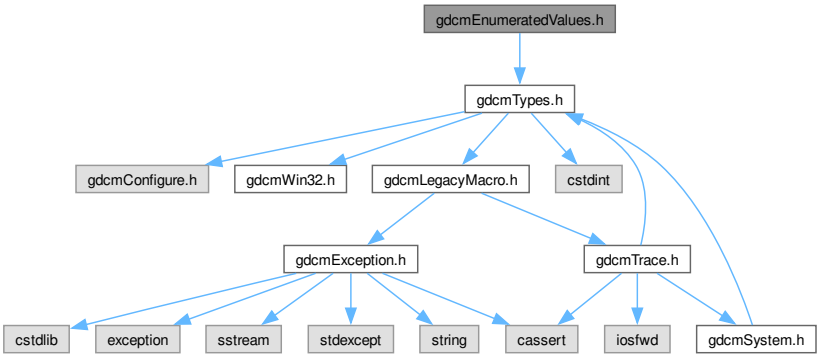
13.202 gdcmDefs.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDEFS_H
00015 #define GDCMDEFS_H
00016
00017 #include "gdcmModules.h"
00018 #include "gdcmMacros.h"
00019 #include "gdcmIODs.h"
00020
00021 #include <string>
00022
00023 namespace gdcm
00024 {
00025 class DataSet;
00026 class File;
00027 class MediaStorage;
00032 class GDCM_EXPORT Defs
00033 {
00034 public:
00035   Defs();
00036   ~Defs();
00037   Defs &operator=(const Defs &val) = delete;
00038   Defs(const Defs &val) = delete;
00039
00040   const Modules &GetModules() const { return Part3Modules; }
00041   Modules &GetModules() { return Part3Modules; }
00042
00045   const Macros &GetMacros() const { return Part3Macros; }
00046   Macros &GetMacros() { return Part3Macros; }
00047
00048   const IODs & GetIODs() const { return Part3IODs; }
00049   IODs & GetIODs() { return Part3IODs; }
00050
00051   bool IsEmpty() const { return GetModules().IsEmpty(); }
00052
00053   bool Verify(const File& file) const;
00054
00055   // \deprecated DO NOT USE
00056   bool Verify(const DataSet& ds) const;
00057
00058   Type GetTypeFromTag(const File& file, const Tag& tag) const;
00059
00060   static const char *GetIODNameFromMediaStorage(MediaStorage const &ms);
00061
00062   const IOD& GetIODFromFile(const File& file) const;
00063
00064 protected:
00065   friend class Global;
00066   void LoadDefaults();
00067   void LoadFromFile(const char *filename);
00068
00069 private:
00070   // Part 3 stuff:
00071   Macros Part3Macros;
00072   Modules Part3Modules;
00073   IODs Part3IODs;
00074
00075 };
00076
00077
00078 } // end namespace gdcm
00079
00080 #endif //GDCMDEFS_H
```

13.203 gdcmEnumeratedValues.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmEnumeratedValues.h:



Classes

- class gdcm::EnumeratedValues

  Element. A Data Element with Enumerated Values that does not have a Value equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note:

Namespaces

- namespace gdcm

13.204 gdcmEnumeratedValues.h

Go to the documentation of this file.

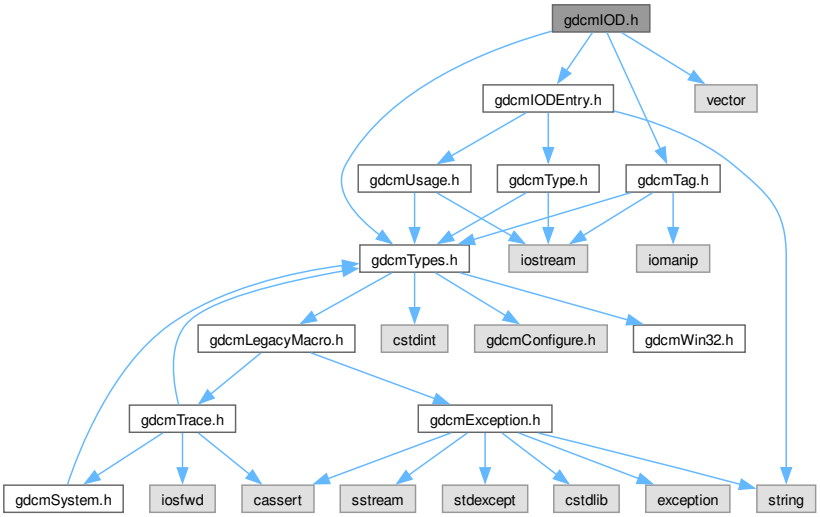
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMENUMERATEDVALUES_H
00015 #define GDCMENUMERATEDVALUES_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
```

```
00034 class GDCM_EXPORT EnumeratedValues
00035 {
00036 public:
00037   EnumeratedValues() = default;
00038 private:
00039 };
00040
00041 } // end namespace gdcm
00042
00043 #endif //GDCMENUMERATEDVALUES_H
```

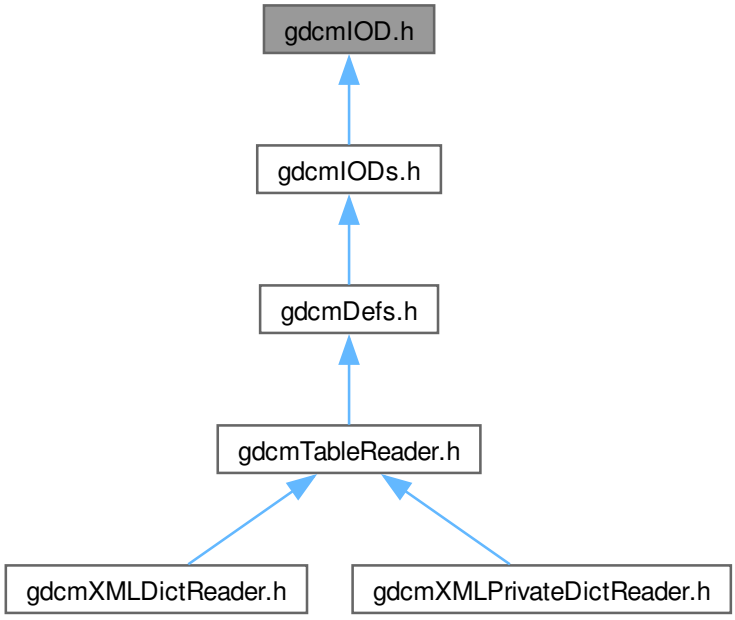
13.205 gdcmIOD.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmIODEntry.h"
#include <vector>
```

Include dependency graph for gdcmIOD.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::IOD

  Class for representing a IOD.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const IOD &_val)

13.206 gdcmIOD.h

Go to the documentation of this file.

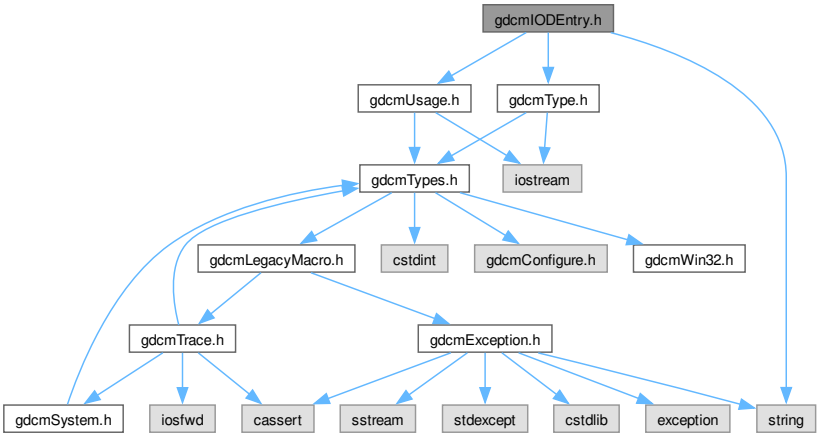
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
```

```
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIOD_H
00015 #define GDCMIOD_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmTag.h"
00019 #include "gdcmIODEntry.h"
00020
00021 #include <vector>
00022
00023 namespace gdcm
00024 {
00025 class DataSet;
00026 class Defs;
00027
00034 class GDCM_EXPORT IOD
00035 {
00036 public:
00037   typedef std::vector<IODEntry> MapIODEntry;
00038   typedef MapIODEntry::size_type SizeType;
00039
00040   IOD() = default;
00041   friend std::ostream& operator«(std::ostream& _os, const IOD &_val);
00042
00043   void Clear() { IODInternal.clear(); }
00044
00045   void AddIODEntry(const IODEntry & iode)
00046     {
00047     IODInternal.push_back(iode);
00048     }
00049
00050   SizeType GetNumberOfIODs() const {
00051     return IODInternal.size();
00052   }
00053
00054   const IODEntry& GetIODEntry(SizeType idx) const
00055     {
00056     return IODInternal[idx];
00057     }
00058
00059   Type GetTypeFromTag(const Defs &defs, const Tag& tag) const;
00060
00061 private:
00062   //IOD &operator=(const IOD &_val); // purposely not implemented
00063   //IOD(const IOD &_val); // purposely not implemented
00064
00065   MapIODEntry IODInternal;
00066 };
00067 //-----------------------------------------------------------------------------
00068 inline std::ostream& operator«(std::ostream& _os, const IOD &_val)
00069 {
00070   IOD::MapIODEntry::const_iterator it = _val.IODInternal.begin();
00071   for(;it != _val.IODInternal.end(); ++it)
00072     {
00073     _os « *it « '\n';
00074     }
00075
00076   return _os;
00077 }
00078
00079 } // end namespace gdcm
00080
00081 #endif //GDCMIOD_H
```

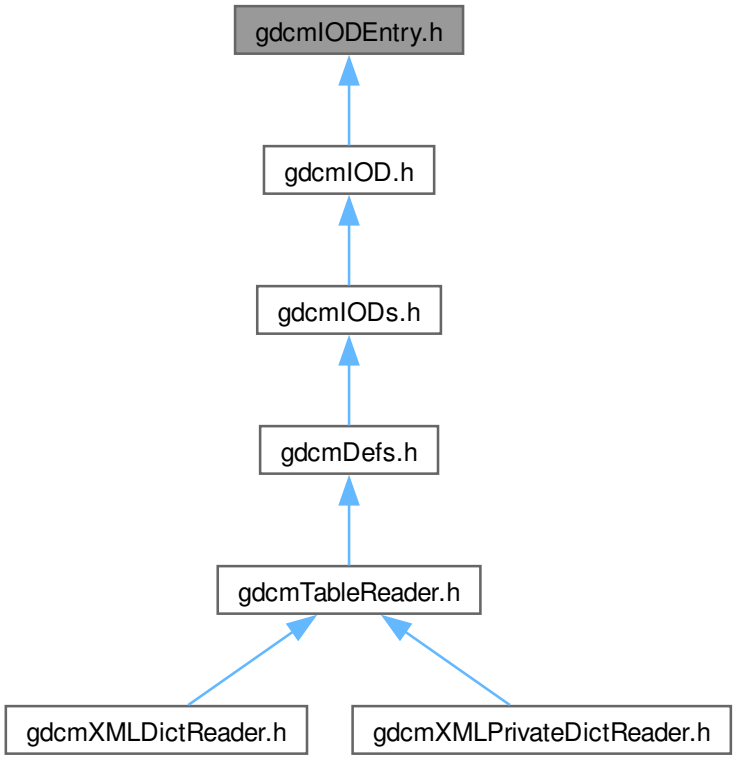
13.207 gdcmIODEntry.h File Reference

```
#include "gdcmUsage.h"
#include "gdcmType.h"
#include <string>
```

Include dependency graph for gdcmIODEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::IODEntry

  Class for representing a IODEntry.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const IODEntry &_val)

13.208 gdcmIODEntry.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIODENTRY_H
00015 #define GDCMIODENTRY_H
00016
00017 #include "gdcmUsage.h"
00018 #include "gdcmType.h"
00019
00020 #include <string>
00021
00022 namespace gdcm
00023 {
00051 class GDCM_EXPORT IODEntry
00052 {
00053 public:
00054   IODEntry(const char *name = "", const char *ref = "", const char *inUsage =
      "") :Name(name),Ref(ref),usage(inUsage) {
00055   }
00056   friend std::ostream& operator<<(std::ostream& _os, const IODEntry &_val);
00057
00058   void SetIE(const char *ie) { IE = ie; }
00059   const char *GetIE() const { return IE.c_str(); }
00060
00061   void SetName(const char *name) { Name = name; }
00062   const char *GetName() const { return Name.c_str(); }
00063
00064   void SetRef(const char *ref) { Ref = ref; }
00065   const char *GetRef() const { return Ref.c_str(); }
00066
00067   void SetUsage(const char *inUsage) { usage = inUsage; }
00068   const char *GetUsage() const { return usage.c_str(); }
00069   Usage::UsageType GetUsageType() const;
00070
00071 private:
00072   std::string IE;
00073
00074   std::string Name;
00075
00076   std::string Ref;
00077
00078   std::string usage;
00079 };
00080 //-----------------------------------------------------------------------------
00081 inline std::ostream& operator<<(std::ostream& _os, const IODEntry &_val)
00082 {
00083   _os << _val.IE << "\t" << _val.Name << "\t" << _val.Ref << "\t" << _val.usage;
00084   return _os;
00085 }
00086
00087 } // end namespace gdcm
00088
00089 #endif //GDCMIODENTRY_H
```
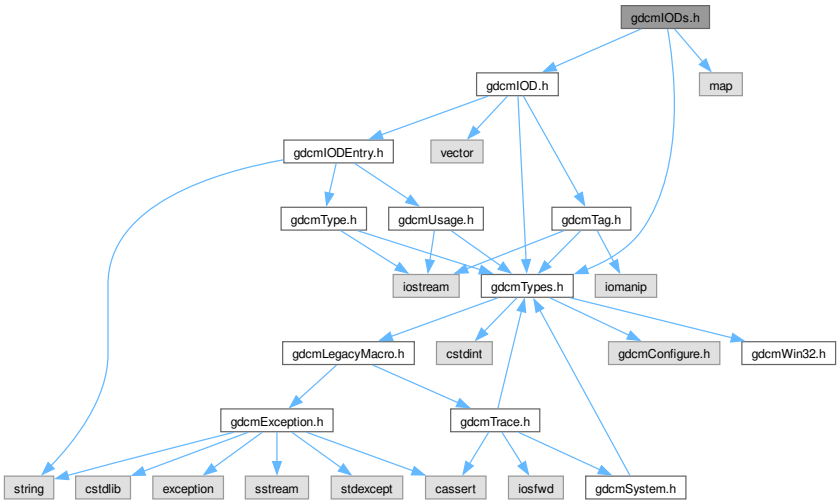

13.209 gdcmIODs.h File Reference

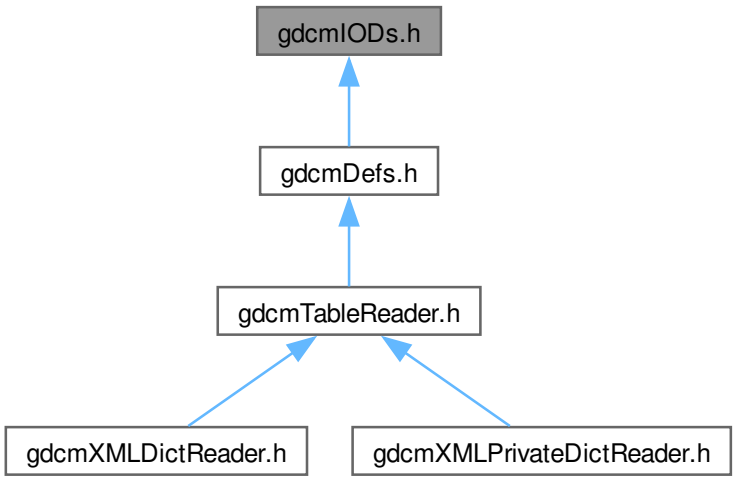
```
#include "gdcmTypes.h"
#include "gdcmIOD.h"
```

```
#include <map>
```

Include dependency graph for gdcmIODs.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::IODs

  Class for representing a IODs.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const IODs &_val)

13.210 gdcmIODs.h

Go to the documentation of this file.

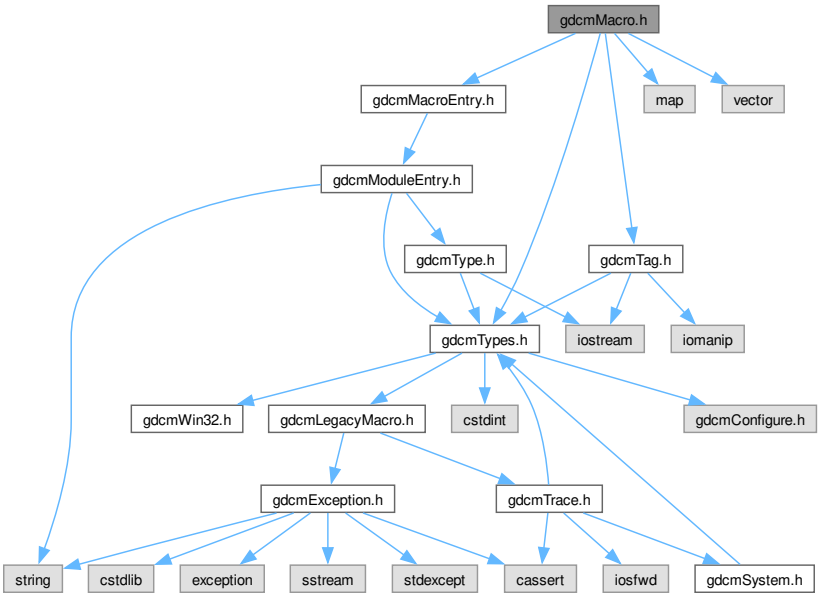
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIODS_H
00015 #define GDCMIODS_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmIOD.h"
00019
00020 #include <map>
00021
00022 namespace gdcm
00023 {
00029 class GDCM_EXPORT IODs
00030 {
00031 public:
00032   typedef std::string IODName;
00033   typedef std::map<IODName, IOD> IODMapType;
00034
00035   IODs() = default;
00036   friend std::ostream& operator<<(std::ostream& _os, const IODs &_val);
00037
00038   void Clear() { IODsInternal.clear(); }
00039
00040   void AddIOD(const char *name , const IOD & module )
00041     {
00042     IODsInternal.insert(
00043       IODMapType::value_type(name, module));
00044     }
00045   const IOD &GetIOD(const char *name) const
00046     {
00047     //return IODsInternal[name];
00048     IODMapType::const_iterator it = IODsInternal.find( name );
00049     assert( it != IODsInternal.end() );
00050     assert( it->first == name );
00051     return it->second;
00052     }
00053
00054   typedef IODMapType::const_iterator IODMapTypeConstIterator;
00055   IODMapTypeConstIterator Begin() const { return IODsInternal.begin(); }
00056   IODMapTypeConstIterator End() const { return IODsInternal.end(); }
00057
00058 private:
00059   IODMapType IODsInternal;
00060 };
00061 //-----------------------------------------------------------------------------
00062 inline std::ostream& operator<<(std::ostream& _os, const IODs &_val)
00063 {
00064   IODs::IODMapType::const_iterator it = _val.IODsInternal.begin();
```

```
00065   for(;it != _val.IODsInternal.end(); ++it)
00066     {
00067     const std::string &name = it->first;
00068     const IOD &m = it->second;
00069     _os « name « " " « m « '\n';
00070     }
00071
00072   return _os;
00073 }
00074
00075
00076 } // end namespace gdcm
00077
00078 #endif //GDCMIODS_H
```

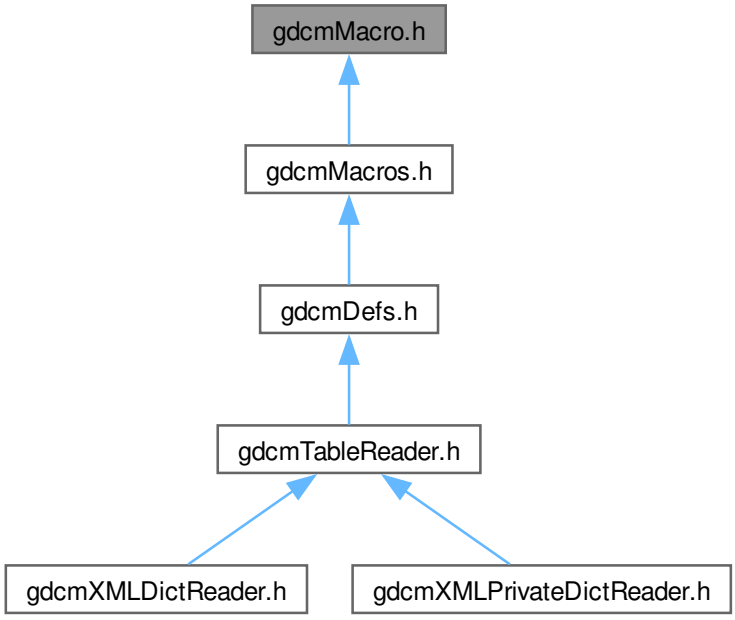
13.211 gdcmMacro.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmMacroEntry.h"
#include <map>
#include <vector>
```

Include dependency graph for gdcmMacro.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Macro

  Class for representing a Macro.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Macro &_val)

13.212 gdcmMacro.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
```

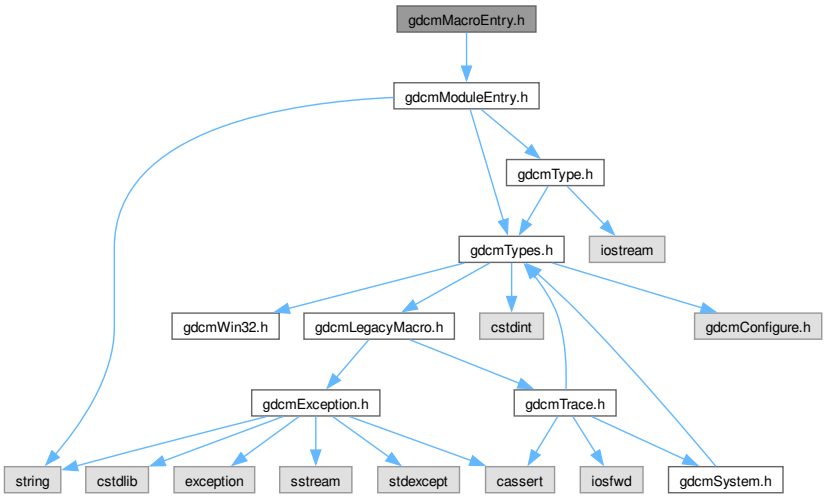
```
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMACRO_H
00015 #define GDCMMACRO_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmTag.h"
00019 #include "gdcmMacroEntry.h"
00020
00021 #include <map>
00022 #include <vector>
00023
00024 namespace gdcm
00025 {
00026
00027 class DataSet;
00028 class Usage;
00036 class GDCM_EXPORT Macro
00037 {
00038 public:
00039   typedef std::map<Tag, MacroEntry> MapModuleEntry;
00040   typedef std::vector<std::string> ArrayIncludeMacrosType;
00041
00042   //typedef MapModuleEntry::const_iterator ConstIterator;
00043   //typedef MapModuleEntry::iterator Iterator;
00044   //ConstIterator Begin() const { return ModuleInternal.begin(); }
00045   //Iterator Begin() { return ModuleInternal.begin(); }
00046   //ConstIterator End() const { return ModuleInternal.end(); }
00047   //Iterator End() { return ModuleInternal.end(); }
00048
00049   Macro() = default;
00050   friend std::ostream& operator<<(std::ostream& _os, const Macro&_val);
00051
00052   void Clear() { ModuleInternal.clear(); }
00053
00055   void AddMacroEntry(const Tag& tag, const MacroEntry & module)
00056     {
00057     ModuleInternal.insert(
00058       MapModuleEntry::value_type(tag, module));
00059     }
00060
00063   bool FindMacroEntry(const Tag &tag) const;
00064   const MacroEntry& GetMacroEntry(const Tag &tag) const;
00065
00066   void SetName( const char *name) { Name = name; }
00067   const char *GetName() const { return Name.c_str(); }
00068
00069   // Verify will print on std::cerr for error
00070   // Upon success will return true, false otherwise
00071   bool Verify(const DataSet& ds, Usage const & usage) const;
00072
00073 private:
00074   //Module &operator=(const Module &_val); // purposely not implemented
00075   //Module(const Module &_val); // purposely not implemented
00076
00077   MapModuleEntry ModuleInternal;
00078   std::string Name;
00079 };
00080 //-----------------------------------------------------------------------------
00081 inline std::ostream& operator<<(std::ostream& _os, const Macro &_val)
00082 {
00083   _os << _val.Name << '\n';
00084   Macro::MapModuleEntry::const_iterator it = _val.ModuleInternal.begin();
00085   for(;it != _val.ModuleInternal.end(); ++it)
00086     {
00087     const Tag &t = it->first;
00088     const MacroEntry &de = it->second;
00089     _os << t << " " << de << '\n';
00090     }
00091
00092   return _os;
00093 }
00094
```

```
00095 } // end namespace gdcm
00096
00097 #endif //GDCMMACRO_H
```

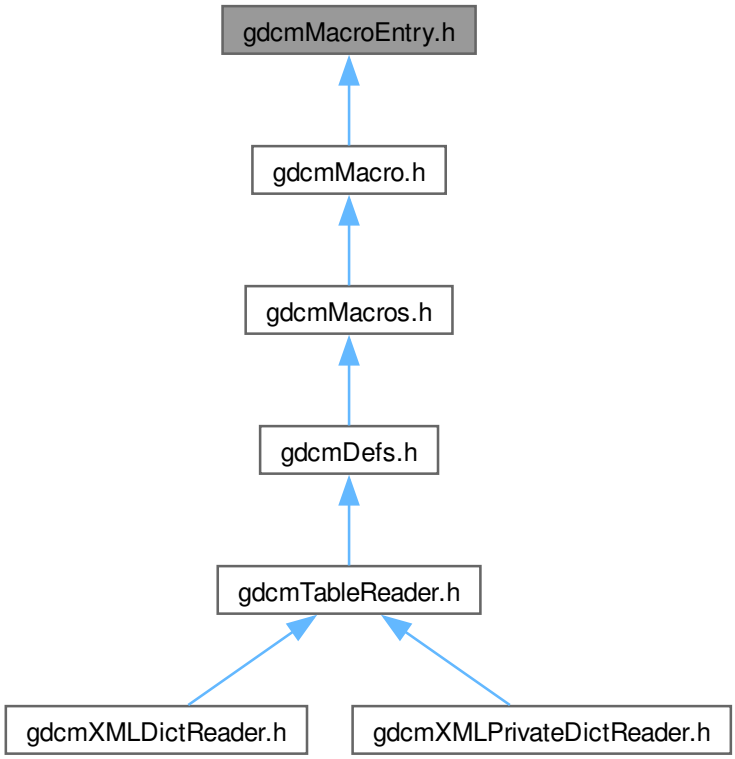
13.213 gdcmMacroEntry.h File Reference

`#include "gdcmModuleEntry.h"`

Include dependency graph for gdcmMacroEntry.h:



This graph shows which files directly or indirectly include this file:



Macros

- #define GDCMMACROENTRY_H

13.213.1 Macro Definition Documentation

13.213.1.1 GDCMMACROENTRY_H

```
#define GDCMMACROENTRY_H
```

13.214 gdcmMacroEntry.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #if 0
00015 #ifndef GDCMMACROENTRY_H
00016 #define GDCMMACROENTRY_H
00017
00018 #include "gdcmTypes.h"
00019 #include "gdcmType.h"
00020
00021 #include <string>
00022
00023 namespace gdcm
00024 {
00030 class GDCM_EXPORT MacroEntry
00031 {
00032 public:
00033   MacroEntry(const char *name = "", const char *type = "3", const char *description =
      "")):Name(name)/*,Type(type)*/,DescriptionField(description) {
00034     DataElementType = Type::GetTypeType(type);
00035   }
00036   virtual ~MacroEntry() {} // important
00037   friend std::ostream& operator«(std::ostream& _os, const MacroEntry &_val);
00038
00039   void SetName(const char *name) { Name = name; }
00040   const char *GetName() const { return Name.c_str(); }
00041
00042   void SetType(const Type &type) { DataElementType = type; }
00043   const Type &GetType() const { return DataElementType; }
00044
00045   /*
00046    * WARNING: 'Description' is currently a std::string, but it might change in the future
00047    * do not expect it to remain the same, and always use the ModuleEntry::Description typedef
00048    * instead.
00049    */
00050   typedef std::string Description;
00051   void SetDescription(const char *d) { DescriptionField = d; }
00052   const Description & GetDescription() const { return DescriptionField; }
00053
00054 protected:
00055   // PS 3.3 repeats the name of an attribute, but often contains typos
00056   // for now we will not use this info, but instead access the DataDict instead
00057   std::string Name;
00058
00059   // An attribute, encoded as a Data Element, may or may not be required in a
00060   // Data Set, depending on that Attribute's Data Element Type.
00061   Type DataElementType;
00062
00063   // TODO: for now contains the raw description (with enumerated values, defined terms...)
00064   Description DescriptionField;
00065 };
00066 //-----------------------------------------------------------------------------
00067 inline std::ostream& operator«(std::ostream& _os, const MacroEntry &_val)
00068 {
00069   _os « _val.Name « "\t" « _val.DataElementType « "\t" « _val.DescriptionField;
00070   return _os;
00071 }
00072
00073
00074 } // end namespace gdcm
00075
00076 #endif //GDCMMODULEENTRY_H
00077 #endif
00078
00079 #ifndef GDCMMACROENTRY_H
```
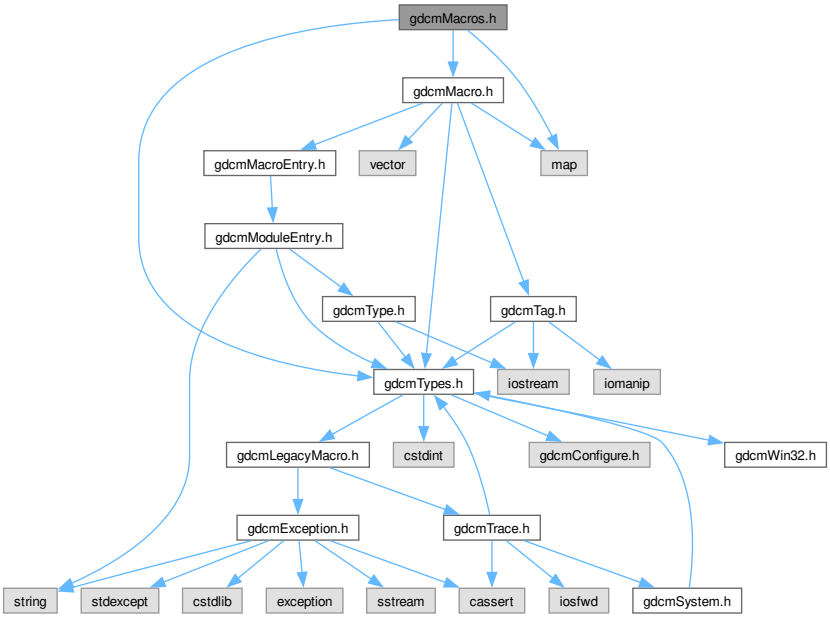

```
00080 #define GDCMMACROENTRY_H
00081 #include "gdcmModuleEntry.h"
00082 #endif
```

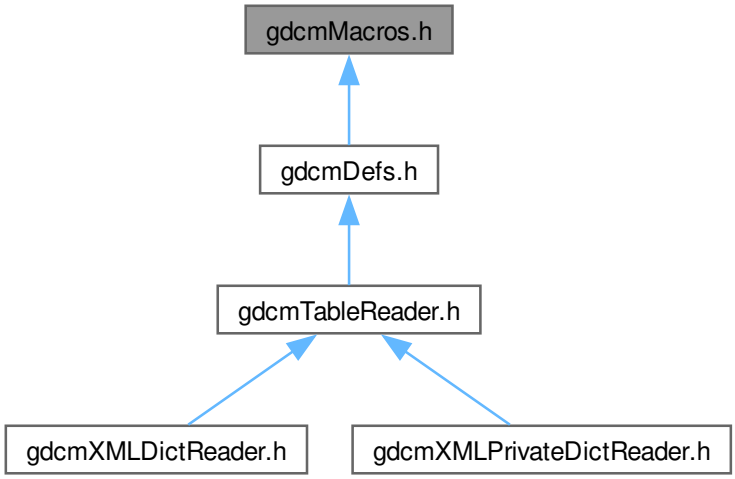
13.215 gdcmMacros.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmMacro.h"
#include <map>
```

Include dependency graph for gdcmMacros.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Macros

  Class for representing a Modules.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Macros &_val)

13.216 gdcmMacros.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
```

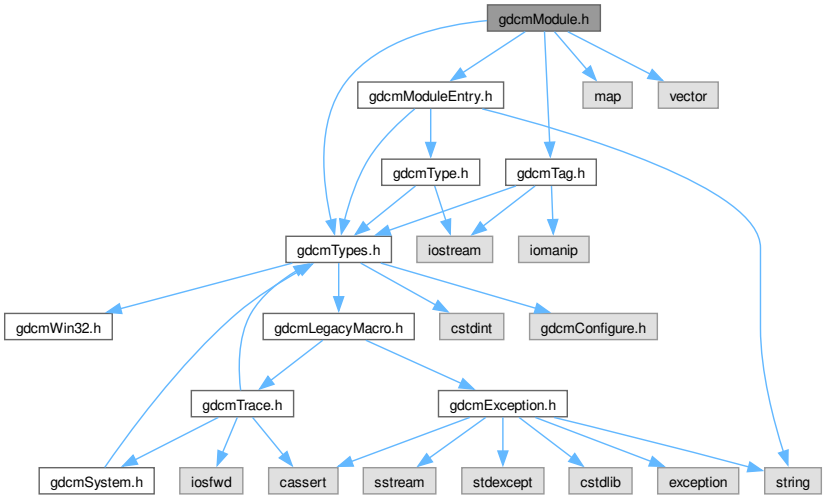
```
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMACROS_H
00015 #define GDCMMACROS_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmMacro.h"
00019
00020 #include <map>
00021
00022 namespace gdcm
00023 {
00029 class GDCM_EXPORT Macros
00030 {
00031 public:
00032   typedef std::map<std::string, Macro> ModuleMapType;
00033
00034   Macros() = default;
00035   friend std::ostream& operator«(std::ostream& _os, const Macros&_val);
00036
00037   void Clear() { ModulesInternal.clear(); }
00038
00039   // A Module is inserted based on it's ref
00040   void AddMacro(const char *ref, const Macro & module )
00041     {
00042     assert( ref && *ref );
00043     assert( ModulesInternal.find( ref ) == ModulesInternal.end() );
00044     ModulesInternal.insert(
00045       ModuleMapType::value_type(ref, module));
00046     }
00047   const Macro &GetMacro(const char *name) const
00048     {
00049     assert( name && *name );
00050     ModuleMapType::const_iterator it = ModulesInternal.find( name );
00051     assert( it != ModulesInternal.end() );
00052     assert( it->first == name );
00053     return it->second;
00054     }
00055
00056   bool IsEmpty() const { return ModulesInternal.empty(); }
00057
00058 private:
00059   ModuleMapType ModulesInternal;
00060 };
00061 //-----------------------------------------------------------------------------
00062 inline std::ostream& operator«(std::ostream& _os, const Macros &_val)
00063 {
00064   Macros::ModuleMapType::const_iterator it = _val.ModulesInternal.begin();
00065   for(;it != _val.ModulesInternal.end(); ++it)
00066     {
00067     const std::string &name = it->first;
00068     const Macro &m = it->second;
00069     _os « name « " " « m « '\n';
00070     }
00071
00072   return _os;
00073 }
00074
00075
00076 } // end namespace gdcm
00077
00078 #endif //GDCMMODULES_H
```

13.217 gdcmModule.h File Reference

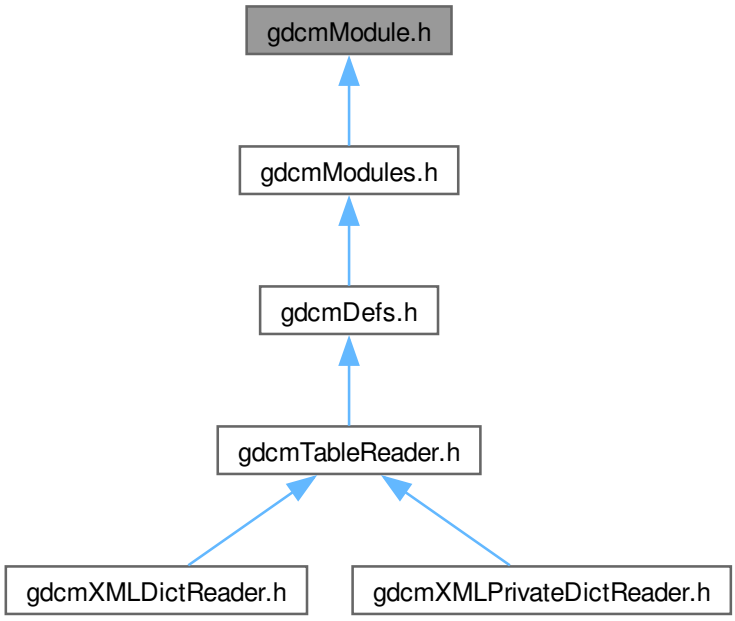
```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmModuleEntry.h"
#include <map>
```

```
#include <vector>
```

Include dependency graph for gdcmModule.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Module

  Class for representing a Module.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Module &_val)

13.218 gdcmModule.h

Go to the documentation of this file.

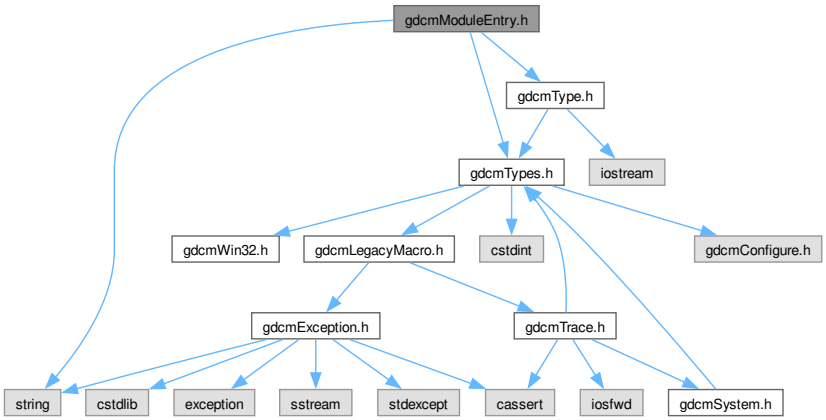
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMODULE_H
00015 #define GDCMMODULE_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmTag.h"
00019 #include "gdcmModuleEntry.h"
00020
00021 #include <map>
00022 #include <vector>
00023
00024 namespace gdcm
00025 {
00026
00027 class DataSet;
00028 class Usage;
00029 class Macros;
00037 class GDCM_EXPORT Module
00038 {
00039 public:
00040   typedef std::map<Tag, ModuleEntry> MapModuleEntry;
00041   typedef std::vector<std::string> ArrayIncludeMacrosType;
00042
00043   //typedef MapModuleEntry::const_iterator ConstIterator;
00044   //typedef MapModuleEntry::iterator Iterator;
00045   //ConstIterator Begin() const { return ModuleInternal.begin(); }
00046   //Iterator Begin() { return ModuleInternal.begin(); }
00047   //ConstIterator End() const { return ModuleInternal.end(); }
00048   //Iterator End() { return ModuleInternal.end(); }
00049
00050   Module() = default;
00051   friend std::ostream& operator<<(std::ostream& _os, const Module &_val);
00052
00053   void Clear() { ModuleInternal.clear(); }
00054
00056   void AddModuleEntry(const Tag& tag, const ModuleEntry & module)
00057     {
```

```
00058     ModuleInternal.insert(
00059       MapModuleEntry::value_type(tag, module));
00060     }
00061
00062   void AddMacro(const char *include)
00063     {
00064     ArrayIncludeMacros.push_back( include );
00065     }
00066
00069   bool FindModuleEntryInMacros(Macros const &macros, const Tag &tag) const;
00070   const ModuleEntry& GetModuleEntryInMacros(Macros const &macros, const Tag &tag) const;
00071
00072   void SetName( const char *name) { Name = name; }
00073   const char *GetName() const { return Name.c_str(); }
00074
00075   // Verify will print on std::cerr for error
00076   // Upon success will return true, false otherwise
00077   bool Verify(const DataSet& ds, Usage const & usage) const;
00078
00079 private:
00080   //Module &operator=(const Module &_val); // purposely not implemented
00081   //Module(const Module &_val); // purposely not implemented
00082
00083   MapModuleEntry ModuleInternal;
00084   std::string Name;
00085   ArrayIncludeMacrosType ArrayIncludeMacros;
00086 };
00087 //-----------------------------------------------------------------------------
00088 inline std::ostream& operator«(std::ostream& _os, const Module &_val)
00089 {
00090   _os « _val.Name « '\n';
00091   Module::MapModuleEntry::const_iterator it = _val.ModuleInternal.begin();
00092   for(;it != _val.ModuleInternal.end(); ++it)
00093     {
00094     const Tag &t = it->first;
00095     const ModuleEntry &de = it->second;
00096     _os « t « " " « de « '\n';
00097     }
00098
00099   return _os;
00100 }
00101
00102 } // end namespace gdcm
00103
00104 #endif //GDCMMODULE_H
```

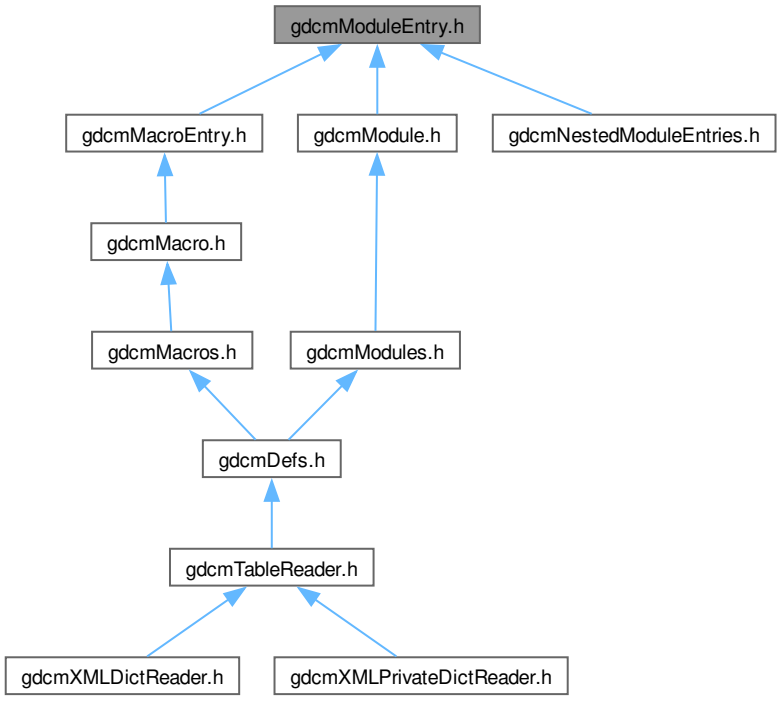
13.219 gdcmModuleEntry.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmType.h"
#include <string>
```

Include dependency graph for gdcmModuleEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::ModuleEntry

Class for representing a ModuleEntry.

Namespaces

- namespace gdcm

Typedefs

- typedef ModuleEntry gdcm::MacroEntry

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const ModuleEntry &_val)

13.220 gdcmModuleEntry.h

Go to the documentation of this file.

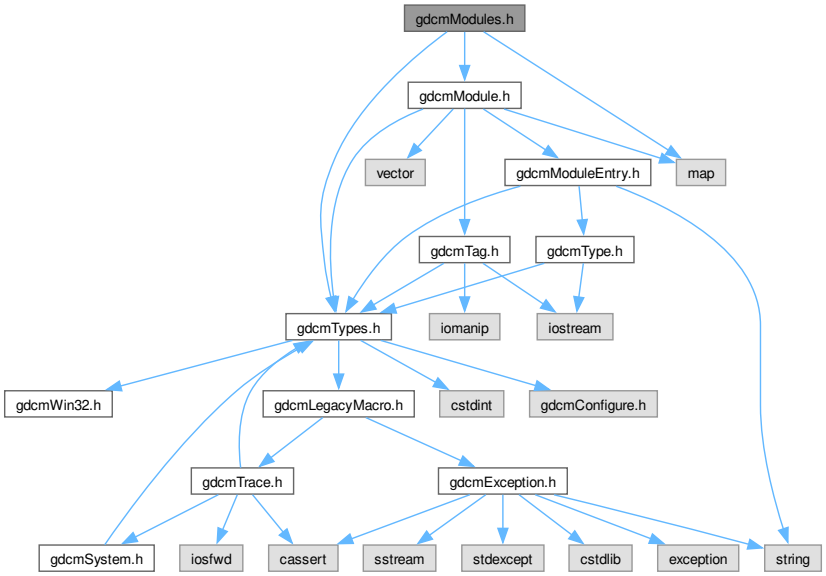
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMODULEENTRY_H
00015 #define GDCMMODULEENTRY_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmType.h"
00019
00020 #include <string>
00021
00022 namespace gdcm
00023 {
00029 class GDCM_EXPORT ModuleEntry
00030 {
00031 public:
00032   ModuleEntry(const char *name = "", const char *type = "3", const char *description =
      "") :Name(name)/*,Type(type)*/,DescriptionField(description) {
00033     DataElementType = Type::GetTypeType(type);
00034   }
00035   virtual ~ModuleEntry() = default; // important
00036   friend std::ostream& operator«(std::ostream& _os, const ModuleEntry &_val);
00037
00038   void SetName(const char *name) { Name = name; }
00039   const char *GetName() const { return Name.c_str(); }
00040
00041   void SetType(const Type &type) { DataElementType = type; }
00042   const Type &GetType() const { return DataElementType; }
00043
00044   /*
00045    * WARNING: 'Description' is currently a std::string, but it might change in the future
00046    * do not expect it to remain the same, and always use the ModuleEntry::Description typedef
00047    * instead.
00048    */
00049   typedef std::string Description;
00050   void SetDescription(const char *d) { DescriptionField = d; }
```

```
00051   const Description & GetDescription() const { return DescriptionField; }
00052
00053 protected:
00054   // PS 3.3 repeats the name of an attribute, but often contains typos
00055   // for now we will not use this info, but instead access the DataDict instead
00056   std::string Name;
00057
00058   // An attribute, encoded as a Data Element, may or may not be required in a
00059   // Data Set, depending on that Attribute's Data Element Type.
00060   Type DataElementType;
00061
00062   // TODO: for now contains the raw description (with enumerated values, defined terms...)
00063   Description DescriptionField;
00064 };
00065 //-----------------------------------------------------------------------------
00066 inline std::ostream& operator«(std::ostream& _os, const ModuleEntry &_val)
00067 {
00068   _os « _val.Name « "\t" « _val.DataElementType « "\t" « _val.DescriptionField;
00069   return _os;
00070 }
00071
00072 typedef ModuleEntry MacroEntry;
00073
00074
00075 } // end namespace gdcm
00076
00077 #endif //GDCMMODULEENTRY_H
```

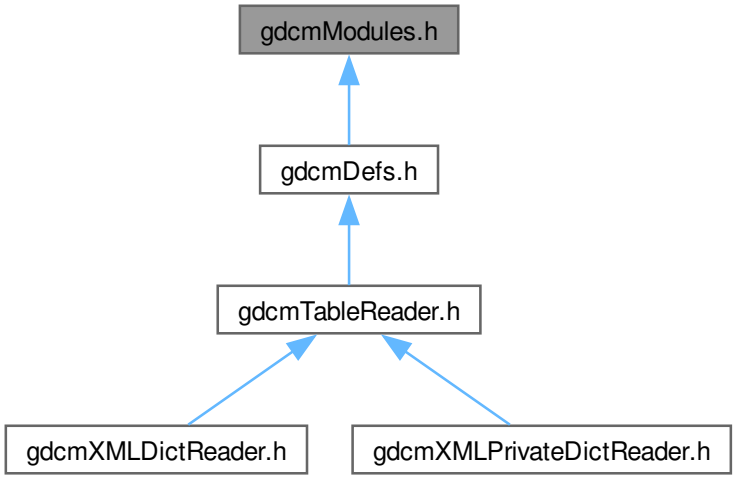
13.221 gdcmModules.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmModule.h"
#include <map>
```

Include dependency graph for gdcmModules.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Modules

  Class for representing a Modules.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Modules &_val)

13.222 gdcmModules.h

Go to the documentation of this file.

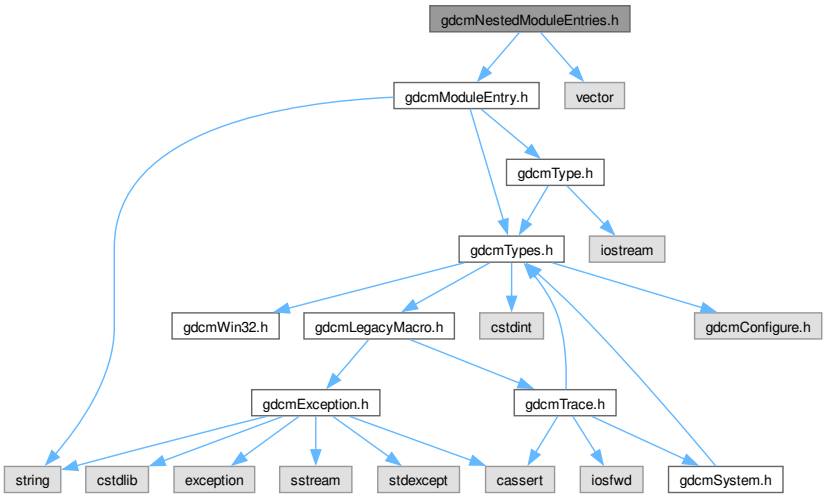
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
```

```
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMODULES_H
00015 #define GDCMMODULES_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmModule.h"
00019
00020 #include <map>
00021
00022 namespace gdcm
00023 {
00029 class GDCM_EXPORT Modules
00030 {
00031 public:
00032   typedef std::map<std::string, Module> ModuleMapType;
00033
00034   Modules() = default;
00035   friend std::ostream& operator«(std::ostream& _os, const Modules &_val);
00036
00037   void Clear() { ModulesInternal.clear(); }
00038
00039   // A Module is inserted based on it's ref
00040   void AddModule(const char *ref, const Module & module )
00041     {
00042     assert( ref && *ref );
00043     assert( ModulesInternal.find( ref ) == ModulesInternal.end() );
00044     ModulesInternal.insert(
00045       ModuleMapType::value_type(ref, module));
00046     }
00047   const Module &GetModule(const char *name) const
00048     {
00049     assert( name && *name );
00050     ModuleMapType::const_iterator it = ModulesInternal.find( name );
00051     assert( it != ModulesInternal.end() );
00052     assert( it->first == name );
00053     return it->second;
00054     }
00055
00056   bool IsEmpty() const { return ModulesInternal.empty(); }
00057
00058 private:
00059   ModuleMapType ModulesInternal;
00060 };
00061 //-----------------------------------------------------------------------------
00062 inline std::ostream& operator«(std::ostream& _os, const Modules &_val)
00063 {
00064   Modules::ModuleMapType::const_iterator it = _val.ModulesInternal.begin();
00065   for(;it != _val.ModulesInternal.end(); ++it)
00066     {
00067     const std::string &name = it->first;
00068     const Module &m = it->second;
00069     _os « name « " " « m « '\n';
00070     }
00071
00072   return _os;
00073 }
00074
00075
00076
00077 } // end namespace gdcm
00078
00079 #endif //GDCMMODULES_H
```

13.223 gdcmNestedModuleEntries.h File Reference

```
#include "gdcmModuleEntry.h"
#include <vector>
```

Include dependency graph for gdcmNestedModuleEntries.h:



Classes

- class gdcm::NestedModuleEntries

  Class for representing a NestedModuleEntries.

Namespaces

- namespace gdcm

Typedefs

- typedef NestedModuleEntries gdcm::NestedMacroEntries

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const NestedModuleEntries &_val)

13.224 gdcmNestedModuleEntries.h

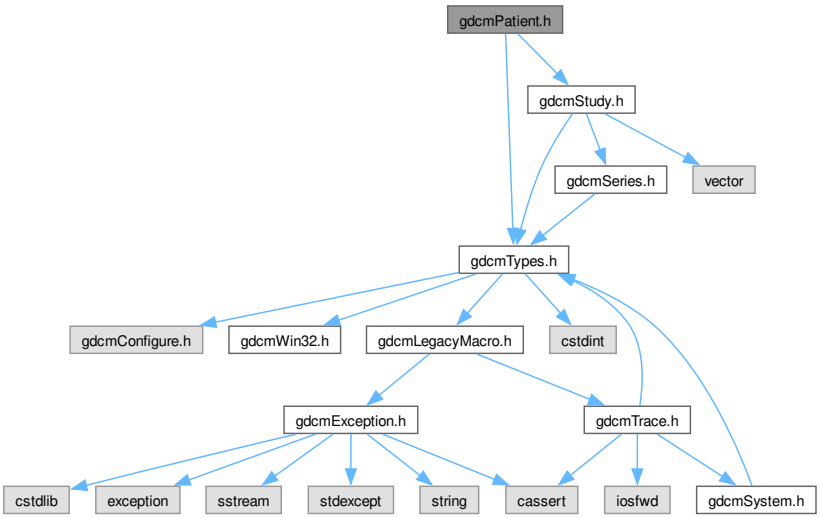
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMNESTEDMODULEENTRIES_H
00015 #define GDCMNESTEDMODULEENTRIES_H
00016
00017 #include "gdcmModuleEntry.h"
00018 #include <vector>
00019
00020 namespace gdcm
00021 {
00027 class GDCM_EXPORT NestedModuleEntries : public ModuleEntry
00028 {
00029 public:
00030   NestedModuleEntries(const char *name = "", const char *type = "3", const char *description =
      ""):ModuleEntry(name,type,description) { }
00031   friend std::ostream& operator<<(std::ostream& _os, const NestedModuleEntries &_val);
00032
00033   typedef std::vector<ModuleEntry>::size_type SizeType;
00034   SizeType GetNumberOfModuleEntries() { return ModuleEntriesList.size(); }
00035
00036   const ModuleEntry &GetModuleEntry(SizeType idx) const { return ModuleEntriesList[idx]; }
00037   ModuleEntry &GetModuleEntry(SizeType idx) { return ModuleEntriesList[idx]; }
00038
00039   void AddModuleEntry(const ModuleEntry &me) { ModuleEntriesList.push_back( me ); }
00040
00041 private:
00042   std::vector<ModuleEntry> ModuleEntriesList;
00043 };
00044 //-----------------------------------------------------------------------------
00045 inline std::ostream& operator<<(std::ostream& _os, const NestedModuleEntries &_val)
00046 {
00047   _os << "Nested:" << _val.Name << "\t" << _val.DataElementType << "\t" << _val.DescriptionField;
00048   return _os;
00049 }
00050
00051 typedef NestedModuleEntries NestedMacroEntries;
00052
00053
00054 } // end namespace gdcm
00055
00056 #endif //GDCMNESTEDMODULEENTRIES_H
```

13.225 gdcmPatient.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmStudy.h"
```

Include dependency graph for gdcmPatient.h:



Classes

- class gdcm::Patient

  See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54.

Namespaces

- namespace gdcm

13.226 gdcmPatient.h

Go to the documentation of this file.

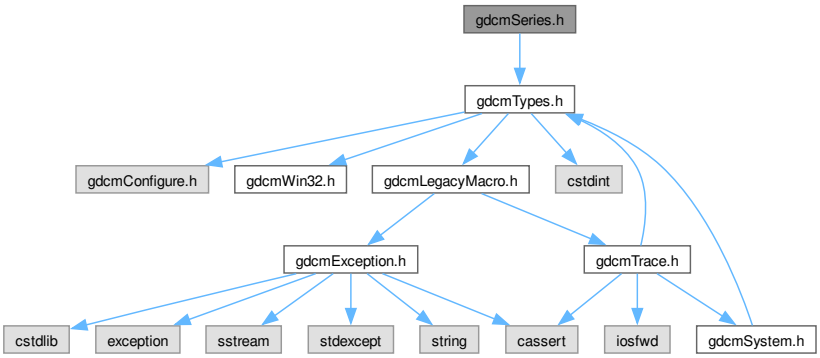
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPATIENT_H
00015 #define GDCMPATIENT_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmStudy.h"
00019
```

```
00020 namespace gdcm
00021 {
00027 class GDCM_EXPORT Patient
00028 {
00029 public:
00030   Patient() = default;
00031
00032 private:
00033   std::vector<Study> StudyList;
00034 };
00035
00036 } // end namespace gdcm
00037
00038 #endif //GDCMPATIENT_H
```

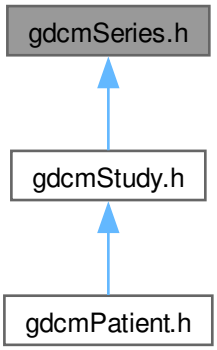
13.227 gdcmSeries.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmSeries.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Series

  Series.

Namespaces

- namespace gdcm

13.228 gdcmSeries.h

Go to the documentation of this file.

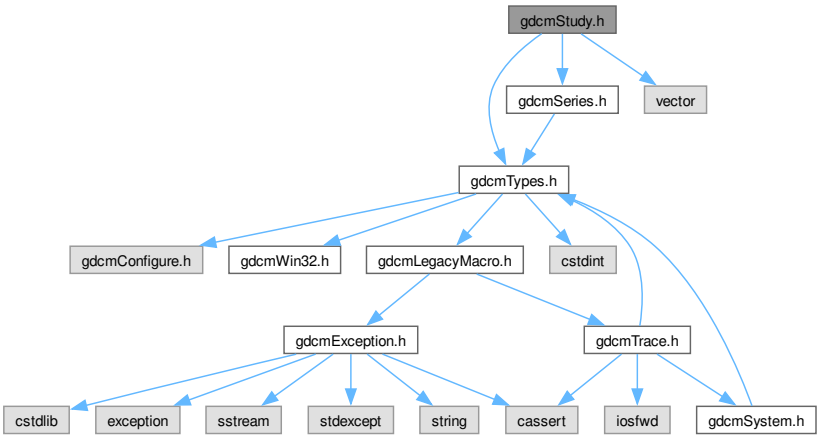
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSERIES_H
00015 #define GDCMSERIES_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00024 class GDCM_EXPORT Series
00025 {
00026 public:
00027   Series() = default;
00028 private:
00029   // Image, Waveform...
00030 };
00031
00032 } // end namespace gdcm
00033
00034 #endif //GDCMSERIES_H
```

13.229 gdcmStudy.h File Reference

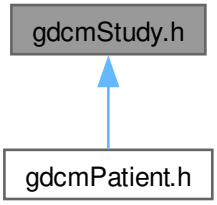
```
#include "gdcmTypes.h"
#include "gdcmSeries.h"
```

```
#include <vector>
```

Include dependency graph for gdcmStudy.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Study

  Study.

Namespaces

- namespace gdcm

13.230 gdcmStudy.h

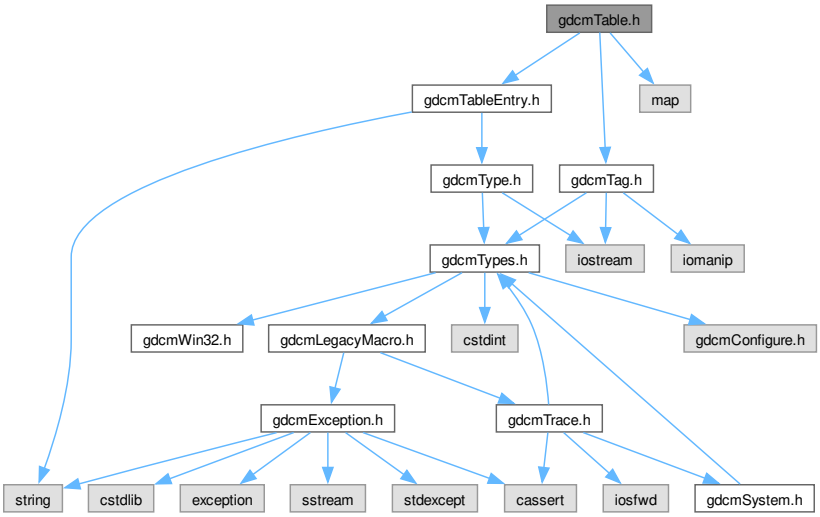
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSTUDY_H
00015 #define GDCMSTUDY_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmSeries.h"
00019
00020 #include <vector>
00021
00022 namespace gdcm
00023 {
00027 class GDCM_EXPORT Study
00028 {
00029 public:
00030   Study() = default;
00031 private:
00032   std::vector<Series> SeriesList;
00033 };
00034
00035 } // end namespace gdcm
00036
00037 #endif //GDCMSTUDY_H
```

13.231 gdcmTable.h File Reference

```
#include "gdcmTableEntry.h"
#include "gdcmTag.h"
#include <map>
```

Include dependency graph for gdcmTable.h:



Classes

- class gdcm::Table
  Table.

Namespaces

- namespace gdcm

13.232 gdcmTable.h

Go to the documentation of this file.

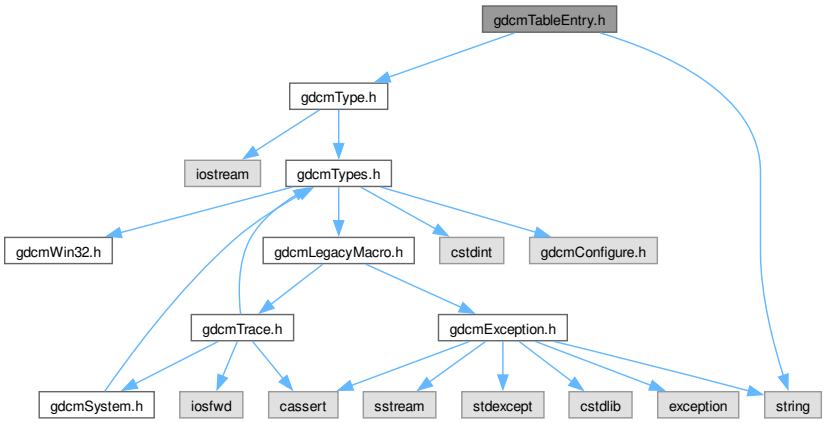
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTABLE_H
00015 #define GDCMTABLE_H
00016
00017 #include "gdcmTableEntry.h"
00018 #include "gdcmTag.h"
00019
00020 #include <map>
```

```
00021
00022 namespace gdcm
00023 {
00024
00028 class Table
00029 {
00030 public:
00031   typedef std::map<Tag, TableEntry> MapTableEntry;
00032   Table() = default;
00033   ~Table() = default;
00034   Table &operator=(const Table &_val) = delete;
00035   Table(const Table&_val) = delete;
00036
00037   friend std::ostream& operator«(std::ostream& _os, const Table &_val);
00038
00039   void InsertEntry(Tag const &tag, TableEntry const &te)
00040     {
00041 #ifndef NDEBUG
00042     MapTableEntry::size_type s = TableInternal.size();
00043 #endif
00044     TableInternal.insert(
00045       MapTableEntry::value_type(tag, te));
00046     assert( s < TableInternal.size() );
00047     }
00048
00049   const TableEntry &GetTableEntry(const Tag &tag) const
00050     {
00051     MapTableEntry::const_iterator it =
00052       TableInternal.find(tag);
00053     if (it == TableInternal.end())
00054       {
00055       assert( 0 && "Impossible" );
00056       return GetTableEntry(Tag(0,0));
00057       }
00058     return it->second;
00059     }
00060
00061   MapTableEntry TableInternal;
00062 };
00063
00064 } // end namespace gdcm
00065
00066 #endif //GDCMTABLE_H
```

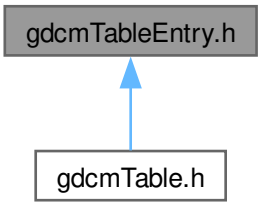
13.233 gdcmTableEntry.h File Reference

```
#include "gdcmType.h"
#include <string>
```

Include dependency graph for gdcmTableEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::TableEntry
  TableEntry.

Namespaces

- namespace gdcm

13.234 gdcmTableEntry.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTABLEENTRY_H
00015 #define GDCMTABLEENTRY_H
00016
00017 #include "gdcmType.h"
00018
00019 #include <string>
00020
00021 namespace gdcm
00022 {
00023
00027 class TableEntry
00028 {
00029 public:
00030   TableEntry(const char *attribute = nullptr,
00031     Type const &type = Type(), const char * des = nullptr ) :
00032     Attribute(attribute ? attribute : ""),TypeField(type),Description(des ? des : "") {}
00033   ~TableEntry() = default;
00034
00035 private:
00036   std::string Attribute;
00037   Type TypeField;
00038   std::string Description;
00039 };
00040
00041 } // end namespace gdcm
00042
00043 #endif //GDCMTABLEENTRY_H
```
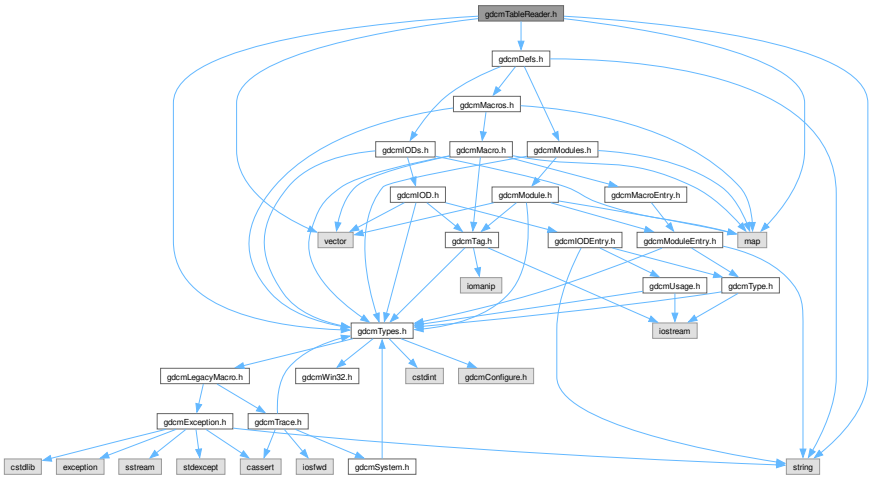
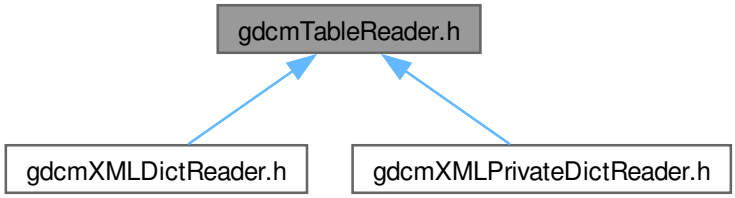

13.235 gdcmTableReader.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDefs.h"
#include <string>
#include <vector>
#include <map>
```

Include dependency graph for gdcmTableReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::TableReader

  Class for representing a TableReader.

Namespaces

- namespace gdcm

13.236 gdcmTableReader.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTABLEREADER_H
00015 #define GDCMTABLEREADER_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmDefs.h"
00019 //#include "gdcmModule.h"
00020 //#include "gdcmIOD.h"
00021 //#include "gdcmIODs.h"
00022 //#include "gdcmModules.h"
00023
00024 #include <string>
00025 #include <vector>
00026 #include <map>
00027
00028 namespace gdcm
00029 {
00034 class GDCM_EXPORT TableReader
00035 {
00036 public:
00037   TableReader(Defs &defs):CurrentDefs(defs),ParsingModule(false),ParsingModuleEntry(false),
00038   ParsingModuleEntryDescription(false),
00039   ParsingMacro(false),
00040   ParsingMacroEntry(false),
00041   ParsingMacroEntryDescription(false),
00042   ParsingIOD(false),
00043   ParsingIODEntry(false),
00044   Description() {}
00045   virtual ~TableReader() = default;
00046
00047   // Set/Get filename
00048   void SetFilename(const char *filename) { Filename = filename; }
00049   const char *GetFilename() { return Filename.c_str(); }
00050
00051   int Read();
00052
00053 //protected:
00054   // You need to override those function in your subclasses:
00055   virtual void StartElement(const char *name, const char **atts);
00056   virtual void EndElement(const char *name);
00057   virtual void CharacterDataHandler(const char *data, int length);
00058
00059 void HandleModuleEntry(const char **atts);
00060 void HandleModule(const char **atts);
00061 void HandleModuleEntryDescription(const char **atts);
00062 void HandleMacroEntry(const char **atts);
00063 void HandleMacro(const char **atts);
00064 void HandleMacroEntryDescription(const char **atts);
00065 void HandleModuleInclude(const char **atts);
00066 void HandleIODEntry(const char **atts);
00067 void HandleIOD(const char **atts);
00068
00069   //const Modules & GetModules() const { return CurrentModules; }
00070   //const Macros & GetMacros() const { return CurrentMacros; }
00071   //const IODs & GetIODs() const { return CurrentIODs; }
00072   const Defs & GetDefs() const { return CurrentDefs; }
00073
00074 private:
00075   std::string Filename;
00076   Defs &CurrentDefs;
00077   //Macros CurrentMacros;
00078   //Modules CurrentModules;
00079   //IODs CurrentIODs;
```
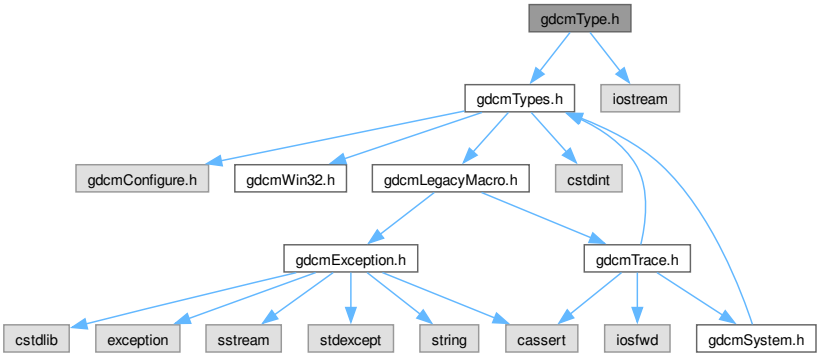

```
00080   Macro CurrentMacro;
00081   Module CurrentModule;
00082   IOD CurrentIOD;
00083   MacroEntry CurrentMacroEntry;
00084   ModuleEntry CurrentModuleEntry;
00085   IODEntry CurrentIODEntry;
00086   std::string CurrentModuleName;
00087   std::string CurrentModuleRef;
00088   std::string CurrentMacroRef;
00089   bool ParsingModule;
00090   bool ParsingModuleEntry;
00091   bool ParsingModuleEntryDescription;
00092   bool ParsingMacro;
00093   bool ParsingMacroEntry;
00094   bool ParsingMacroEntryDescription;
00095   bool ParsingIOD;
00096   bool ParsingIODEntry;
00097   Tag CurrentTag;
00098   std::string Description;
00099 };
00100
00101 } // end namespace gdcm
00102
00103 #endif //GDCMTABLEREADER_H
```

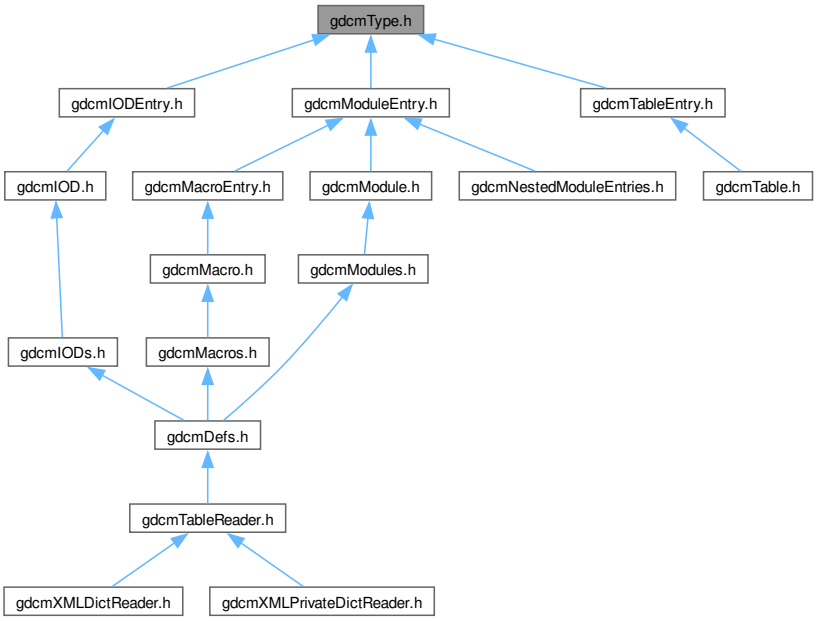
13.237 gdcmType.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmType.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Type
  Type.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Type &val)

13.238 gdcmType.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```
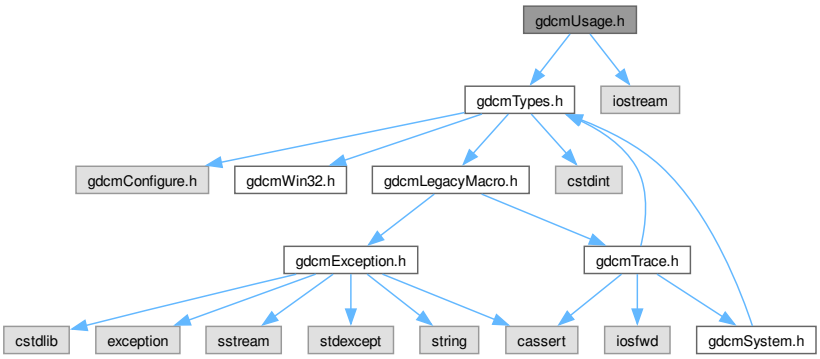

```
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMTYPE_H
00016 #define GDCMTYPE_H
00017
00018 #include "gdcmTypes.h"
00019
00020 #include <iostream>
00021
00022 namespace gdcm
00023 {
00024
00041 class GDCM_EXPORT Type
00042 {
00043 public:
00044   typedef enum {
00045     T1 = 0,
00046     T1C,
00047     T2,
00048     T2C,
00049     T3,
00050     UNKNOWN
00051   } TypeType;
00052
00053   Type(TypeType type = UNKNOWN) : TypeField(type) { }
00054
00055   operator TypeType () const { return TypeField; }
00056   friend std::ostream &operator<<(std::ostream &os, const Type &vr);
00057
00058   static const char *GetTypeString(TypeType type);
00059   static TypeType GetTypeType(const char *type);
00060
00061 private:
00062   TypeType TypeField;
00063 };
00064 //-----------------------------------------------------------------------------
00065 inline std::ostream &operator<<(std::ostream &_os, const Type &val)
00066 {
00067   _os << Type::GetTypeString(val.TypeField);
00068   return _os;
00069 }
00070
00071 } // end namespace gdcm
00072
00073 #endif //GDCMTYPE_H
```

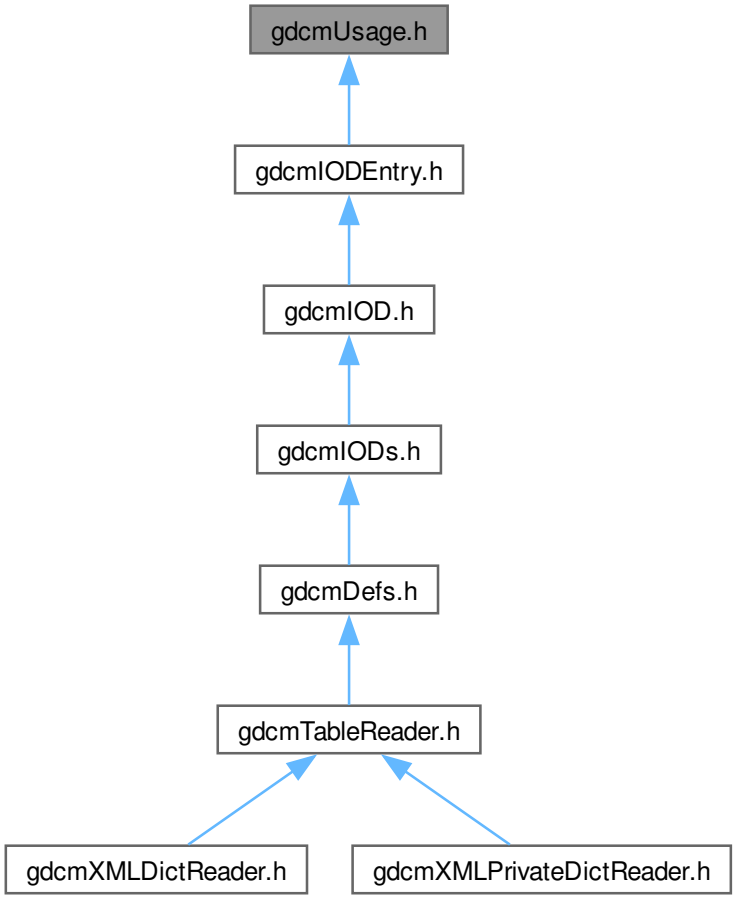
13.239 gdcmUsage.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmUsage.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Usage
  Usage.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Usage &val)

13.240 gdcmUsage.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMUSAGE_H
00015 #define GDCMUSAGE_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <iostream>
00020
00021 namespace gdcm
00022 {
00023
00048 class GDCM_EXPORT Usage
00049 {
00050 public:
00051   typedef enum {
00052     Mandatory, // (see A.1.3.1) , abbreviated M
00053     Conditional, // (see A.1.3.2) , abbreviated C
00054     UserOption, // (see A.1.3.3) , abbreviated U
00055     Invalid
00056   } UsageType;
00057
00058   Usage(UsageType type = Invalid) : UsageField(type) { }
00059
00060   operator UsageType () const { return UsageField; }
00061   friend std::ostream &operator<<(std::ostream &os, const Usage &vr);
00062
00063   static const char *GetUsageString(UsageType type);
00064   static UsageType GetUsageType(const char *type);
00065
00066 private:
00067   UsageType UsageField;
00068 };
00069 //-----------------------------------------------------------------------------
00070 inline std::ostream &operator<<(std::ostream &_os, const Usage &val)
00071 {
00072   _os << Usage::GetUsageString(val.UsageField);
00073   return _os;
00074 }
00075
00076 } // end namespace gdcm
00077
00078 #endif //GDCMUSAGE_H
```
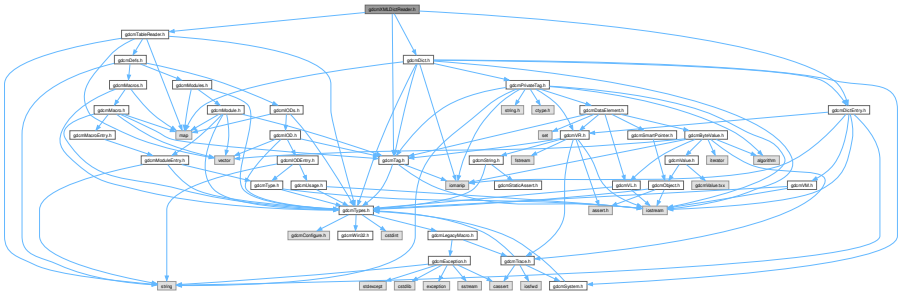

13.241 gdcmXMLDictReader.h File Reference

```
#include "gdcmTableReader.h"
#include "gdcmDict.h"
#include "gdcmDictEntry.h"
#include "gdcmTag.h"
```

Include dependency graph for gdcmXMLDictReader.h:



Classes

- class gdcm::XMLDictReader

  Class for representing a XMLDictReader.

Namespaces

- namespace gdcm

13.242 gdcmXMLDictReader.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMXMLDICTREADER_H
00015 #define GDCMXMLDICTREADER_H
00016
00017 #include "gdcmTableReader.h"
00018 #include "gdcmDict.h"
00019 #include "gdcmDictEntry.h"
00020 #include "gdcmTag.h"
00021
00022 namespace gdcm
00023 {
00029 class GDCM_EXPORT XMLDictReader : public TableReader
00030 {
00031 public:
00032   XMLDictReader();
00033   ~XMLDictReader() {}
00034
00035   void StartElement(const char *name, const char **atts);
00036   void EndElement(const char *name);
00037   void CharacterDataHandler(const char *data, int length);
00038
00039   const Dict & GetDict() { return DICOMDict; }
```
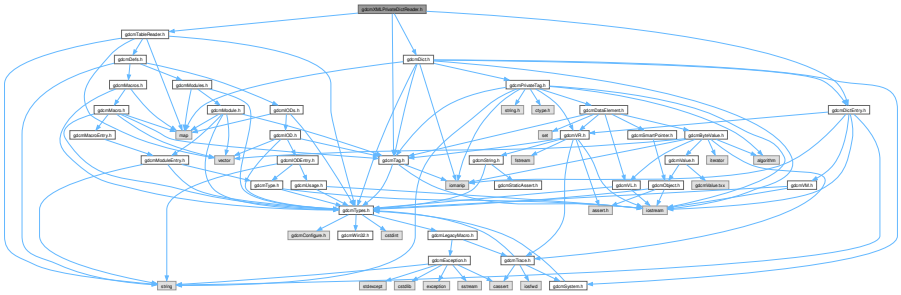

```
00040
00041 protected:
00042   void HandleEntry(const char **atts);
00043   void HandleDescription(const char **atts);
00044
00045 private:
00046   Dict DICOMDict;
00047   Tag CurrentTag;
00048   DictEntry CurrentDE;
00049   bool ParsingDescription;
00050   std::string Description;
00051 };
00052
00053 } // end namespace gdcm
00054
00055 #endif //GDCMXMLDICTREADER_H
```

13.243 gdcmXMLPrivateDictReader.h File Reference

```
#include "gdcmTableReader.h"
#include "gdcmDict.h"
#include "gdcmDictEntry.h"
#include "gdcmTag.h"
```

Include dependency graph for gdcmXMLPrivateDictReader.h:



Classes

- class gdcm::XMLPrivateDictReader

  Class for representing a XMLPrivateDictReader.

Namespaces

- namespace gdcm

13.244 gdcmXMLPrivateDictReader.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMXMLPRIVATEDICTREADER_H
00015 #define GDCMXMLPRIVATEDICTREADER_H
00016
00017 #include "gdcmTableReader.h"
00018 #include "gdcmDict.h"
00019 #include "gdcmDictEntry.h"
00020 #include "gdcmTag.h"
00021
00022 namespace gdcm
00023 {
00029 class GDCM_EXPORT XMLPrivateDictReader : public TableReader
00030 {
00031 public:
00032   XMLPrivateDictReader();
00033   ~XMLPrivateDictReader() {}
00034
00035   void StartElement(const char *name, const char **atts);
00036   void EndElement(const char *name);
00037   void CharacterDataHandler(const char *data, int length);
00038
00039   const PrivateDict & GetPrivateDict() { return PDict; }
00040
00041 protected:
00042   void HandleEntry(const char **atts);
00043   void HandleDescription(const char **atts);
00044
00045 private:
00046   PrivateDict PDict;
00047   PrivateTag CurrentTag;
00048   DictEntry CurrentDE;
00049   bool ParsingDescription;
00050   std::string Description;
00051 };
00052
00053 } // end namespace gdcm
00054
00055 #endif //GDCMXMLPRIVATEDICTREADER_H
```
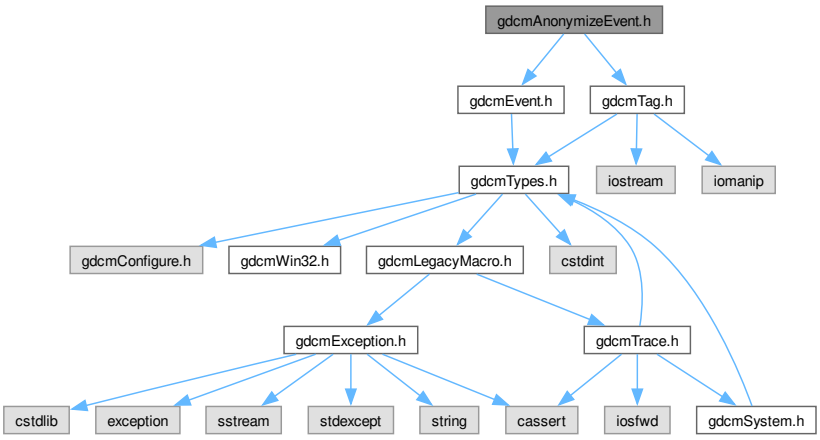
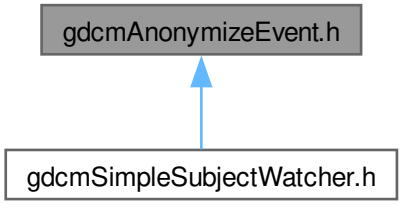

13.245 gdcmAnonymizeEvent.h File Reference

```
#include "gdcmEvent.h"
#include "gdcmTag.h"
```

Include dependency graph for gdcmAnonymizeEvent.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::AnonymizeEvent

  AnonymizeEvent.

Namespaces

- namespace gdcm

13.246 gdcmAnonymizeEvent.h

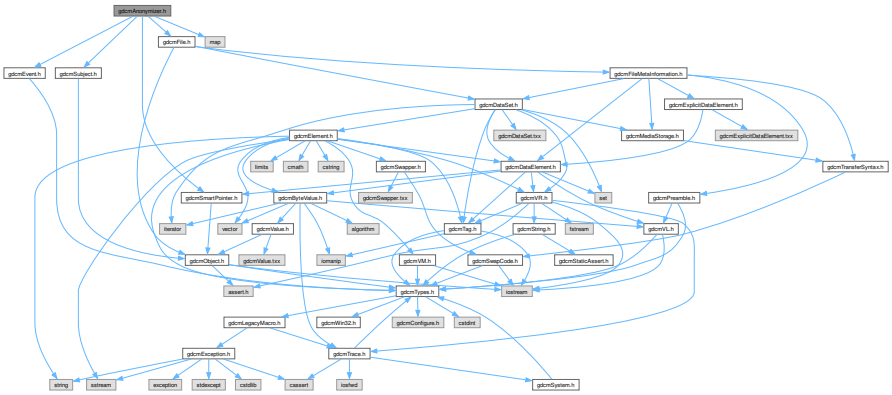
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMANONYMIZEEVENT_H
00015 #define GDCMANONYMIZEEVENT_H
00016
00017 #include "gdcmEvent.h"
00018 #include "gdcmTag.h"
00019
00020 namespace gdcm
00021 {
00022
00029 class AnonymizeEvent : public AnyEvent
00030 {
00031 public:
00032   typedef AnonymizeEvent Self;
00033   typedef AnyEvent Superclass;
00034   AnonymizeEvent(Tag const &tag = 0):m_Tag(tag) {}
00035   ~AnonymizeEvent() override = default;
00036   AnonymizeEvent(const Self&s) : AnyEvent(s){}
00037   void operator=(const Self&) = delete;
00038
00039   const char * GetEventName() const override { return "AnonymizeEvent"; }
00040   bool CheckEvent(const ::gdcm::Event* e) const override
00041   { return (dynamic_cast<const Self*>(e) == nullptr ? false : true) ; }
00042   ::gdcm::Event* MakeObject() const override
00043     { return new Self; }
00044
00045   void SetTag(const Tag& t ) { m_Tag = t; }
00046   Tag const & GetTag() const { return m_Tag; }
00047 private:
00048   Tag m_Tag;
00049 };
00050
00051
00052 } // end namespace gdcm
00053
00054 #endif //GDCMANONYMIZEEVENT_H
```

13.247 gdcmAnonymizer.h File Reference

```
#include "gdcmFile.h"
#include "gdcmSubject.h"
#include "gdcmEvent.h"
#include "gdcmSmartPointer.h"
#include <map>
```

Include dependency graph for gdcmAnonymizer.h:



Classes

- class gdcm::Anonymizer

  Anonymizer.

Namespaces

- namespace gdcm

13.248 gdcmAnonymizer.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMANONYMIZER_H
00015 #define GDCMANONYMIZER_H
00016
00017 #include "gdcmFile.h"
00018 #include "gdcmSubject.h"
00019 #include "gdcmEvent.h"
00020 #include "gdcmSmartPointer.h"
00021
00022 #include <map>
00023
00024 namespace gdcm
00025 {
00026 class TagPath;
00027 class IOD;
00028 class CryptographicMessageSyntax;
00029
```
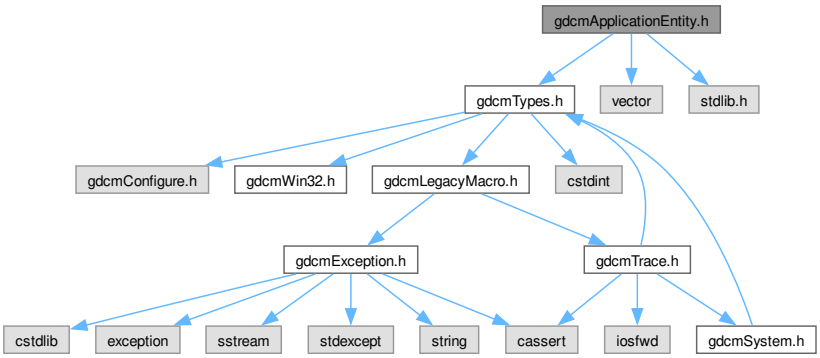

```
00077 class GDCM_EXPORT Anonymizer : public Subject
00078 {
00079 public:
00080   Anonymizer():F(new File),CMS(nullptr) {}
00081   ~Anonymizer() override;
00082
00084   bool Empty( Tag const &t );
00085
00090   bool Empty( PrivateTag const &pt );
00091
00093   bool Clear( Tag const &t );
00094   bool Clear( PrivateTag const &pt );
00095
00097   bool Remove( Tag const &t );
00098
00104   bool Remove( PrivateTag const &pt );
00105
00108   bool Replace( Tag const &t, const char *value );
00109   bool Replace( PrivateTag const &t, const char *value );
00110
00113   bool Replace( Tag const &t, const char *value, VL const & vl );
00114   bool Replace( PrivateTag const &t, const char *value, VL const & vl );
00115
00117   bool RemovePrivateTags();
00118
00120   bool RemoveGroupLength();
00121
00123   bool RemoveRetired();
00124
00126   void SetFile(const File& f) { F = f; }
00127   //const File &GetFile() const { return *F; }
00128   File &GetFile() { return *F; }
00129
00134   bool BasicApplicationLevelConfidentialityProfile(bool deidentify = true);
00135
00137   void SetCryptographicMessageSyntax( CryptographicMessageSyntax *cms );
00138   const CryptographicMessageSyntax *GetCryptographicMessageSyntax() const;
00139
00141   static SmartPointer<Anonymizer> New() { return new Anonymizer; }
00142
00144   static std::vector<Tag> GetBasicApplicationLevelConfidentialityProfileAttributes();
00145
00148   static void ClearInternalUIDs();
00149
00150 protected:
00151   // Internal function used to either empty a tag or set it's value to a dummy value (Type 1 vs Type 2)
00152   bool BALCPProtect(DataSet &ds, Tag const & tag, const IOD &iod);
00153   bool CanEmptyTag(Tag const &tag, const IOD &iod) const;
00154   void RecurseDataSet( DataSet & ds );
00155
00156 private:
00157   bool BasicApplicationLevelConfidentialityProfile1();
00158   bool BasicApplicationLevelConfidentialityProfile2();
00159   bool CheckIfSequenceContainsAttributeToAnonymize(File const &file, SequenceOfItems* sqi) const;
00160
00161 private:
00162   // I would prefer to have a smart pointer to DataSet but DataSet does not derive from Object...
00163   SmartPointer<File> F;
00164   CryptographicMessageSyntax *CMS;
00165
00166   typedef std::pair< Tag, std::string > TagValueKey;
00167   typedef std::map< TagValueKey, std::string > DummyMapNonUIDTags;
00168   typedef std::map< std::string, std::string > DummyMapUIDTags;
00169   static DummyMapNonUIDTags dummyMapNonUIDTags;
00170   static DummyMapUIDTags dummyMapUIDTags;
00171 };
00172
00178
00179 } // end namespace gdcm
00180
00181 #endif //GDCMANONYMIZER_H
```

13.249 gdcmApplicationEntity.h File Reference

```
#include "gdcmTypes.h"
#include <vector>
```

`#include <stdlib.h>`
Include dependency graph for gdcmApplicationEntity.h:



Classes

- class gdcm::ApplicationEntity
  ApplicationEntity.

Namespaces

- namespace gdcm

13.250 gdcmApplicationEntity.h

Go to the documentation of this file.

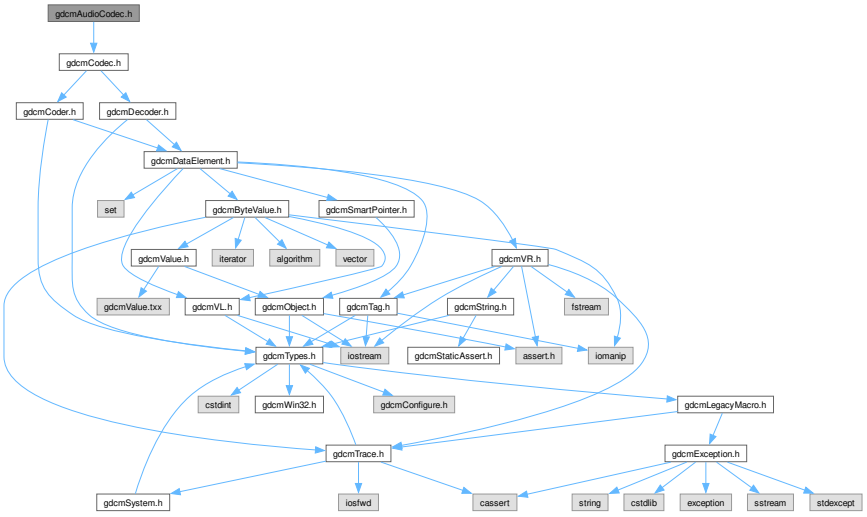
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMAPPLICATIONENTITY_H
00015 #define GDCMAPPLICATIONENTITY_H
00016
00017 #include "gdcmTypes.h"
00018 #include <vector>
00019 #include <stdlib.h> // abort
00020
00021 namespace gdcm
00022 {
00023
00035 class GDCM_EXPORT ApplicationEntity
00036 {
```

```
00037 public:
00038   static const unsigned int MaxNumberOfComponents = 1;
00039   static const unsigned int MaxLength = 16;
00040   std::string Internal;
00041   static const char Separator = ' ';
00042   static const char Padding   = ' ';
00043   //static const char Excluded[5] = { '\\' /* 5CH */, '\n' /* LF */, '\f', /* FF */, '\r' /* CR */, 0x1b
      /* ESC */};
00044
00045   bool IsValid() const {
00046     return true;
00047   }
00048   void Squeeze() {
00049     // trim leading and trailing white spaces
00050   }
00051   void SetBlob(const std::vector<char>& v) {
00052     (void)v;
00053     assert(0); //TODO
00054   }
00055   void Print(std::ostream &os) const {
00056   (void)os;
00057     assert(0); //TODO
00058   }
00059 };
00060
00061 } // end namespace gdcm
00062
00063 #endif //GDCMAPPLICATIONENTITY_H
```

13.251 gdcmAudioCodec.h File Reference

`#include "gdcmCodec.h"`

Include dependency graph for gdcmAudioCodec.h:



Classes

- class gdcm::AudioCodec

  AudioCodec.

Namespaces

- namespace gdcm

13.252 gdcmAudioCodec.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMAUDIOCODEC_H
00015 #define GDCMAUDIOCODEC_H
00016
00017 #include "gdcmCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00025 class GDCM_EXPORT AudioCodec : public Codec
00026 {
00027 public:
00028   AudioCodec();
00029   ~AudioCodec() override;
00030   bool CanCode(TransferSyntax const &) const override { return false; }
00031   bool CanDecode(TransferSyntax const &) const override { return false; }
00032   bool Decode(DataElement const &is, DataElement &os) override;
00033 };
00034
00035 } // end namespace gdcm
00036
00037 #endif //GDCMAUDIOCODEC_H
```
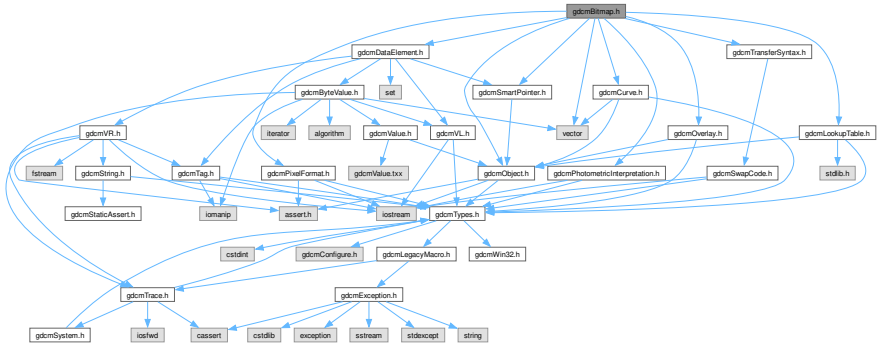
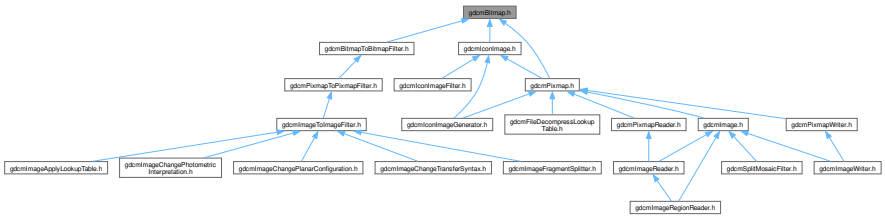

13.253 gdcmBitmap.h File Reference

```
#include "gdcmObject.h"
#include "gdcmCurve.h"
#include "gdcmDataElement.h"
#include "gdcmLookupTable.h"
#include "gdcmOverlay.h"
#include "gdcmPhotometricInterpretation.h"
#include "gdcmPixelFormat.h"
#include "gdcmSmartPointer.h"
#include "gdcmTransferSyntax.h"
```

`#include <vector>`
Include dependency graph for gdcmBitmap.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Bitmap

  Bitmap class.

Namespaces

- namespace gdcm

13.254 gdcmBitmap.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
```

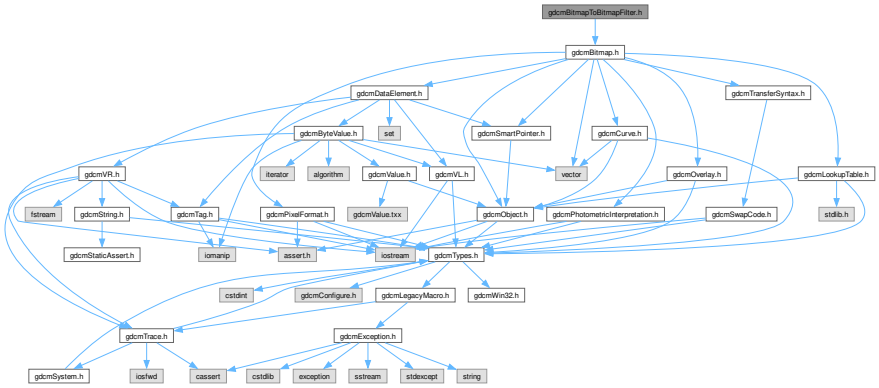
```
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBITMAP_H
00015 #define GDCMBITMAP_H
00016
00017 #include "gdcmObject.h"
00018 #include "gdcmCurve.h"
00019 #include "gdcmDataElement.h"
00020 //#include "gdcmIconImage.h"
00021 #include "gdcmLookupTable.h"
00022 #include "gdcmOverlay.h"
00023 #include "gdcmPhotometricInterpretation.h"
00024 #include "gdcmPixelFormat.h"
00025 #include "gdcmSmartPointer.h"
00026 #include "gdcmTransferSyntax.h"
00027
00028 #include <vector>
00029
00030 namespace gdcm
00031 {
00032
00038 class GDCM_EXPORT Bitmap : public Object
00039 {
00040 public:
00041   Bitmap();
00042   ~Bitmap() override;
00043   void Print(std::ostream &) const override;
00044
00045   virtual bool AreOverlaysInPixelData() const { return false; }
00046   virtual bool UnusedBitsPresentInPixelData() const { return false; }
00047
00049   unsigned int GetNumberOfDimensions() const;
00050   void SetNumberOfDimensions(unsigned int dim);
00051
00053   unsigned int GetPlanarConfiguration() const;
00055   void SetPlanarConfiguration(unsigned int pc);
00056
00058   bool GetNeedByteSwap() const
00059     {
00060     return NeedByteSwap;
00061     }
00062   void SetNeedByteSwap(bool b)
00063     {
00064     NeedByteSwap = b;
00065     }
00066
00067
00069   void SetTransferSyntax(TransferSyntax const &ts) {
00070     TS = ts;
00071   }
00072   const TransferSyntax &GetTransferSyntax() const {
00073     return TS;
00074   }
00075   bool IsTransferSyntaxCompatible( TransferSyntax const & ts ) const;
00076   void SetDataElement(DataElement const &de) {
00077     PixelData = de;
00078   }
00079   const DataElement& GetDataElement() const { return PixelData; }
00080   DataElement& GetDataElement() { return PixelData; }
00081
00083   void SetLUT(LookupTable const &lut)
00084     {
00085     LUT = SmartPointer<LookupTable>( const_cast<LookupTable*>(&lut) );
00086     }
00087   const LookupTable &GetLUT() const
00088     {
00089     return *LUT;
00090     }
00091   LookupTable &GetLUT()
00092     {
00093     return *LUT;
00094     }
00095
00097   const unsigned int *GetDimensions() const;
00098   unsigned int GetDimension(unsigned int idx) const;
00099
00100   void SetColumns(unsigned int col) { SetDimension(0,col); }
00101   unsigned int GetColumns() const { return GetDimension(0); }
00102   void SetRows(unsigned int rows) { SetDimension(1,rows); }
```

```
00103   unsigned int GetRows() const { return GetDimension(1); }
00104   void SetDimensions(const unsigned int dims[3]);
00105   void SetDimension(unsigned int idx, unsigned int dim);
00107   const PixelFormat &GetPixelFormat() const
00108     {
00109     return PF;
00110     }
00111   PixelFormat &GetPixelFormat()
00112     {
00113     return PF;
00114     }
00115   void SetPixelFormat(PixelFormat const &pf)
00116     {
00117     PF = pf;
00118     PF.Validate();
00119     }
00120
00122   const PhotometricInterpretation &GetPhotometricInterpretation() const;
00123   void SetPhotometricInterpretation(PhotometricInterpretation const &pi);
00124
00125   bool IsEmpty() const { return Dimensions.empty(); }
00126   void Clear();
00127
00131   unsigned long GetBufferLength() const;
00132
00134   bool GetBuffer(char *buffer) const;
00135
00137   bool IsLossy() const;
00138
00140   void SetLossyFlag(bool f) { LossyFlag = f; }
00141
00142 protected:
00143   bool TryRAWCodec(char *buffer, bool &lossyflag) const;
00144   bool TryJPEGCodec(char *buffer, bool &lossyflag) const;
00145   bool TryPVRGCodec(char *buffer, bool &lossyflag) const;
00146   bool TryKAKADUCodec(char *buffer, bool &lossyflag) const;
00147   bool TryJPEGLSCodec(char *buffer, bool &lossyflag) const;
00148   bool TryJPEG2000Codec(char *buffer, bool &lossyflag) const;
00149   bool TryRLECodec(char *buffer, bool &lossyflag) const;
00150
00151   bool TryJPEGCodec2(std::ostream &os) const;
00152   bool TryJPEG2000Codec2(std::ostream &os) const;
00153
00154   bool GetBuffer2(std::ostream &os) const;
00155
00156   friend class PixmapReader;
00157   friend class ImageChangeTransferSyntax;
00158   // Function to compute the lossy flag based only on the image buffer.
00159   // Watch out that image can be lossy but in implicit little endian format...
00160   bool ComputeLossyFlag();
00161
00162 //private:
00163 protected:
00164   unsigned int PlanarConfiguration;
00165   unsigned int NumberOfDimensions;
00166   TransferSyntax TS;
00167   PixelFormat PF; // SamplesPerPixel, BitsAllocated, BitsStored, HighBit, PixelRepresentation
00168   PhotometricInterpretation PI;
00169   // Mind dump: unsigned int is required here, since we are reading (0028,0008) Number Of Frames
00170   // which is VR::IS, so I cannot simply assumed that unsigned short is enough... :(
00171   std::vector<unsigned int> Dimensions; // Col/Row
00172   DataElement PixelData; // copied from 7fe0,0010
00173
00174   typedef SmartPointer<LookupTable> LUTPtr;
00175   LUTPtr LUT;
00176   // I believe the following 3 ivars can be derived from TS ...
00177   bool NeedByteSwap; // FIXME: remove me
00178   bool LossyFlag;
00179
00180 private:
00181   bool GetBufferInternal(char *buffer, bool &lossyflag) const;
00182 };
00183
00184 } // end namespace gdcm
00185
00186 #endif //GDCMBITMAP_H
```

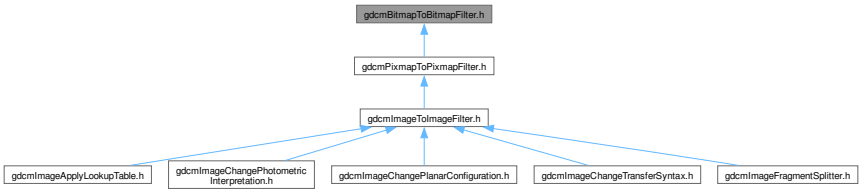
13.255 gdcmBitmapToBitmapFilter.h File Reference

```
#include "gdcmBitmap.h"
```

Include dependency graph for gdcmBitmapToBitmapFilter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::BitmapToBitmapFilter

  BitmapToBitmapFilter class.

Namespaces

- namespace gdcm

13.256 gdcmBitmapToBitmapFilter.h

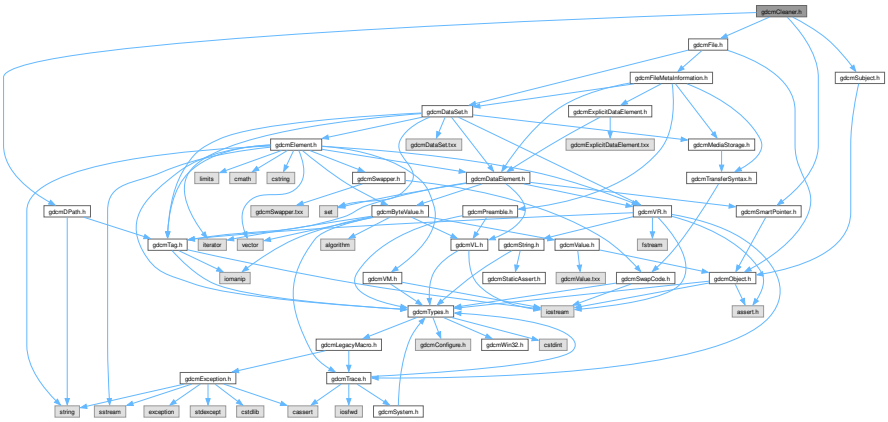
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBITMAPTOBITMAPFILTER_H
00015 #define GDCMBITMAPTOBITMAPFILTER_H
00016
00017 #include "gdcmBitmap.h"
00018
00019 namespace gdcm
00020 {
00021
00026 class GDCM_EXPORT BitmapToBitmapFilter
00027 {
00028 public:
00029   BitmapToBitmapFilter();
00030   ~BitmapToBitmapFilter() = default;
00031
00033   void SetInput(const Bitmap& image);
00034
00036   const Bitmap &GetOutput() const { return *Output; }
00037
00038   // SWIG/Java hack:
00039   const Bitmap &GetOutputAsBitmap() const;
00040
00041 protected:
00042   SmartPointer<Bitmap> Input;
00043   SmartPointer<Bitmap> Output;
00044 };
00045
00046 } // end namespace gdcm
00047
00048 #endif //GDCMBITMAPTOBITMAPFILTER_H
```

13.257 gdcmCleaner.h File Reference

```
#include "gdcmDPath.h"
#include "gdcmFile.h"
#include "gdcmSmartPointer.h"
#include "gdcmSubject.h"
```

Include dependency graph for gdcmCleaner.h:



Classes

- class gdcm::Cleaner

  Cleaner.

Namespaces

- namespace gdcm

13.258 gdcmCleaner.h

Go to the documentation of this file.

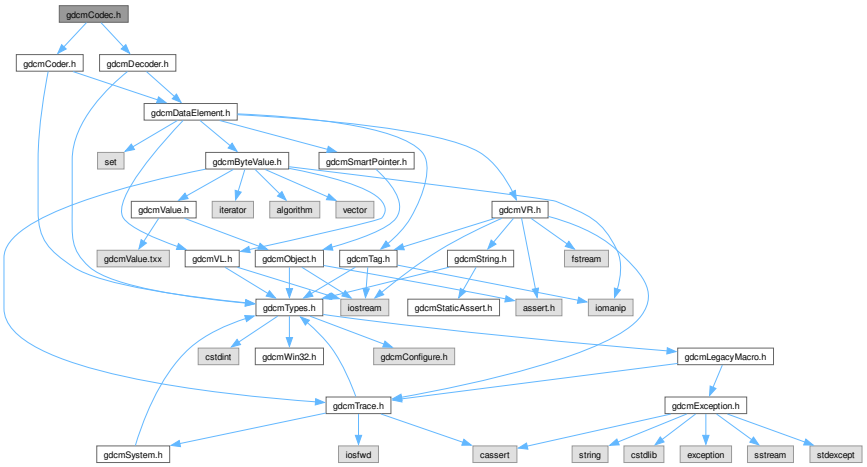
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCLEANER_H
00015 #define GDCMCLEANER_H
00016
00017 #include "gdcmDPath.h"
00018 #include "gdcmFile.h"
00019 #include "gdcmSmartPointer.h"
00020 #include "gdcmSubject.h"
00021
00022 namespace gdcm {
00030 class GDCM_EXPORT Cleaner : public Subject {
00031  public:
00032   Cleaner();
00033   ~Cleaner() override;
00034
```

```
00036   bool Empty(Tag const &t);
00037   bool Empty(PrivateTag const &pt);
00038   bool Empty(DPath const &dpath);
00039   bool Empty(VR const &vr);
00040
00041   bool Remove(Tag const &t);
00042   bool Remove(PrivateTag const &pt);
00043   bool Remove(DPath const &dpath);
00044   bool Remove(VR const &vr);
00045
00047   bool Scrub(Tag const &t);
00048   bool Scrub(PrivateTag const &pt);
00049   bool Scrub(DPath const &dpath);
00050   bool Scrub(VR const &vr);
00051
00052   bool Preserve(DPath const &dpath);
00053
00056   void RemoveAllMissingPrivateCreator(bool remove);
00057
00060   bool RemoveMissingPrivateCreator(Tag const &t);
00061
00063   void RemoveAllGroupLength(bool remove);
00064
00066   void RemoveAllIllegal(bool remove);
00067
00069   void EmptyWhenScrubFails(bool empty);
00070
00072   bool Clean();
00073
00075   void SetFile(const File &f) { F = f; }
00076   // const File &GetFile() const { return *F; }
00077   File &GetFile() { return *F; }
00078
00080   static SmartPointer<Cleaner> New() { return new Cleaner; }
00081
00082  private:
00083   // I would prefer to have a smart pointer to DataSet but DataSet does not
00084   // derive from Object...
00085   SmartPointer<File> F;
00086   struct impl;
00087   // PIMPL idiom
00088   impl *pimpl;
00089 };
00090
00091 }  // end namespace gdcm
00092
00093 #endif  // GDCMCLEANER_H
```

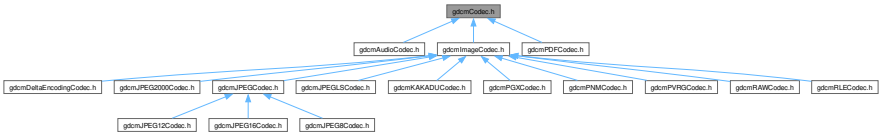
13.259 gdcmCodec.h File Reference

```
#include "gdcmCoder.h"
#include "gdcmDecoder.h"
```

Include dependency graph for gdcmCodec.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Codec

  Codec class.

Namespaces

- namespace gdcm

13.260 gdcmCodec.h

Go to the documentation of this file.

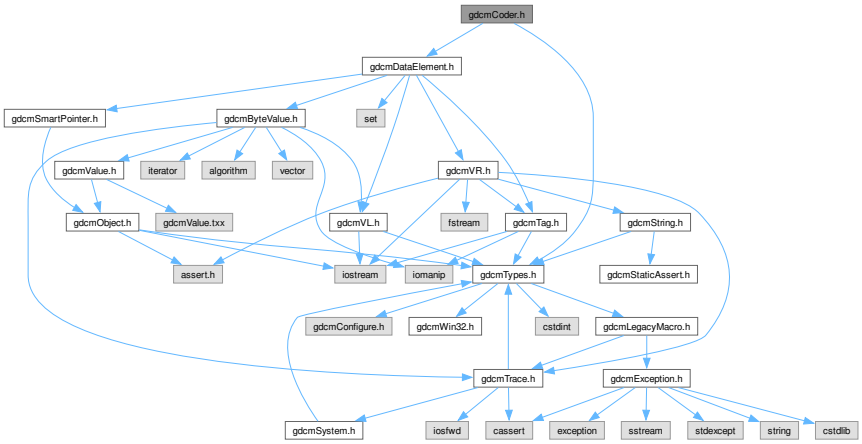
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
```

```
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCODEC_H
00015 #define GDCMCODEC_H
00016
00017 #include "gdcmCoder.h"
00018 #include "gdcmDecoder.h"
00019
00020 namespace gdcm
00021 {
00022
00026 class GDCM_EXPORT Codec : public Coder, public Decoder
00027 {
00028 };
00029
00030 } // end namespace gdcm
00031
00032 #endif //GDCMCODEC_H
```

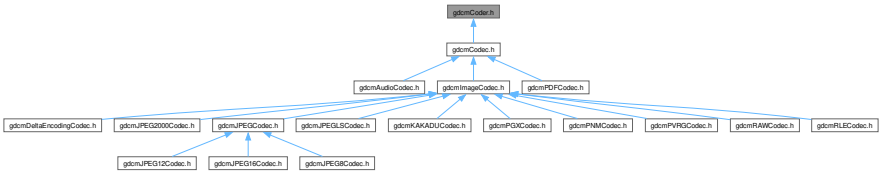
13.261 gdcmCoder.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmCoder.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Coder

  Coder.

Namespaces

- namespace gdcm

13.262 gdcmCoder.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCODER_H
00015 #define GDCMCODER_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmDataElement.h" // FIXME
00019
00020 namespace gdcm
00021 {
00022
00023 class TransferSyntax;
00024 class DataElement;
00028 class GDCM_EXPORT Coder
00029 {
00030 public:
00031   virtual ~Coder() = default;
00032
00034   virtual bool CanCode(TransferSyntax const &) const = 0;
00035
00036   // Note: in / out are reserved keyword in C#. Change to in_ / out_
00037
00039   virtual bool Code(DataElement const &in_, DataElement &out_) { (void)in_; (void)out_; return false; }
00040 protected:
00041   virtual bool InternalCode(const char *bv, unsigned long len, std::ostream &os) {
      (void)bv;(void)os;(void)len;return false; }
00042 };
00043
00044 } // end namespace gdcm
00045
00046 #endif //GDCMCODER_H
```

13.263 gdcmConstCharWrapper.h File Reference

Classes

- class gdcm::ConstCharWrapper

  Do not use me.

Namespaces

- namespace gdcm

13.264 gdcmConstCharWrapper.h

Go to the documentation of this file.

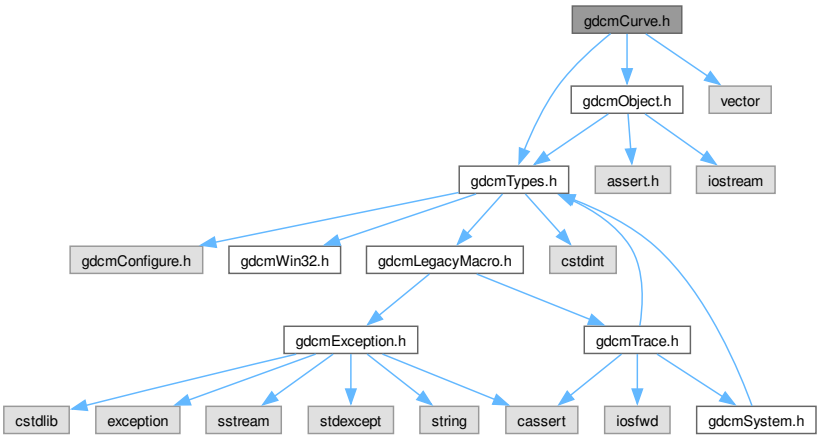
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCONSTCHARWRAPPER_H
00015 #define GDCMCONSTCHARWRAPPER_H
00016
00017 namespace gdcm
00018 {
00019
00020 #error
00021
00022 /*
00023  * This class is a pure hack. Its only goal is to work around a bad bug in :
00024  *  $ swig -version
00025  *  SWIG Version 1.3.31
00026  *
00027  *  See
00028  * -
      http://sourceforge.net/mailarchive/forum.php?thread_name=bf0c3b3f0802290552y5163989t76572b80a044ce28%40mail.gmail.com&forum
00029  *
00030  *  As a side note there is also a problem with const reference to enum type:
00031  * -
      http://sourceforge.net/mailarchive/forum.php?thread_name=bf0c3b3f0802290552y5163989t76572b80a044ce28%40mail.gmail.com&forum
00032  *
00033  *   And to keep track of an issue with swig here is the last one:
00034  *
00035  * -
      http://sourceforge.net/mailarchive/forum.php?thread_name=bf0c3b3f0802290552y5163989t76572b80a044ce28%40mail.gmail.com&forum
00036  */
00037
00038
00042 class ConstCharWrapper
00043 {
00044 public:
00045   ConstCharWrapper(const char *i=0):Internal(i) {}
00046   operator const char * () const { return Internal; }
00047 private:
00048   const char *Internal;
00049 };
00050
00051 } // end namespace gdcm
00052
00053 #endif //GDCMCONSTCHARWRAPPER_H
```

13.265 gdcmCurve.h File Reference

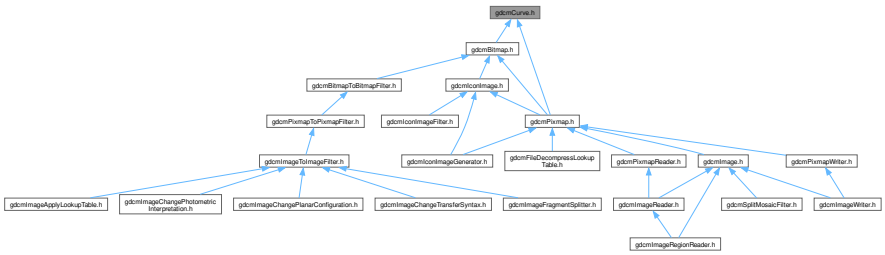
```
#include "gdcmTypes.h"
#include "gdcmObject.h"
```

```
#include <vector>
```

Include dependency graph for gdcmCurve.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Curve

  Curve class to handle element 50xx,3000 Curve Data.

Namespaces

- namespace gdcm

13.266 gdcmCurve.h

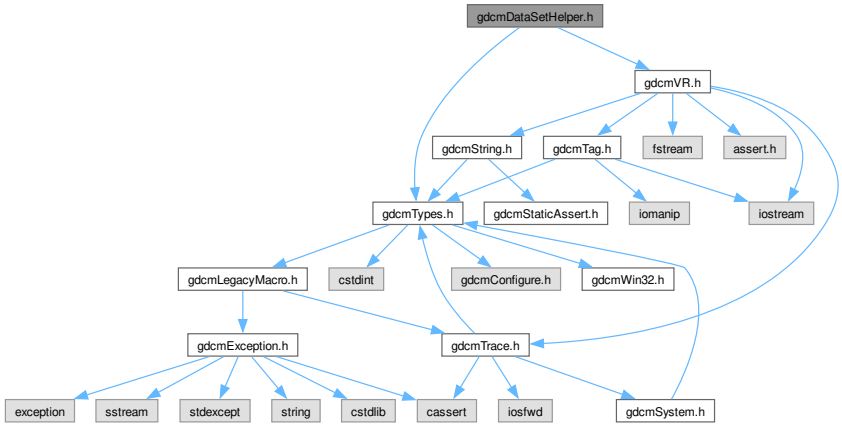
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCURVE_H
00015 #define GDCMCURVE_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmObject.h"
00019
00020 #include <vector>
00021
00022 namespace gdcm
00023 {
00024
00025 class CurveInternal;
00026 class ByteValue;
00027 class DataSet;
00028 class DataElement;
00040 class GDCM_EXPORT Curve : public Object
00041 {
00042 public:
00043   Curve();
00044   ~Curve() override;
00045   void Print(std::ostream &) const override;
00046
00047   void GetAsPoints(float *array) const;
00048
00049   static unsigned int GetNumberOfCurves(DataSet const & ds);
00050
00051   // Update curve data from dataelmenet de:
00052   void Update(const DataElement & de);
00053
00054   void SetGroup(unsigned short group);
00055   unsigned short GetGroup() const;
00056   void SetDimensions(unsigned short dimensions);
00057   unsigned short GetDimensions() const;
00058   void SetNumberOfPoints(unsigned short numberofpoints);
00059   unsigned short GetNumberOfPoints() const;
00060   void SetTypeOfData(const char *typeofdata);
00061   const char *GetTypeOfData() const;
00062   // See PS 3.3 - 2004 - C.10.2.1.1 Type of data
00063   const char *GetTypeOfDataDescription() const;
00064   void SetCurveDescription(const char *curvedescription);
00065   void SetDataValueRepresentation(unsigned short datavaluerepresentation);
00066   unsigned short GetDataValueRepresentation() const;
00067   void SetCurveDataDescriptor(const uint16_t * values, size_t num);
00068   std::vector<unsigned short> const &GetCurveDataDescriptor() const;
00069   void SetCoordinateStartValue( unsigned short v );
00070   void SetCoordinateStepValue( unsigned short v );
00071
00072   void SetCurve(const char *array, unsigned int length);
00073
00074   bool IsEmpty() const;
00075
00076   void Decode(std::istream &is, std::ostream &os);
00077
00078   Curve(Curve const &ov);
00079 private:
00080   double ComputeValueFromStartAndStep(unsigned int idx) const;
00081   CurveInternal *Internal;
00082 };
00083
00084 } // end namespace gdcm
00085
00086 #endif //GDCMCURVE_H
```

13.267 gdcmDataSetHelper.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVR.h"
```

Include dependency graph for gdcmDataSetHelper.h:



Classes

- class gdcm::DataSetHelper

  DataSetHelper (internal class, not intended for user level).

Namespaces

- namespace gdcm

13.268 gdcmDataSetHelper.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDATASETHELPER_H
00015 #define GDCMDATASETHELPER_H
00016
00017 #include "gdcmTypes.h"
```
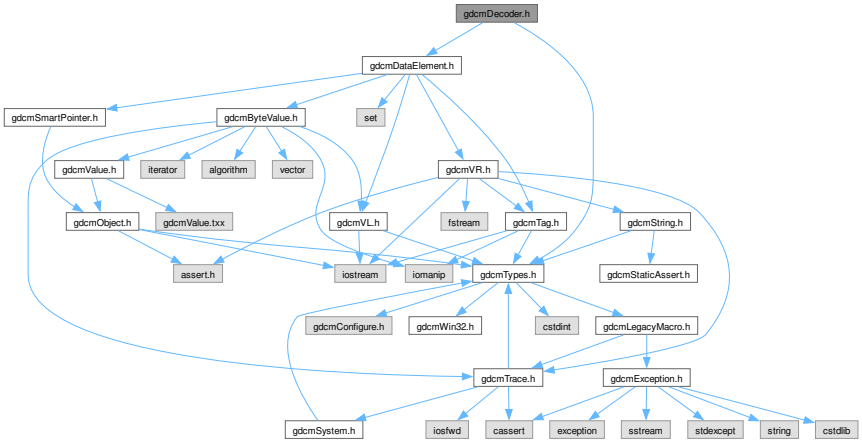

```
00018 #include "gdcmVR.h"
00019
00020 namespace gdcm
00021 {
00022 class DataSet;
00023 class File;
00024 class Tag;
00025 class SequenceOfItems;
00026
00030 class GDCM_EXPORT DataSetHelper
00031 {
00032 public:
00035   static VR ComputeVR(File const & file, DataSet const &ds, const Tag& tag);
00036
00037   //static SequenceOfItems* ComputeSQFromByteValue(File const & file, DataSet const &ds, const Tag &tag);
00038
00039 protected:
00040 };
00041
00042 } // end namespace gdcm
00043
00044 #endif // GDCMDATASETHELPER_H
```

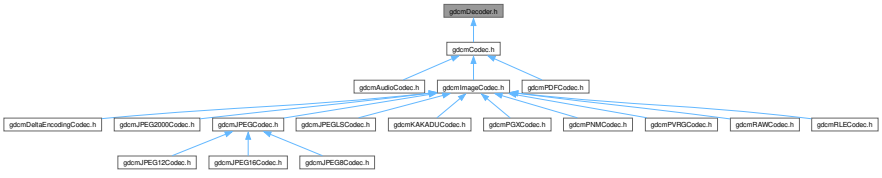
13.269 gdcmDecoder.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmDecoder.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Decoder

  Decoder.

Namespaces

- namespace gdcm

13.270 gdcmDecoder.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00008
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMDECODER_H
00016 #define GDCMDECODER_H
00017
00018 #include "gdcmTypes.h"
00019 #include "gdcmDataElement.h" // FIXME
00020
00021 namespace gdcm
00022 {
00023
00024 class TransferSyntax;
00025 class DataElement;
00029 class GDCM_EXPORT Decoder
00030 {
00031 public:
00032   virtual ~Decoder() = default;
00033
00035   virtual bool CanDecode(TransferSyntax const &) const = 0;
00036
00038   virtual bool Decode(DataElement const &, DataElement &) { return false; }
00039 protected:
00040   virtual bool DecodeByStreams(std::istream &, std::ostream &) { return false; }
00041 };
00042
00043 } // end namespace gdcm
00044
00045 #endif //GDCMDECODER_H
```
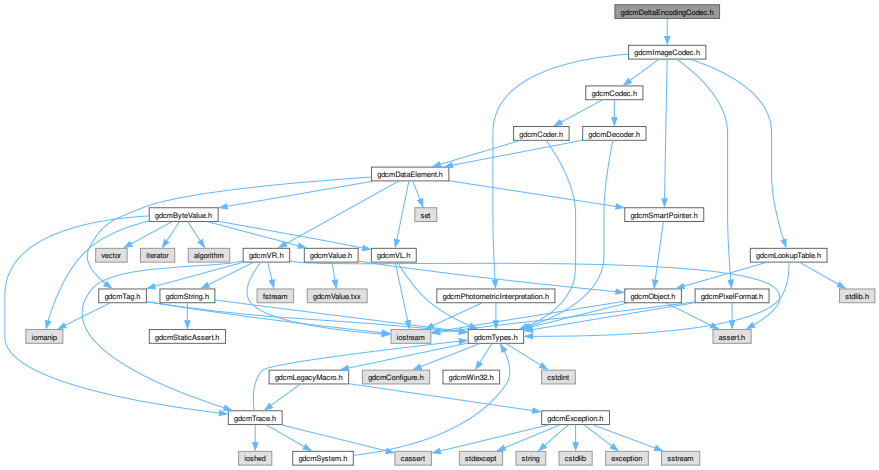

13.271 gdcmDeltaEncodingCodec.h File Reference

`#include "gdcmImageCodec.h"`
Include dependency graph for gdcmDeltaEncodingCodec.h:



Classes

- class gdcm::DeltaEncodingCodec

  DeltaEncodingCodec compression used by some private vendor.

Namespaces

- namespace gdcm

13.272 gdcmDeltaEncodingCodec.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDELTAENCODINGCODEC_H
00015 #define GDCMDELTAENCODINGCODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018 #error do not use
00019
```
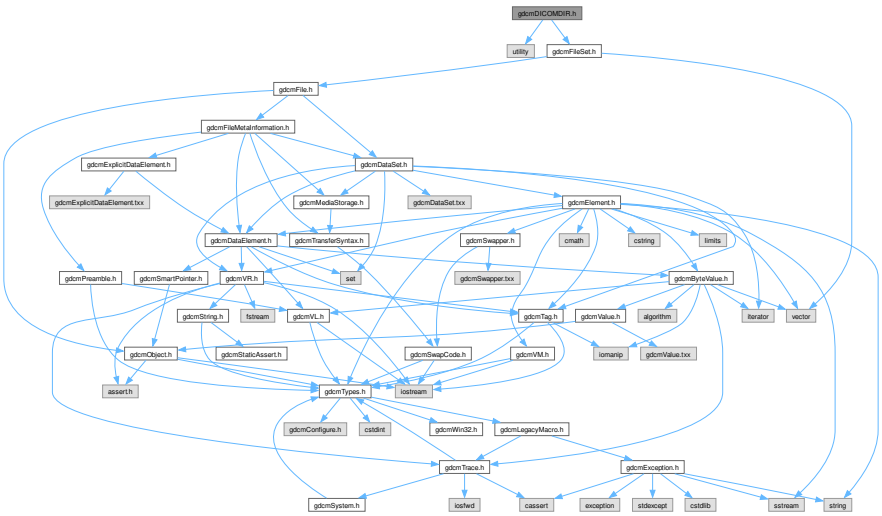

```
00020 namespace gdcm
00021 {
00022
00027 class DeltaEncodingCodec : public ImageCodec
00028 {
00029 public:
00030   DeltaEncodingCodec();
00031   ~DeltaEncodingCodec();
00032   bool CanDecode(TransferSyntax const &ts);
00033   bool Decode(DataElement const &is, DataElement &os);
00034 protected:
00035   bool Decode(std::istream &is, std::ostream &os);
00036 };
00037
00038 } // end namespace gdcm
00039
00040 #endif //GDCMDELTAENCODINGCODEC_H
```

13.273 gdcmDICOMDIR.h File Reference

```
#include <utility>
#include "gdcmFileSet.h"
```

Include dependency graph for gdcmDICOMDIR.h:



Classes

- class gdcm::DICOMDIR

  DICOMDIR class.

Namespaces

- namespace gdcm

13.274 gdcmDICOMDIR.h

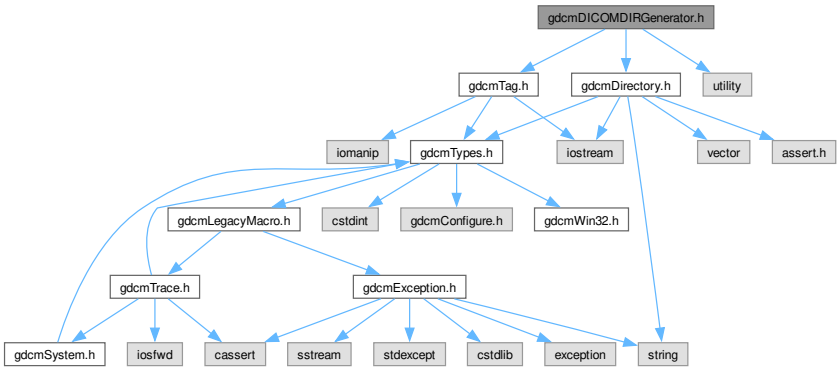
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDICOMDIR_H
00015 #define GDCMDICOMDIR_H
00016
00017 #include <utility>
00018 #include "gdcmFileSet.h"
00019
00020 namespace gdcm
00021 {
00027 class GDCM_EXPORT DICOMDIR
00028 {
00029 public:
00030   DICOMDIR() = default;
00031   DICOMDIR(FileSet  fs):_FS(std::move(std::move(fs))) {}
00032
00033 private:
00034   FileSet _FS;
00035   //13 sept 2010 mmr-- added the underscore to FS to compile under Sunos gcc
00036 };
00037
00038 } // end namespace gdcm
00039
00040 #endif //GDCMDICOMDIR_H
```

13.275 gdcmDICOMDIRGenerator.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmTag.h"
#include <utility>
```

Include dependency graph for gdcmDICOMDIRGenerator.h:



Classes

- class gdcm::DICOMDIRGenerator

  DICOMDIRGenerator class.

Namespaces

- namespace gdcm

13.276 gdcmDICOMDIRGenerator.h

Go to the documentation of this file.

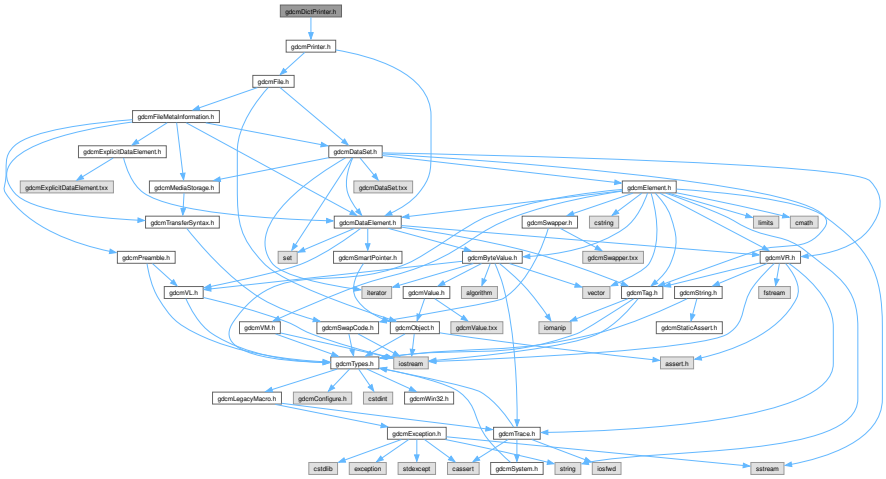
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDICOMDIRGENERATOR_H
00015 #define GDCMDICOMDIRGENERATOR_H
00016
00017 #include "gdcmDirectory.h"
00018 #include "gdcmTag.h"
00019 #include <utility> // std::pair
00020
00021 namespace gdcm
00022 {
00023 class File;
00024 class Scanner;
00025 class SequenceOfItems;
00026 class VL;
00027 class DICOMDIRGeneratorInternal;
00028
00056 class GDCM_EXPORT DICOMDIRGenerator
00057 {
00058 public:
00059   typedef Directory::FilenamesType  FilenamesType;
00060   typedef Directory::FilenameType  FilenameType;
00061   DICOMDIRGenerator();
00062   ~DICOMDIRGenerator();
00063
00065   void SetFilenames( FilenamesType const & fns );
00066
00068   void SetRootDirectory( FilenameType const & root );
00069
00072   void SetDescriptor( const char *d );
00073
00075   bool Generate();
00076
00078   void SetFile(const File& f);
00079   File &GetFile();
00080
00081 protected:
00082   Scanner &GetScanner();
00083   bool AddPatientDirectoryRecord();
00084   bool AddStudyDirectoryRecord();
00085   bool AddSeriesDirectoryRecord();
00086   bool AddImageDirectoryRecord();
00087
00088 private:
00089   const char *ComputeFileID(const char *);
00090   bool TraverseDirectoryRecords(VL start );
```

```
00091   bool ComputeDirectoryRecordsOffset(const SequenceOfItems *sqi, VL start);
00092   size_t FindNextDirectoryRecord( size_t item1, const char *directorytype );
00093   SequenceOfItems *GetDirectoryRecordSequence();
00094   size_t FindLowerLevelDirectoryRecord( size_t item1, const char *directorytype );
00095   typedef std::pair< std::string, Tag> MyPair;
00096   MyPair GetReferenceValueForDirectoryType(size_t item);
00097   bool SeriesBelongToStudy(const char *seriesuid, const char *studyuid);
00098   bool ImageBelongToSeries(const char *sopuid, const char *seriesuid, Tag const &t1, Tag const &t2);
00099   bool ImageBelongToSameSeries(const char *sopuid, const char *seriesuid, Tag const &t);
00100
00101   DICOMDIRGeneratorInternal * Internals;
00102 };
00103
00108
00109 } // end namespace gdcm
00110
00111 #endif //GDCMDICOMDIRGENERATOR_H
```

13.277 gdcmDictPrinter.h File Reference

`#include "gdcmPrinter.h"`

Include dependency graph for gdcmDictPrinter.h:



Classes

- class gdcm::DictPrinter

  DictPrinter class.

Namespaces

- namespace gdcm

13.278 gdcmDictPrinter.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDICTPRINTER_H
00015 #define GDCMDICTPRINTER_H
00016
00017 #include "gdcmPrinter.h"
00018
00019 namespace gdcm
00020 {
00021
00025 // It's a sink there is no output
00026 class GDCM_EXPORT DictPrinter : public Printer
00027 {
00028 public:
00029   DictPrinter();
00030   ~DictPrinter() = default;
00031
00032   void Print(std::ostream& os);
00033
00034 protected:
00035   void PrintDataElement2(std::ostream& os, const DataSet &ds, const DataElement &ide);
00036   void PrintDataSet2(std::ostream& os, const DataSet &ds);
00037 };
00038
00039 } // end namespace gdcm
00040
00041 #endif //GDCMDICTPRINTER_H
```
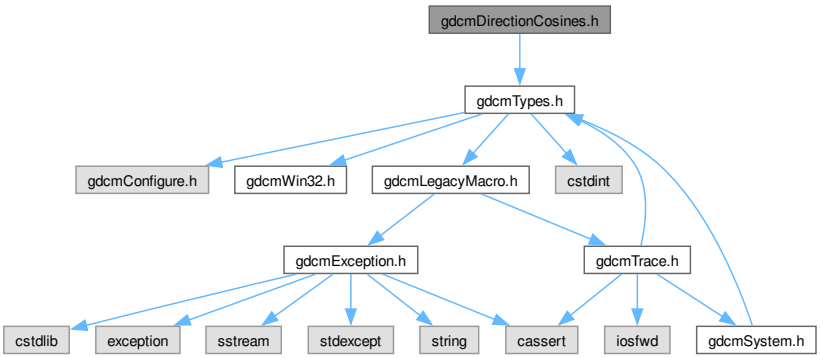

13.279 gdcmDirectionCosines.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmDirectionCosines.h:



Classes

- class gdcm::DirectionCosines

  class to handle DirectionCosines

Namespaces

- namespace gdcm

13.280 gdcmDirectionCosines.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDIRECTIONCOSINES_H
00015 #define GDCMDIRECTIONCOSINES_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00025 class GDCM_EXPORT DirectionCosines
00026 {
00027 public:
00028   DirectionCosines();
00029   DirectionCosines(const double dircos[6]);
00030   // Cannot get the following signature to be wrapped with swig...
00031   //DirectionCosines(const double *dircos = 0 );
00032   ~DirectionCosines();
00033
00035   void Print(std::ostream &) const;
00036
00038   void Cross(double z[3]) const;
00039
00041   double Dot() const;
00042
00044   static double Dot(const double x[3], const double y[3]);
00045
00047   void Normalize();
00048
00050   static void Normalize(double v[3]);
00051
00053   static double Norm(const double v[3]);
00054
00056   operator const double* () const { return Values; }
00057
00059   bool IsValid() const;
00060
00063   bool SetFromString(const char *str);
00064
00066   double CrossDot(DirectionCosines const &dc) const;
00067
00069   double ComputeDistAlongNormal(const double ipp[3]) const;
00070
00071 private:
00072   double Values[6];
00073 };
00074
00075 } // end namespace gdcm
00076
00077 #endif //GDCMDIRECTIONCOSINES_H
```
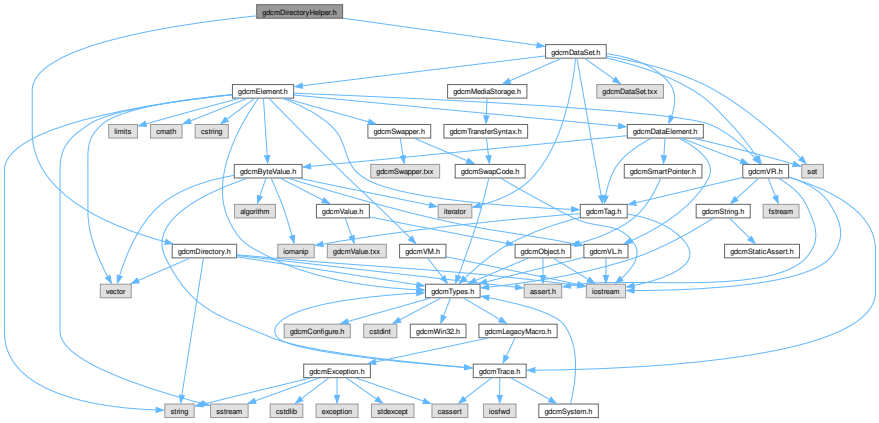

13.281 gdcmDirectoryHelper.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmDirectoryHelper.h:



Classes

- class gdcm::DirectoryHelper

  DirectoryHelper.

Namespaces

- namespace gdcm

13.282 gdcmDirectoryHelper.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #include "gdcmDirectory.h"
00016 #include "gdcmDataSet.h"
00017
00018 namespace gdcm
00019 {
```
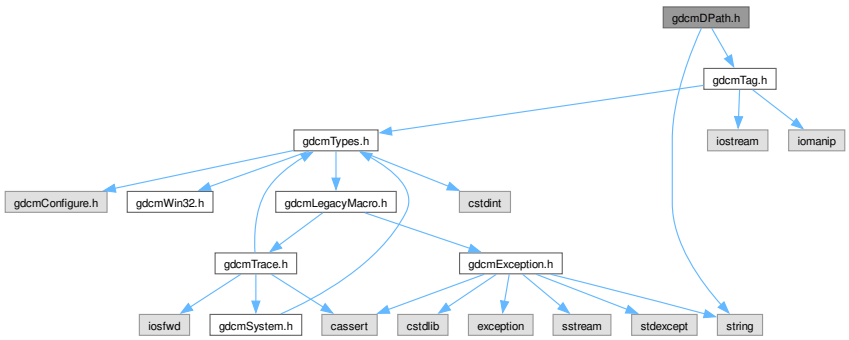

```
00020
00035 class GDCM_EXPORT DirectoryHelper
00036 {
00037 public:
00038   //returns all series UIDs in a given directory that match a particular SOP Instance UID
00039   static Directory::FilenamesType GetSeriesUIDsBySOPClassUID(const std::string& inDirectory,
00040     const std::string& inSOPClassUID);
00041
00042   //specific implementations of the SOPClassUID grabber, so you don't have to
00043   //remember the SOP Class UIDs of CT or MR images.
00044   static Directory::FilenamesType GetCTImageSeriesUIDs(const std::string& inDirectory);
00045   static Directory::FilenamesType GetMRImageSeriesUIDs(const std::string& inDirectory);
00046   static Directory::FilenamesType GetRTStructSeriesUIDs(const std::string& inDirectory);
00047
00048   //given a directory and a series UID, provide all filenames with that series UID.
00049   static Directory::FilenamesType GetFilenamesFromSeriesUIDs(const std::string& inDirectory,
00050     const std::string& inSeriesUID);
00051
00052   //given a series UID, load all the images associated with that series UID
00053   //these images will be IPP sorted, so that they can be used for gathering all
00054   //the necessary information for generating an RTStruct
00055   //this function should be called by the writer once, if the writer's dataset
00056   //vector is empty.  Make sure to have a new writer for new rtstructs.
00057   static std::vector<DataSet> LoadImageFromFiles(const std::string& inDirectory,
00058     const std::string& inSeriesUID);
00059
00060   //When writing RTStructs, each contour will have z position defined.
00061   //use that z position to determine the SOPInstanceUID for that plane.
00062   static std::string RetrieveSOPInstanceUIDFromZPosition(double inZPos,
00063     const std::vector<DataSet>& inDS);
00064
00065   //When writing RTStructs, the frame of reference is done by planes to start with
00066   static std::string RetrieveSOPInstanceUIDFromIndex(int inIndex,
00067    const std::vector<DataSet>& inDS);
00068
00069   //each plane needs to know the SOPClassUID, and that won't change from image to image
00070   //so, retrieve this once at the start of writing.
00071   static std::string GetSOPClassUID(const std::vector<DataSet>& inDS);
00072
00073   //retrieve the frame of reference from the set of datasets
00074   static std::string GetFrameOfReference(const std::vector<DataSet>& inDS);
00075
00076   //both the image and polydata readers use these functions to get std::strings
00077   static std::string GetStringValueFromTag(const Tag& t, const DataSet& ds);
00078 };
00079
00080 }
```

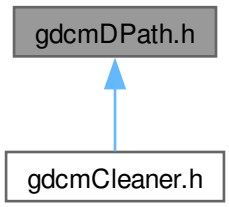
13.283 gdcmDPath.h File Reference

```
#include "gdcmTag.h"
#include <string>
```

Include dependency graph for gdcmDPath.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::DPath

  class to handle a DICOM path While supp 118 did introduced a notion of XPath for XML Native model this convention is too XML-centric. Instead prefer DCMTK style notation `https://groups.google.com/g/comp.protocols.↩dicom/c/IyIH0IOBMPA`

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const DPath &val)

13.284 gdcmDPath.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDPATH_H
00015 #define GDCMDPATH_H
00016
00017 #include "gdcmTag.h"
00018 #include <string>
00019
```
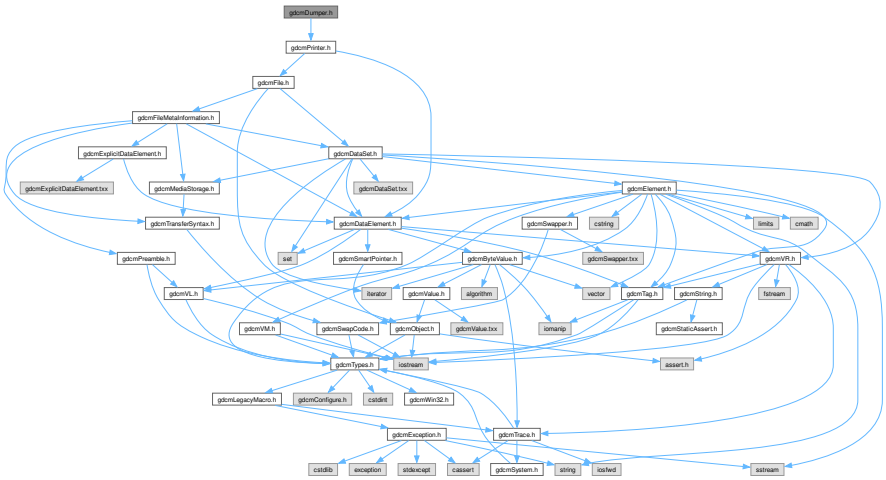

```
00020 namespace gdcm {
00021
00028 class GDCM_EXPORT DPath {
00029   friend std::ostream &operator«(std::ostream &_os, const DPath &_val);
00030
00031  public:
00032   DPath();
00033   ~DPath();
00034   void Print(std::ostream &) const;
00035   bool operator<(const DPath &rhs) const;
00036
00037   bool ConstructFromString(const char *path);
00038
00040   bool Match(DPath const &other) const;
00041
00043   static bool IsValid(const char *path);
00044
00045  private:
00046   std::string Path;
00047 };
00048
00049 inline std::ostream &operator«(std::ostream &os, const DPath &val) {
00050   os « val.Path;
00051   return os;
00052 }
00053
00054 }  // end namespace gdcm
00055
00056 #endif  // GDCMDPATH_H
```

13.285 gdcmDumper.h File Reference

`#include "gdcmPrinter.h"`

Include dependency graph for gdcmDumper.h:



Classes

- class gdcm::Dumper

  Codec class.

Namespaces

- namespace gdcm

13.286 gdcmDumper.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDUMPER_H
00015 #define GDCMDUMPER_H
00016
00017 #include "gdcmPrinter.h"
00018
00019 namespace gdcm
00020 {
00021
00022 // It's a sink there is no output
00029 class GDCM_EXPORT Dumper : public Printer
00030 {
00031 public:
00032   Dumper() { PrintStyle = CONDENSED_STYLE; }
00033   ~Dumper() = default;
00034 };
00035
00036 } // end namespace gdcm
00037
00038 #endif //GDCMDUMPER_H
```
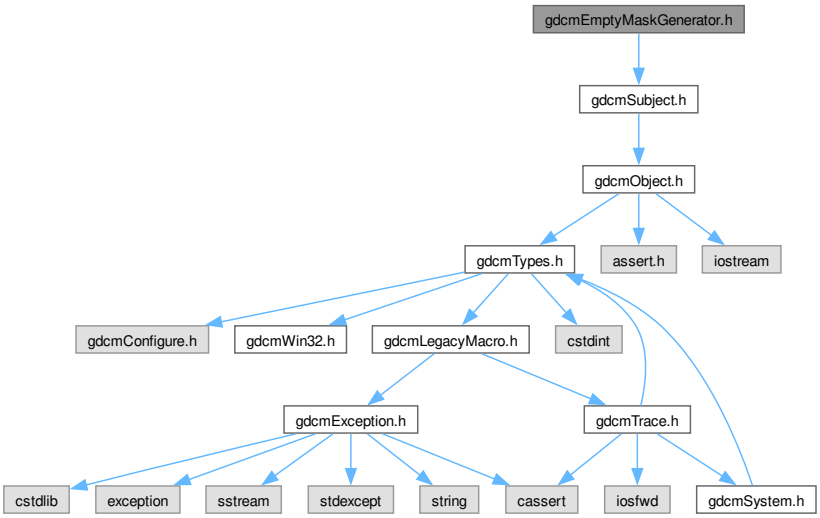

13.287 gdcmEmptyMaskGenerator.h File Reference

`#include "gdcmSubject.h"`
Include dependency graph for gdcmEmptyMaskGenerator.h:



Classes

- class gdcm::EmptyMaskGenerator

  EmptyMaskGenerator Main class to generate a Empty Mask Series from an input Series. This class takes an input folder and generates a series of DICOM files in the specified output directory. This class handles multiples DICOM Series within the same input directory.

Namespaces

- namespace gdcm

13.288 gdcmEmptyMaskGenerator.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
```
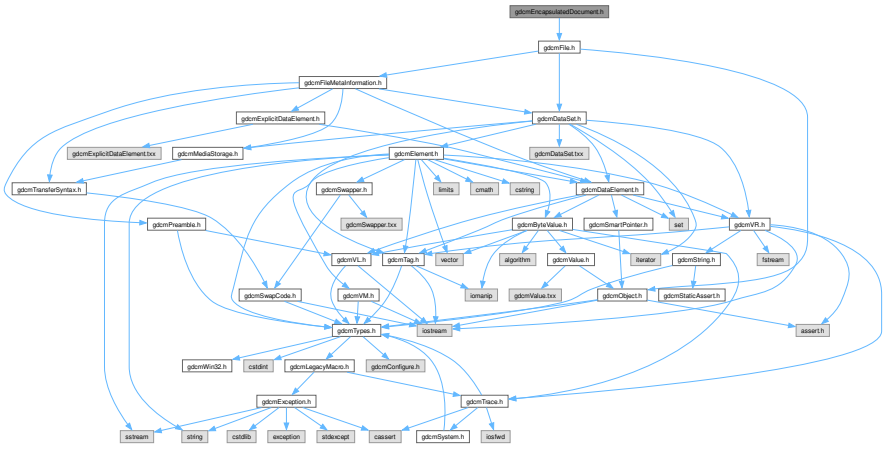

```
00012
00013 =========================================================================*/
00014 #ifndef GDCMEMPTYMASKGENERATOR_H
00015 #define GDCMEMPTYMASKGENERATOR_H
00016
00017 #include "gdcmSubject.h"
00018
00019 namespace gdcm {
00050 class GDCM_EXPORT EmptyMaskGenerator
00051 {
00052 public:
00053   EmptyMaskGenerator();
00054   ~EmptyMaskGenerator();
00055
00056   enum SOPClassUIDMode {
00057     UseOriginalSOPClassUID = 0, // default
00058     UseGrayscaleSecondaryImageStorage
00059   };
00060
00063   void SetSOPClassUIDMode( SOPClassUIDMode mode );
00064
00066   void SetInputDirectory( const char * dirname );
00067
00069   void SetOutputDirectory( const char * dirname );
00070
00072   bool Execute();
00073
00074 private:
00075   struct impl;
00076   // PIMPL idiom
00077   impl* pimpl;
00078 };
00079 } // end namespace gdcm
00080 #endif //GDCMEMPTYMASKGENERATOR_H
```

13.289 gdcmEncapsulatedDocument.h File Reference

`#include "gdcmFile.h"`
Include dependency graph for gdcmEncapsulatedDocument.h:



Classes

- class gdcm::EncapsulatedDocument

  EncapsulatedDocument.

Namespaces

- namespace gdcm

13.290 gdcmEncapsulatedDocument.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMENCAPSULATEDDOCUMENT_H
00015 #define GDCMENCAPSULATEDDOCUMENT_H
00016
00017 #include "gdcmFile.h"
00018
00019 namespace gdcm
00020 {
00024 class GDCM_EXPORT EncapsulatedDocument
00025 {
00026 public:
00027   EncapsulatedDocument() = default;
00028
00029 private:
00030 };
00031
00032 } // end namespace gdcm
00033
00034 #endif //GDCMENCAPSULATEDDOCUMENT_H
```
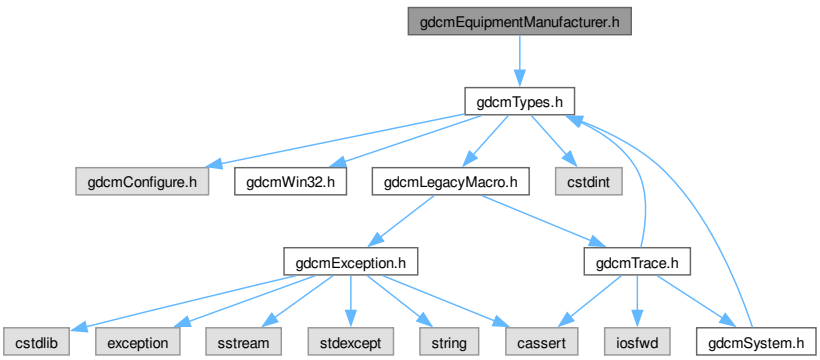

13.291 gdcmEquipmentManufacturer.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmEquipmentManufacturer.h:



Classes

- class gdcm::EquipmentManufacturer

Namespaces

- namespace gdcm

13.292 gdcmEquipmentManufacturer.h

Go to the documentation of this file.

```
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMEQUIPMENTMANUFACTURER_H
00015 #define GDCMEQUIPMENTMANUFACTURER_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm {
00020
00021 class DataSet;
00028 class GDCM_EXPORT EquipmentManufacturer {
00029  public:
00030   typedef enum {
00031     UNKNOWN = 0,
00032     FUJI,
00033     GEMS,
00034     HITACHI,
00035     KODAK,
00036     MARCONI,
00037     PMS,
00038     SIEMENS,
00039     TOSHIBA,
00040     AGFA,
00041     SAMSUNG,
00042     UIH
00043   } Type;
00044
00045   static Type Compute(DataSet const &ds);
00046
00047   static const char *TypeToString(Type type);
00048
00049  private:
00050   static EquipmentManufacturer::Type GuessFromPrivateAttributes(
00051       DataSet const &ds);
00052 };
00053
00054 }  // end namespace gdcm
00055
00056 #endif  // GDCMEQUIPMENTMANUFACTURER_H
```
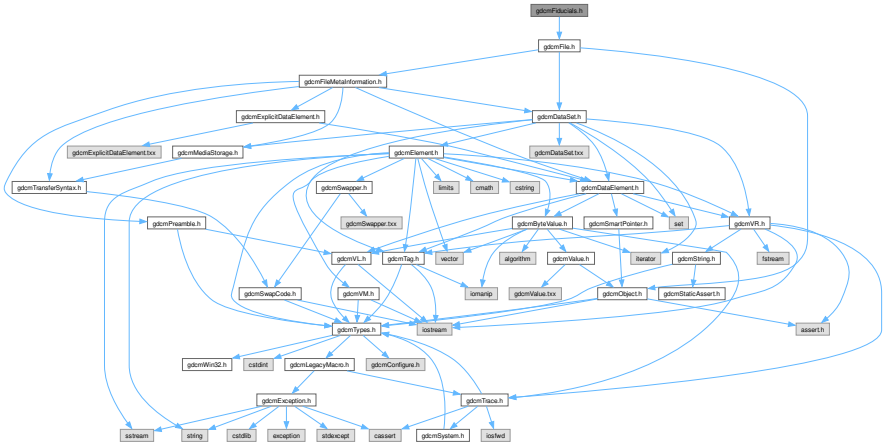

13.293 gdcmFiducials.h File Reference

`#include "gdcmFile.h"`
Include dependency graph for gdcmFiducials.h:



Classes

- class gdcm::Fiducials

  Fiducials.

Namespaces

- namespace gdcm

13.294 gdcmFiducials.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFIDUCIALS_H
00015 #define GDCMFIDUCIALS_H
00016
00017 #include "gdcmFile.h"
00018
00019 namespace gdcm
00020 {
```
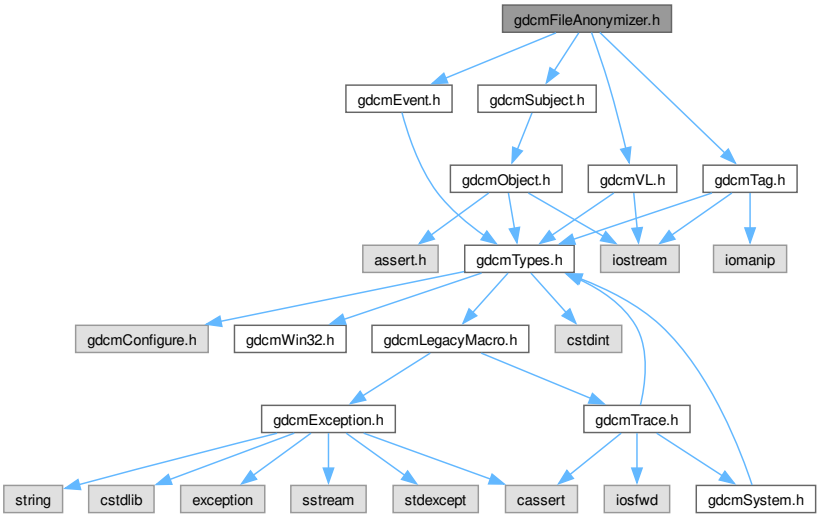

```
00024 class GDCM_EXPORT Fiducials
00025 {
00026 public:
00027   Fiducials() = default;
00028
00029 private:
00030 };
00031
00032 } // end namespace gdcm
00033
00034 #endif //GDCMFIDUCIALS_H
```

13.295 gdcmFileAnonymizer.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmEvent.h"
#include "gdcmTag.h"
#include "gdcmVL.h"
```

Include dependency graph for gdcmFileAnonymizer.h:



Classes

- class gdcm::FileAnonymizer

  FileAnonymizer.

Namespaces

- namespace gdcm

13.296 gdcmFileAnonymizer.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILEANONYMIZER_H
00015 #define GDCMFILEANONYMIZER_H
00016
00017 #include "gdcmSubject.h"
00018 #include "gdcmEvent.h"
00019 #include "gdcmTag.h"
00020 #include "gdcmVL.h"
00021
00022 namespace gdcm
00023 {
00024 class FileAnonymizerInternals;
00025
00047 class GDCM_EXPORT FileAnonymizer : public Subject
00048 {
00049 public:
00050   FileAnonymizer();
00051   ~FileAnonymizer() override;
00052
00055   void Empty( Tag const &t );
00056
00058   void Remove( Tag const &t );
00059
00063   void Replace( Tag const &t, const char *value_str );
00064
00067   void Replace( Tag const &t, const char *value_data, VL const & vl );
00068
00070   void SetInputFileName(const char *filename_native);
00071
00073   void SetOutputFileName(const char *filename_native);
00074
00076   bool Write();
00077
00078 private:
00079   bool ComputeEmptyTagPosition();
00080   bool ComputeRemoveTagPosition();
00081   bool ComputeReplaceTagPosition();
00082   FileAnonymizerInternals *Internals;
00083 };
00084
00085 } // end namespace gdcm
00086
00087 #endif //GDCMFILEANONYMIZER_H
```
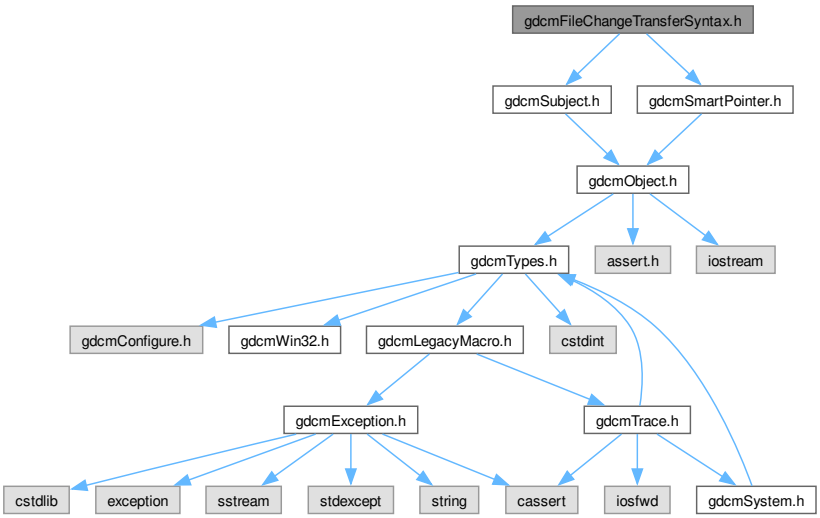

13.297 gdcmFileChangeTransferSyntax.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmSmartPointer.h"
```

Include dependency graph for gdcmFileChangeTransferSyntax.h:



Classes

- class gdcm::FileChangeTransferSyntax

  FileChangeTransferSyntax.

Namespaces

- namespace gdcm

13.298 gdcmFileChangeTransferSyntax.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILECHANGETRANSFERSYNTAX_H
00015 #define GDCMFILECHANGETRANSFERSYNTAX_H
00016
00017 #include "gdcmSubject.h"
00018 #include "gdcmSmartPointer.h"
00019
```
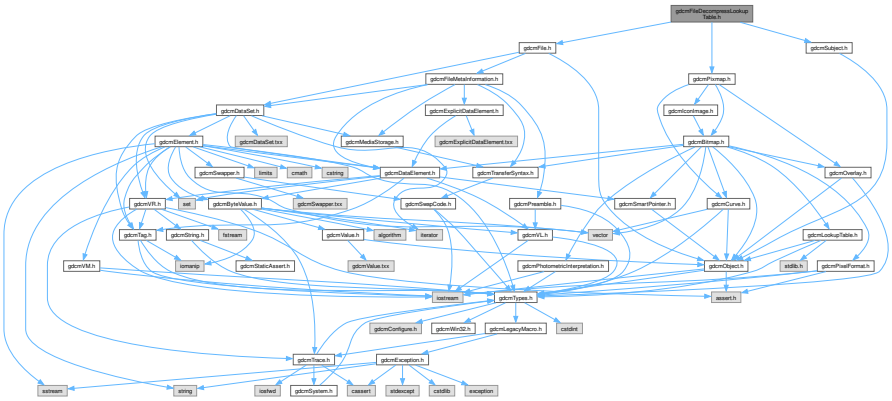

```
00020 namespace gdcm
00021 {
00022 class FileChangeTransferSyntaxInternals;
00023 class ImageCodec;
00024 class TransferSyntax;
00025
00039 class GDCM_EXPORT FileChangeTransferSyntax : public Subject
00040 {
00041 public:
00042   FileChangeTransferSyntax();
00043   ~FileChangeTransferSyntax() override;
00044
00046   void SetInputFileName(const char *filename_native);
00047
00049   void SetOutputFileName(const char *filename_native);
00050
00052   bool Change();
00053
00055   void SetTransferSyntax( TransferSyntax const & ts );
00056
00059   ImageCodec * GetCodec();
00060
00062   static SmartPointer<FileChangeTransferSyntax> New() { return new FileChangeTransferSyntax; }
00063
00064 private:
00065   bool InitializeCopy();
00066   bool UpdateCompressionLevel(double level);
00067   FileChangeTransferSyntaxInternals *Internals;
00068 };
00069
00070 } // end namespace gdcm
00071
00072 #endif //GDCMFILEANONYMIZER_H
```

13.299 gdcmFileDecompressLookupTable.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmFile.h"
#include "gdcmPixmap.h"
```

Include dependency graph for gdcmFileDecompressLookupTable.h:



Classes

- class gdcm::FileDecompressLookupTable

  FileDecompressLookupTable class.

Namespaces

- namespace gdcm

13.300 gdcmFileDecompressLookupTable.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILEDECOMPRESSLOOKUPTABLE_H
00015 #define GDCMFILEDECOMPRESSLOOKUPTABLE_H
00016
00017 #include "gdcmSubject.h"
00018 #include "gdcmFile.h"
00019 #include "gdcmPixmap.h"
00020
00021 namespace gdcm
00022 {
00023
00024 class DataElement;
00030 class GDCM_EXPORT FileDecompressLookupTable : public Subject
00031 {
00032 public:
00033   FileDecompressLookupTable() = default;
00034   ~FileDecompressLookupTable() override = default;
00035
00037   bool Change();
00038
00040   void SetFile(const File& f) { F = f; }
00041   File &GetFile() { return *F; }
00042
00043   const Pixmap& GetPixmap() const { return *PixelData; }
00044   Pixmap& GetPixmap() { return *PixelData; }
00045   void SetPixmap(Pixmap const &img) { PixelData = img; }
00046
00047 protected:
00048
00049 private:
00050   SmartPointer<File> F;
00051   SmartPointer<Pixmap> PixelData;
00052 };
00053
00054 } // end namespace gdcm
00055
00056 #endif //GDCMFILEDECOMPRESSLOOKUPTABLE_H
```
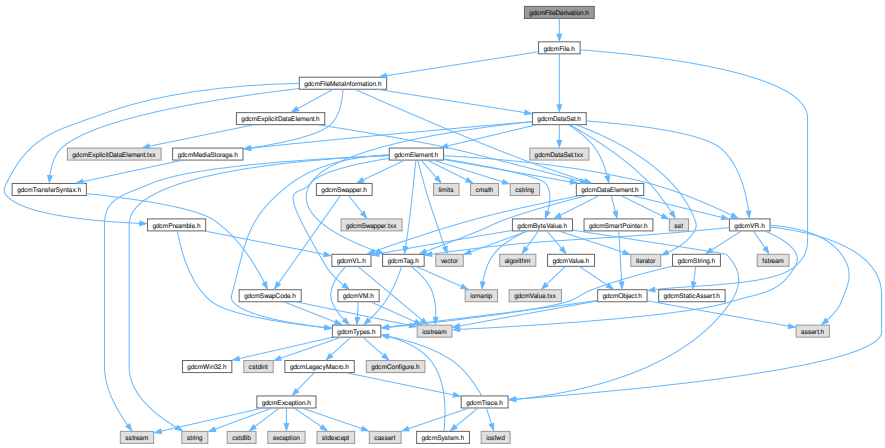

13.301 gdcmFileDerivation.h File Reference

`#include "gdcmFile.h"`
Include dependency graph for gdcmFileDerivation.h:



Classes

- class gdcm::FileDerivation

  FileDerivation class.

Namespaces

- namespace gdcm

13.302 gdcmFileDerivation.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILEDERIVATION_H
00015 #define GDCMFILEDERIVATION_H
00016
00017 #include "gdcmFile.h"
00018
00019 namespace gdcm
00020 {
```
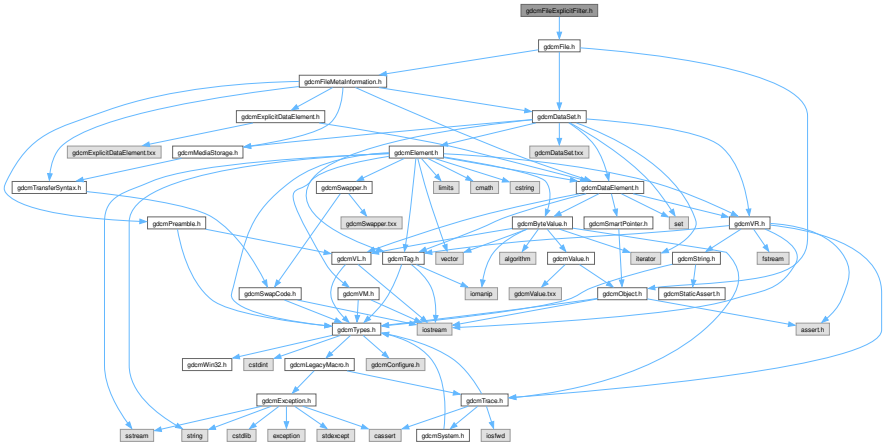

```
00021
00022 class FileDerivationInternals;
00023 class DataSet;
00039 class GDCM_EXPORT FileDerivation
00040 {
00041 public:
00042   FileDerivation();
00043   ~FileDerivation();
00044
00049   bool AddReference(const char *referencedsopclassuid, const char *referencedsopinstanceuid);
00050
00051   // CID 7202 Source Image Purposes of Reference
00052   // {"DCM",121320,"Uncompressed predecessor"},
00053
00055   void SetPurposeOfReferenceCodeSequenceCodeValue(unsigned int codevalue);
00056
00057   // CID 7203 Image Derivation
00058   // { "DCM",113040,"Lossy Compression" },
00059
00061   void SetDerivationCodeSequenceCodeValue(unsigned int codevalue);
00062
00064   void SetDerivationDescription( const char *dd );
00065
00069   void SetAppendDerivationHistory(bool b);
00070
00072   bool Derive();
00073
00075   void SetFile(const File& f) { F = f; }
00076   File &GetFile() { return *F; }
00077   const File &GetFile() const { return *F; }
00078
00079 protected:
00080   bool AddDerivationDescription();
00081   bool AddSourceImageSequence();
00082   bool AddPurposeOfReferenceCodeSequence(DataSet &ds);
00083
00084 private:
00085   SmartPointer<File> F;
00086   FileDerivationInternals *Internals;
00087 };
00088
00094
00095
00096 } // end namespace gdcm
00097
00098 #endif //GDCMFILEDERIVATION_H
```

13.303 gdcmFileExplicitFilter.h File Reference

`#include "gdcmFile.h"`
Include dependency graph for gdcmFileExplicitFilter.h:



Classes

- class gdcm::FileExplicitFilter

  FileExplicitFilter class.

Namespaces

- namespace gdcm

13.304 gdcmFileExplicitFilter.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00008
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILEEXPLICITFILTER_H
00015 #define GDCMFILEEXPLICITFILTER_H
00016
00017 #include "gdcmFile.h"
00018
00019 namespace gdcm
00020 {
```
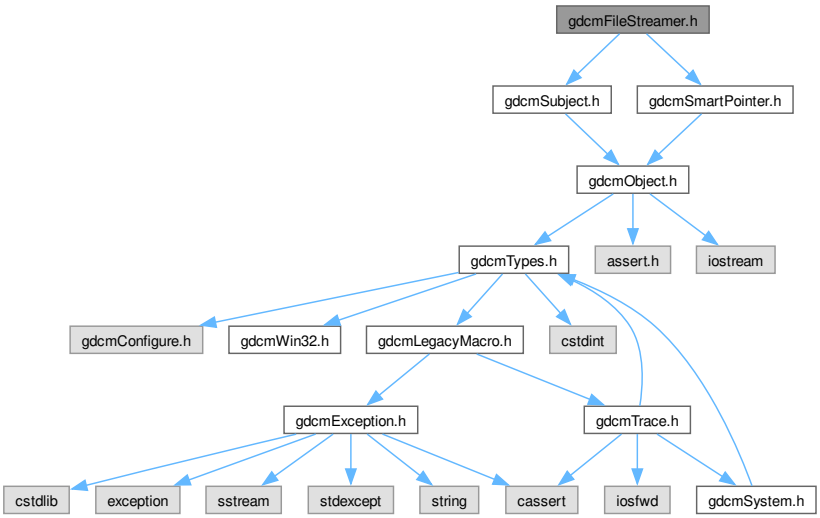

```
00021 class Dicts;
00022
00038 class GDCM_EXPORT FileExplicitFilter
00039 {
00040 public:
00041   FileExplicitFilter():F(new
      File),ChangePrivateTags(false),UseVRUN(true),RecomputeItemLength(false),RecomputeSequenceLength(false) {}
00042   ~FileExplicitFilter() = default;
00043
00045   void SetChangePrivateTags(bool b) { ChangePrivateTags = b;}
00046
00048   void SetUseVRUN(bool b) { UseVRUN = b; }
00049
00051   void SetRecomputeItemLength(bool b);
00052   void SetRecomputeSequenceLength(bool b);
00053
00055
00057   bool Change();
00058
00060   void SetFile(const File& f) { F = f; }
00061   File &GetFile() { return *F; }
00062
00063 protected:
00064   bool ProcessDataSet(DataSet &ds, Dicts const & dicts);
00065   bool ChangeFMI();
00066
00067 private:
00068   SmartPointer<File> F;
00069   bool ChangePrivateTags;
00070   bool UseVRUN;
00071   bool RecomputeItemLength;
00072   bool RecomputeSequenceLength;
00073 };
00074
00075
00076 } // end namespace gdcm
00077
00078 #endif //GDCMFILEEXPLICITFILTER_H
```

13.305 gdcmFileStreamer.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmSmartPointer.h"
```

Include dependency graph for gdcmFileStreamer.h:



Classes

- class gdcm::FileStreamer

  FileStreamer.

Namespaces

- namespace gdcm

13.306 gdcmFileStreamer.h

Go to the documentation of this file.

```
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00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILESTREAMER_H
00015 #define GDCMFILESTREAMER_H
00016
00017 #include "gdcmSubject.h"
00018 #include "gdcmSmartPointer.h"
00019
```
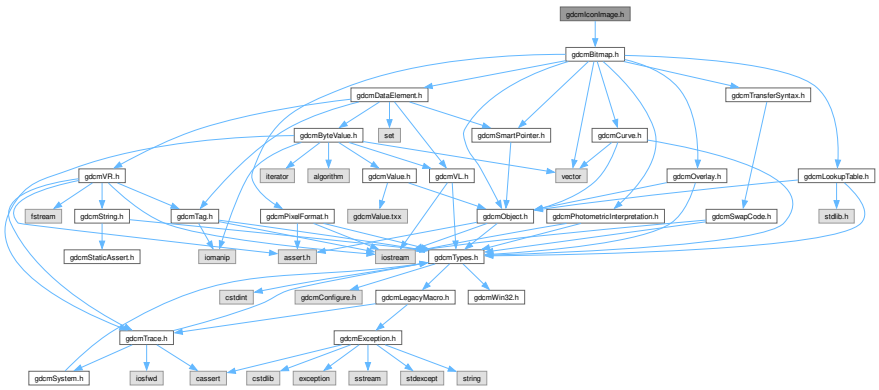

```
00020 namespace gdcm
00021 {
00022 class FileStreamerInternals;
00023
00024 class Tag;
00025 class PrivateTag;
00041 class GDCM_EXPORT FileStreamer : public Subject
00042 {
00043 public:
00044   FileStreamer();
00045   ~FileStreamer() override;
00046
00048   void SetTemplateFileName(const char *filename_native);
00049
00050   // Decide to check template or not (default: false)
00055   void CheckTemplateFileName(bool check);
00056
00058   void SetOutputFileName(const char *filename_native);
00059
00064   bool CheckDataElement( const Tag & t );
00065
00068   bool StartDataElement( const Tag & t );
00070   bool AppendToDataElement( const Tag & t, const char *array, size_t len );
00072   bool StopDataElement( const Tag & t );
00076   bool ReserveDataElement( size_t len );
00077
00085   bool StartGroupDataElement( const PrivateTag & pt, size_t maxsizede = 0, uint8_t startoffset = 0 );
00087   bool AppendToGroupDataElement( const PrivateTag & pt, const char *array, size_t len );
00089   bool StopGroupDataElement( const PrivateTag & pt );
00092   bool ReserveGroupDataElement( unsigned short ndataelement );
00093
00095   static SmartPointer<FileStreamer> New() { return new FileStreamer; }
00096
00097 private:
00098   bool InitializeCopy();
00099   FileStreamerInternals *Internals;
00100 };
00101
00102 } // end namespace gdcm
00103
00104 #endif //GDCMFILESTREAMER_H
```

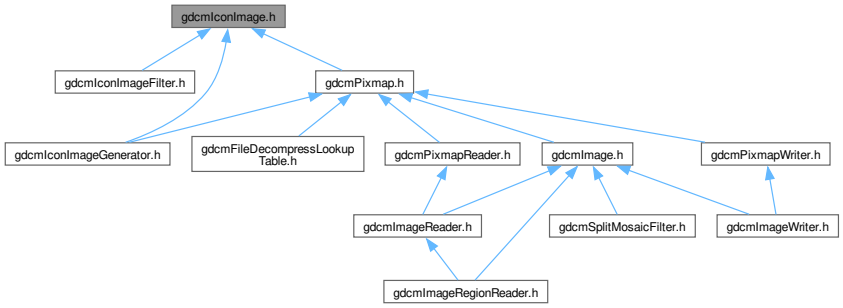
13.307 gdcmIconImage.h File Reference

`#include "gdcmBitmap.h"`

Include dependency graph for gdcmIconImage.h:



This graph shows which files directly or indirectly include this file:



Namespaces

- namespace gdcm

Typedefs

- typedef Bitmap gdcm::IconImage

13.308 gdcmIconImage.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMICONIMAGE_H
00015 #define GDCMICONIMAGE_H
00016
00017 #if 0
00018 #include "gdcmObject.h"
00019 #include "gdcmDataElement.h"
00020 #include "gdcmPhotometricInterpretation.h"
00021 #include "gdcmPixelFormat.h"
00022 #include "gdcmTransferSyntax.h"
00023
00024 #include <vector>
00025
00026 namespace gdcm
00027 {
00028
00032 class GDCM_EXPORT IconImage : public Object
00033 {
00034 public:
00035   IconImage();
```
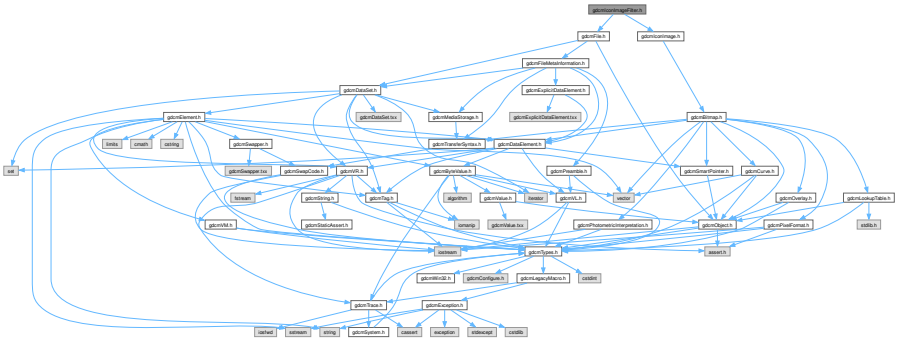

```
00036   ~IconImage();
00037   void Print(std::ostream &) const {}
00038
00040   void SetTransferSyntax(TransferSyntax const &ts) {
00041     TS = ts;
00042   }
00043   const TransferSyntax &GetTransferSyntax() const {
00044     return TS;
00045   }
00046   void SetDataElement(DataElement const &de) {
00047     PixelData = de;
00048   }
00049   const DataElement& GetDataElement() const { return PixelData; }
00050
00051   void SetColumns(unsigned int col) { SetDimension(0,col); }
00052   void SetRows(unsigned int rows) { SetDimension(1,rows); }
00053   void SetDimension(unsigned int idx, unsigned int dim);
00054   int GetColumns() const { return Dimensions[0]; }
00055   int GetRows() const { return Dimensions[1]; }
00056   // Get/Set PixelFormat
00057   const PixelFormat &GetPixelFormat() const
00058     {
00059     return PF;
00060     }
00061   void SetPixelFormat(PixelFormat const &pf)
00062     {
00063     PF = pf;
00064     }
00065
00066   const PhotometricInterpretation &GetPhotometricInterpretation() const;
00067   void SetPhotometricInterpretation(PhotometricInterpretation const &pi);
00068
00069   bool IsEmpty() const { return Dimensions.size() == 0; }
00070   void Clear();
00071
00072   bool GetBuffer(char *buffer) const;
00073
00074 private:
00075   TransferSyntax TS;
00076   PixelFormat PF; // SamplesPerPixel, BitsAllocated, BitsStored, HighBit, PixelRepresentation
00077   PhotometricInterpretation PI;
00078   std::vector<unsigned int> Dimensions; // Col/Row
00079   std::vector<double> Spacing; // PixelAspectRatio ?
00080   DataElement PixelData; // copied from 7fe0,0010
00081   static const unsigned int NumberOfDimensions = 2;
00082 };
00083
00084 } // end namespace gdcm
00085 #endif
00086 #include "gdcmBitmap.h"
00087
00088 namespace gdcm
00089 {
00090   //class GDCM_EXPORT IconImage : public Pixmap {};
00091   typedef Bitmap IconImage;
00092 }
00093
00094 #endif //GDCMICONIMAGE_H
```

13.309 gdcmIconImageFilter.h File Reference

```
#include "gdcmFile.h"
#include "gdcmIconImage.h"
```

Include dependency graph for gdcmIconImageFilter.h:



Classes

- class gdcm::IconImageFilter

  IconImageFilter.

Namespaces

- namespace gdcm

13.310 gdcmIconImageFilter.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMICONIMAGEFILTER_H
00015 #define GDCMICONIMAGEFILTER_H
00016
00017 #include "gdcmFile.h"
00018 #include "gdcmIconImage.h"
00019
00020 namespace gdcm
00021 {
00022 class IconImageFilterInternals;
00023
00049 class GDCM_EXPORT IconImageFilter
00050 {
00051 public:
00052   IconImageFilter();
00053   ~IconImageFilter();
00054
00056   void SetFile(const File& f) { F = f; }
00057   File &GetFile() { return *F; }
```
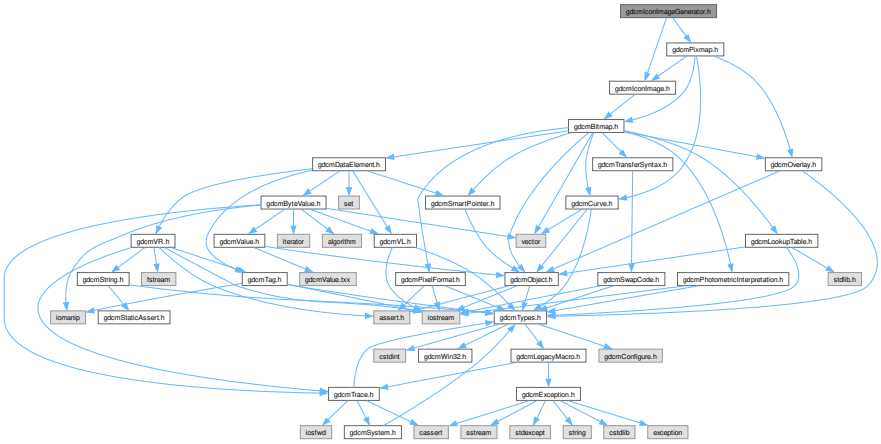

```
00058   const File &GetFile() const { return *F; }
00059
00061   bool Extract();
00062
00064   unsigned int GetNumberOfIconImages() const;
00065   IconImage& GetIconImage( unsigned int i ) const;
00066
00067 protected:
00068   void ExtractIconImages();
00069   void ExtractVeproIconImages();
00070
00071 private:
00072   SmartPointer<File> F;
00073   IconImageFilterInternals *Internals;
00074 };
00075
00076 } // end namespace gdcm
00077
00078 #endif //GDCMICONIMAGEFILTER_H
```

13.311 gdcmIconImageGenerator.h File Reference

```
#include "gdcmPixmap.h"
#include "gdcmIconImage.h"
```

Include dependency graph for gdcmIconImageGenerator.h:



Classes

- class gdcm::IconImageGenerator

  IconImageGenerator.

Namespaces

- namespace gdcm

13.312 gdcmIconImageGenerator.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMICONIMAGEGENERATOR_H
00015 #define GDCMICONIMAGEGENERATOR_H
00016
00017 #include "gdcmPixmap.h"
00018 #include "gdcmIconImage.h"
00019
00020 namespace gdcm
00021 {
00022 class IconImageGeneratorInternals;
00041 class GDCM_EXPORT IconImageGenerator
00042 {
00043 public:
00044   IconImageGenerator();
00045   ~IconImageGenerator();
00046
00048   void SetPixmap(const Pixmap& p) { P = p; }
00049   Pixmap &GetPixmap() { return *P; }
00050   const Pixmap &GetPixmap() const { return *P; }
00051
00053   void SetOutputDimensions(const unsigned int dims[2]);
00054
00058   void SetPixelMinMax(double min, double max);
00059
00063   void AutoPixelMinMax(bool b);
00064
00069   void ConvertRGBToPaletteColor(bool b);
00070
00074   void SetOutsideValuePixel(double v);
00075
00077   bool Generate();
00078
00080   const IconImage& GetIconImage() const { return *I; }
00081
00082 protected:
00083
00084 private:
00085   void BuildLUT( Bitmap & bitmap, unsigned int maxcolor );
00086
00087   SmartPointer<Pixmap> P;
00088   SmartPointer<IconImage> I;
00089   IconImageGeneratorInternals *Internals;
00090 };
00091
00092 } // end namespace gdcm
00093
00094 #endif //GDCMICONIMAGEGENERATOR_H
```
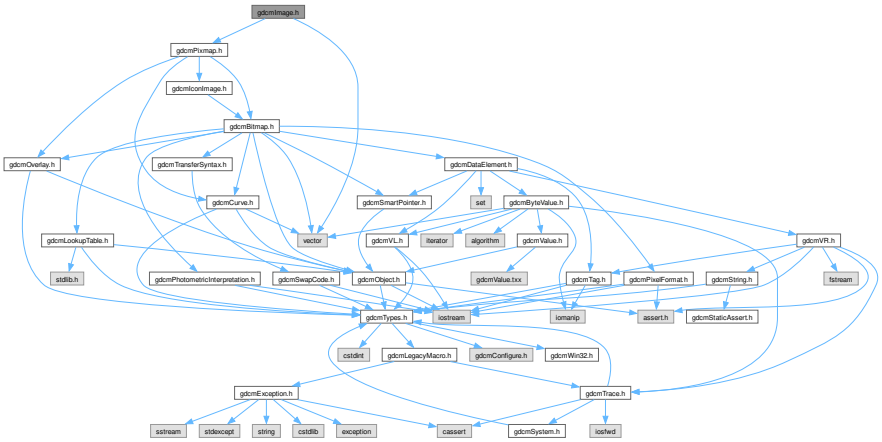
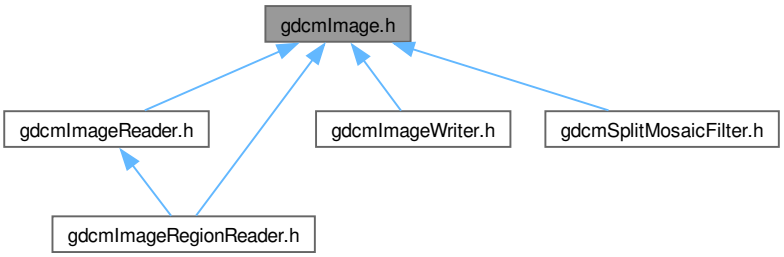

13.313 gdcmImage.h File Reference

```
#include "gdcmPixmap.h"
#include <vector>
```

Include dependency graph for gdcmImage.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Image

  Image.

Namespaces

- namespace gdcm

13.314 gdcmImage.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGE_H
00015 #define GDCMIMAGE_H
00016
00017 #include "gdcmPixmap.h"
00018
00019 #include <vector>
00020
00021 namespace gdcm
00022 {
00023
00046 class GDCM_EXPORT Image : public Pixmap
00047 {
00048 public:
00049   Image ():Spacing(),SC(),Intercept(0),Slope(1) {
00050     //DirectionCosines.resize(6);
00051   Origin.resize( 3 /*NumberOfDimensions*/ ); // fill with 0
00052   DirectionCosines.resize( 6 ); // fill with 0
00053   DirectionCosines[0] = 1;
00054   DirectionCosines[4] = 1;
00055   Spacing.resize( 3 /*NumberOfDimensions*/, 1 ); // fill with 1
00056
00057   }
00058   ~Image() override = default;
00059
00063   const double *GetSpacing() const;
00064   double GetSpacing(unsigned int idx) const;
00065   void SetSpacing(const double spacing[3]);
00066   void SetSpacing(unsigned int idx, double spacing);
00067
00070   const double *GetOrigin() const;
00071   double GetOrigin(unsigned int idx) const;
00072   void SetOrigin(const float origin[3]);
00073   void SetOrigin(const double origin[3]);
00074   void SetOrigin(unsigned int idx, double ori);
00075
00078   const double *GetDirectionCosines() const;
00079   double GetDirectionCosines(unsigned int idx) const;
00080   void SetDirectionCosines(const float dircos[6]);
00081   void SetDirectionCosines(const double dircos[6]);
00082   void SetDirectionCosines(unsigned int idx, double dircos);
00083
00085   void Print(std::ostream &os) const override;
00086
00088   void SetIntercept(double intercept) { Intercept = intercept; }
00089   double GetIntercept() const { return Intercept; }
00090
00092   void SetSlope(double slope) { Slope = slope; }
00093   double GetSlope() const { return Slope; }
00094
00095 private:
00096   std::vector<double> Spacing;
00097   std::vector<double> Origin;
00098   std::vector<double> DirectionCosines;
00099
00100   // I believe the following 3 ivars can be derived from TS ...
00101   SwapCode SC;
00102   double Intercept;
00103   double Slope;
00104 };
00105
00110
00111 } // end namespace gdcm
```
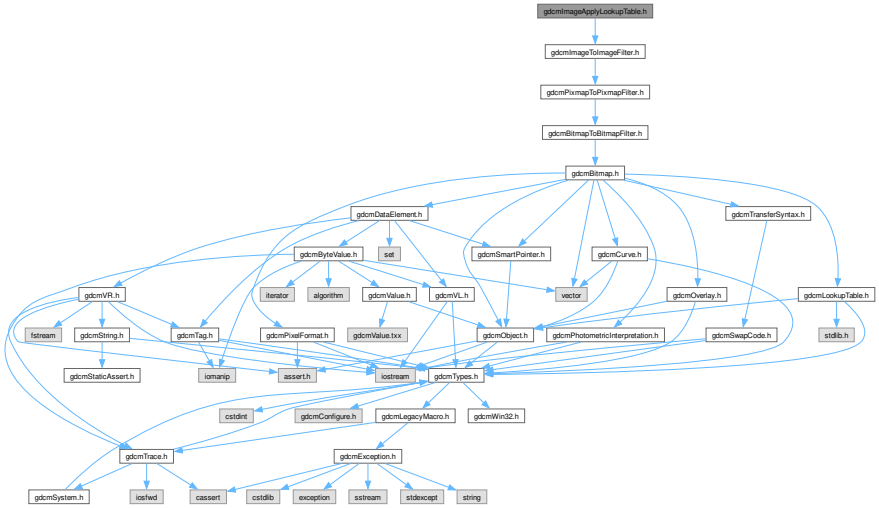

```
00112
00113 #endif //GDCMIMAGE_H
```

13.315 gdcmImageApplyLookupTable.h File Reference

```
#include "gdcmImageToImageFilter.h"
```

Include dependency graph for gdcmImageApplyLookupTable.h:



Classes

- class gdcm::ImageApplyLookupTable

  ImageApplyLookupTable class.

Namespaces

- namespace gdcm

13.316 gdcmImageApplyLookupTable.h

Go to the documentation of this file.

```
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```
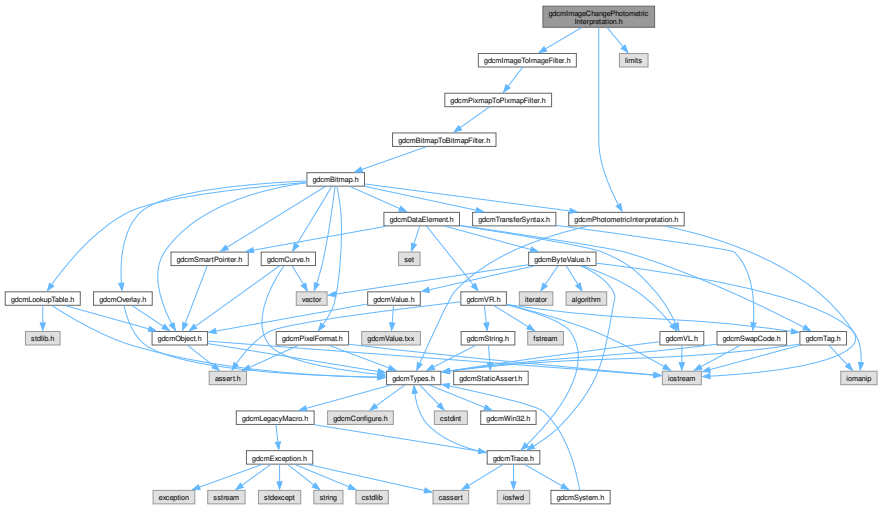

```
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGEAPPLYLOOKUPTABLE_H
00015 #define GDCMIMAGEAPPLYLOOKUPTABLE_H
00016
00017 #include "gdcmImageToImageFilter.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class DataElement;
00028 class GDCM_EXPORT ImageApplyLookupTable : public ImageToImageFilter
00029 {
00030 public:
00031   ImageApplyLookupTable();
00032   ~ImageApplyLookupTable();
00033
00035   bool Apply();
00036
00038   void SetRGB8(bool b);
00039
00040 protected:
00041
00042 private:
00043   struct impl;
00044   // PIMPL idiom
00045   impl* pimpl;
00046 };
00047
00048 } // end namespace gdcm
00049
00050 #endif //GDCMIMAGEAPPLYLOOKUPTABLE_H
```

13.317 gdcmImageChangePhotometricInterpretation.h File Reference

```
#include "gdcmImageToImageFilter.h"
#include "gdcmPhotometricInterpretation.h"
#include <limits>
```

Include dependency graph for gdcmImageChangePhotometricInterpretation.h:



Classes

- class gdcm::ImageChangePhotometricInterpretation

  ImageChangePhotometricInterpretation class.

Namespaces

- namespace gdcm

Functions

- template<typename T>
  static T gdcm::Clamp (int v)
- template<typename T>
  static int gdcm::Round (T x)

13.318 gdcmImageChangePhotometricInterpretation.h

Go to the documentation of this file.

```
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00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGECHANGEPHOTOMETRICINTERPRETATION_H
00015 #define GDCMIMAGECHANGEPHOTOMETRICINTERPRETATION_H
00016
00017 #include "gdcmImageToImageFilter.h"
00018 #include "gdcmPhotometricInterpretation.h"
00019 #include <limits>
00020
00021 namespace gdcm
00022 {
00023
00024 class DataElement;
00029 class GDCM_EXPORT ImageChangePhotometricInterpretation : public ImageToImageFilter
00030 {
00031 public:
00032   ImageChangePhotometricInterpretation():PI() {}
00033   ~ImageChangePhotometricInterpretation() = default;
00034
00036   void SetPhotometricInterpretation(PhotometricInterpretation const &pi) { PI = pi; }
00037   const PhotometricInterpretation &GetPhotometricInterpretation() const { return PI; }
00038
00040   bool Change();
00041
00044   template <typename T>
00045   static void RGB2YBR(T ybr[3], const T rgb[3], unsigned short storedbits = 8);
00046   template <typename T>
00047   static void YBR2RGB(T rgb[3], const T ybr[3], unsigned short storedbits = 8);
00048
00049 protected:
00050   bool ChangeMonochrome();
00051   bool ChangeYBR2RGB();
00052   bool ChangeRGB2YBR();
```
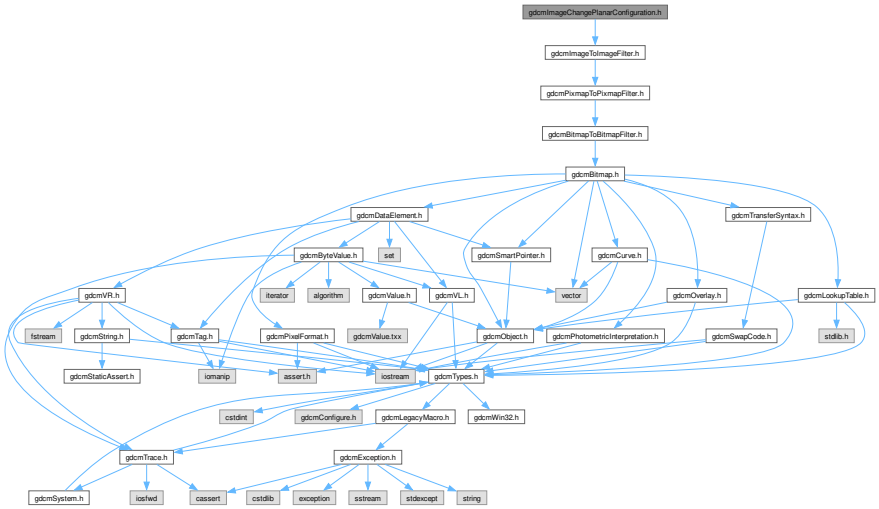

```
00053
00054 private:
00055   PhotometricInterpretation PI;
00056 };
00057
00058 template <typename T>
00059 static inline int Round(T x)
00060 {
00061   return (int)(x+0.5);
00062 }
00063
00064 template <typename T>
00065 static inline T Clamp(int v)
00066 {
00067   assert( std::numeric_limits<T>::min() == 0 );
00068   return v < 0 ? 0 : (v > std::numeric_limits<T>::max() ? std::numeric_limits<T>::max() : v);
00069 }
00070
00071
00072 template <typename T>
00073 void ImageChangePhotometricInterpretation::RGB2YBR(T ybr[3], const T rgb[3], unsigned short storedbits)
00074 {
00075   // Implementation details, since the equations from:
00076   // http://dicom.nema.org/medical/dicom/current/output/chtml/part03/sect_C.7.6.3.html#sect_C.7.6.3.1.2
00077   // are rounded to the 4th decimal precision, prefer the exact equation from the original document at:
00078   // CCIR Recommendation 601-2, also found in T.871 (Section §7, page 4)
00079   const double R = rgb[0];
00080   const double G = rgb[1];
00081   const double B = rgb[2];
00082   assert( storedbits <= sizeof(T) * 8 );
00083   const int halffullscale = 1 « (storedbits - 1);
00084   const int Y  = Round(  0.299 * R + 0.587 * G + 0.114 * B                      );
00085   const int CB = Round((-0.299 * R - 0.587 * G + 0.886 * B)/1.772 + halffullscale);
00086   const int CR = Round(( 0.701 * R - 0.587 * G - 0.114 * B)/1.402 + halffullscale);
00087   ybr[0] = Clamp<T>(Y );
00088   ybr[1] = Clamp<T>(CB);
00089   ybr[2] = Clamp<T>(CR);
00090 }
00091
00092 template <typename T>
00093 void ImageChangePhotometricInterpretation::YBR2RGB(T rgb[3], const T ybr[3], unsigned short storedbits)
00094 {
00095   const double Y  = ybr[0];
00096   const double Cb = ybr[1];
00097   const double Cr = ybr[2];
00098   assert( storedbits <= sizeof(T) * 8 );
00099   const int halffullscale = 1 « (storedbits - 1);
00100   const int R = Round(Y                                        + 1.402 * (Cr-halffullscale)
      );
00101   const int G = Round(Y -( 0.114 * 1.772 * (Cb-halffullscale) + 0.299 * 1.402 *
      (Cr-halffullscale))/0.587);
00102   const int B = Round(Y          + 1.772 * (Cb-halffullscale)
      );
00103   rgb[0] = Clamp<T>(R);
00104   rgb[1] = Clamp<T>(G);
00105   rgb[2] = Clamp<T>(B);
00106 }
00107
00108 } // end namespace gdcm
00109
00110 #endif //GDCMIMAGECHANGEPHOTOMETRICINTERPRETATION_H
```

13.319 gdcmImageChangePlanarConfiguration.h File Reference

`#include "gdcmImageToImageFilter.h"`
Include dependency graph for gdcmImageChangePlanarConfiguration.h:



Classes

- class gdcm::ImageChangePlanarConfiguration
  ImageChangePlanarConfiguration class.

Namespaces

- namespace gdcm

13.320 gdcmImageChangePlanarConfiguration.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGECHANGEPLANARCONFIGURATION_H
00015 #define GDCMIMAGECHANGEPLANARCONFIGURATION_H
00016
00017 #include "gdcmImageToImageFilter.h"
```
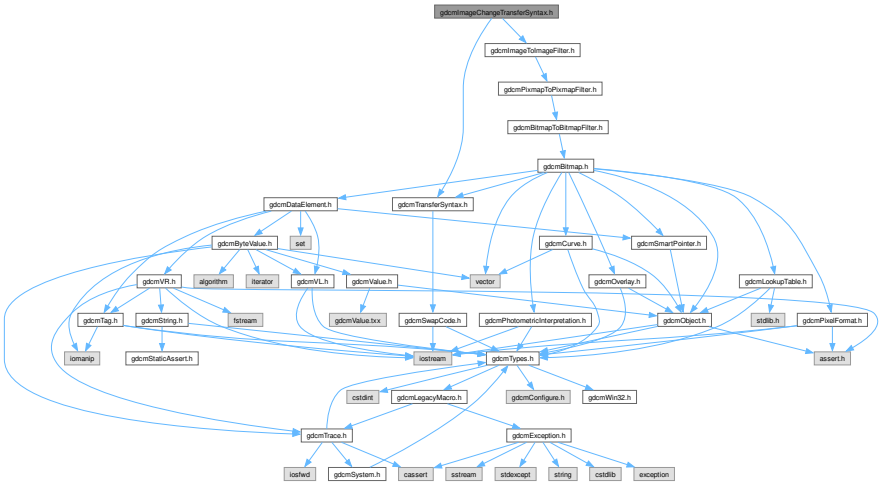

```
00018
00019 namespace gdcm
00020 {
00021
00022 class DataElement;
00028 class GDCM_EXPORT ImageChangePlanarConfiguration : public ImageToImageFilter
00029 {
00030 public:
00031   ImageChangePlanarConfiguration():PlanarConfiguration(0) {}
00032   ~ImageChangePlanarConfiguration() = default;
00033
00035   void SetPlanarConfiguration(unsigned int pc) { PlanarConfiguration = pc; }
00036   unsigned int GetPlanarConfiguration() const { return PlanarConfiguration; }
00037
00040   template <typename T>
00041   static size_t RGBPlanesToRGBPixels(T *out, const T *r, const T *g, const T *b, size_t s);
00042
00046   template <typename T>
00047   static size_t RGBPixelsToRGBPlanes(T *r, T *g, T *b, const T* rgb, size_t s);
00048
00050   bool Change();
00051
00052 protected:
00053
00054 private:
00055   unsigned int PlanarConfiguration;
00056 };
00057
00058 template <typename T>
00059 size_t ImageChangePlanarConfiguration::RGBPlanesToRGBPixels(T *out, const T *r, const T *g, const T *b,
      size_t s)
00060 {
00061   T *pout = out;
00062   for(size_t i = 0; i < s; ++i )
00063     {
00064     *pout++ = *r++;
00065     *pout++ = *g++;
00066     *pout++ = *b++;
00067     }
00068
00069   assert( (size_t)(pout - out) == 3 * s );
00070   return pout - out;
00071 }
00072
00073 template <typename T>
00074 size_t ImageChangePlanarConfiguration::RGBPixelsToRGBPlanes(T *r, T *g, T *b, const T *rgb, size_t s)
00075 {
00076   const T *prgb = rgb;
00077   for(size_t i = 0; i < s; ++i )
00078     {
00079     *r++ = *prgb++;
00080     *g++ = *prgb++;
00081     *b++ = *prgb++;
00082     }
00083   assert( (size_t)(prgb - rgb) == 3 * s );
00084   return prgb - rgb;
00085 }
00086
00087
00088 } // end namespace gdcm
00089
00090 #endif //GDCMIMAGECHANGEPLANARCONFIGURATION_H
```

13.321 gdcmImageChangeTransferSyntax.h File Reference

```
#include "gdcmImageToImageFilter.h"
#include "gdcmTransferSyntax.h"
```

Include dependency graph for gdcmImageChangeTransferSyntax.h:



Classes

- class gdcm::ImageChangeTransferSyntax

  ImageChangeTransferSyntax class.

Namespaces

- namespace gdcm

13.322 gdcmImageChangeTransferSyntax.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGECHANGETRANSFERSYNTAX_H
00015 #define GDCMIMAGECHANGETRANSFERSYNTAX_H
00016
00017 #include "gdcmImageToImageFilter.h"
00018 #include "gdcmTransferSyntax.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class DataElement;
00024 class ImageCodec;
```
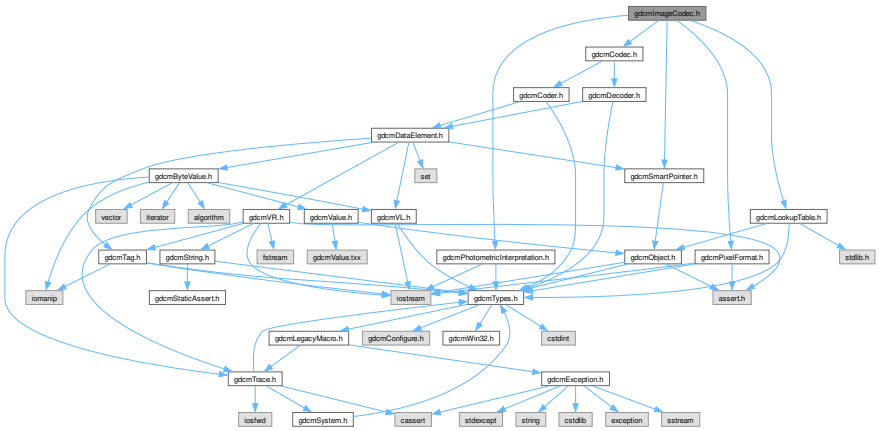

```
00039 class GDCM_EXPORT ImageChangeTransferSyntax : public ImageToImageFilter
00040 {
00041 public:
00042
      ImageChangeTransferSyntax():TS(TransferSyntax::TS_END),Force(false),CompressIconImage(false),UserCodec(nullptr)
      {}
00043   ~ImageChangeTransferSyntax() = default;
00044
00046   void SetTransferSyntax(const TransferSyntax &ts) { TS = ts; }
00048   const TransferSyntax &GetTransferSyntax() const { return TS; }
00049
00051   bool Change();
00052
00055   void SetCompressIconImage(bool b) { CompressIconImage = b; }
00056
00061   void SetForce( bool f ) { Force = f; }
00062
00068   void SetUserCodec(ImageCodec *ic) { UserCodec = ic; }
00069
00070 protected:
00071   bool TryJPEGCodec(const DataElement &pixelde, Bitmap const &input, Bitmap &output);
00072   bool TryJPEG2000Codec(const DataElement &pixelde, Bitmap const &input, Bitmap &output);
00073   bool TryJPEGLSCodec(const DataElement &pixelde, Bitmap const &input, Bitmap &output);
00074   bool TryRAWCodec(const DataElement &pixelde, Bitmap const &input, Bitmap &output);
00075   bool TryRLECodec(const DataElement &pixelde, Bitmap const &input, Bitmap &output);
00076
00077 private:
00078   TransferSyntax TS;
00079   bool Force;
00080   bool CompressIconImage;
00081
00082   ImageCodec *UserCodec;
00083 };
00084
00089
00090 } // end namespace gdcm
00091
00092 #endif //GDCMIMAGECHANGETRANSFERSYNTAX_H
```

13.323 gdcmImageCodec.h File Reference

```
#include "gdcmCodec.h"
#include "gdcmPhotometricInterpretation.h"
#include "gdcmLookupTable.h"
#include "gdcmSmartPointer.h"
#include "gdcmPixelFormat.h"
```

Include dependency graph for gdcmImageCodec.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::ImageCodec

  ImageCodec.

Namespaces

- namespace gdcm

13.324 gdcmImageCodec.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGECODEC_H
00015 #define GDCMIMAGECODEC_H
00016
00017 #include "gdcmCodec.h"
00018 #include "gdcmPhotometricInterpretation.h"
00019 #include "gdcmLookupTable.h"
00020 #include "gdcmSmartPointer.h"
00021 #include "gdcmPixelFormat.h"
00022
00023 namespace gdcm
00024 {
00025
00030 class GDCM_EXPORT ImageCodec : public Codec
00031 {
00032   friend class ImageChangePhotometricInterpretation;
00033 public:
00034   ImageCodec();
00035   ~ImageCodec() override;
00036   bool CanCode(TransferSyntax const &) const override { return false; }
00037   bool CanDecode(TransferSyntax const &) const override { return false; }
00038   bool Decode(DataElement const &is_, DataElement &os) override;
00039   bool IsLossy() const;
00040   void SetLossyFlag(bool l);
00041   bool GetLossyFlag() const;
00042
00043   virtual bool GetHeaderInfo(std::istream &is_, TransferSyntax &ts);
00044
00045   virtual ImageCodec * Clone() const = 0;
00046
```
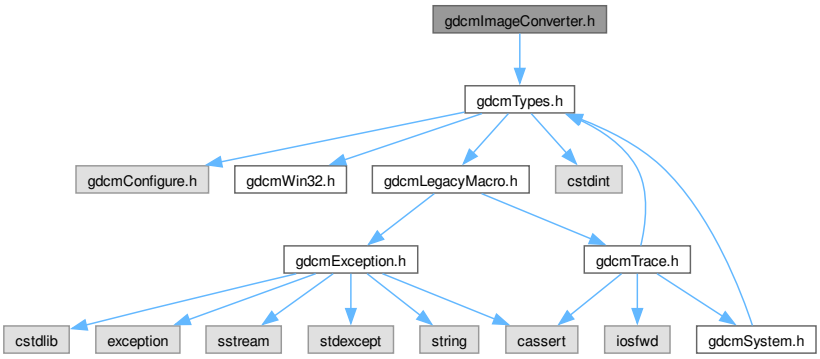

```
00047 protected:
00048   bool DecodeByStreams(std::istream &is_, std::ostream &os) override;
00049   virtual bool IsValid(PhotometricInterpretation const &pi);
00050 public:
00051
00052   unsigned int GetPlanarConfiguration() const
00053     {
00054     return PlanarConfiguration;
00055     }
00056   void SetPlanarConfiguration(unsigned int pc)
00057     {
00058     assert( pc == 0 || pc == 1 );
00059     PlanarConfiguration = pc;
00060     }
00061
00062   PixelFormat &GetPixelFormat()
00063     {
00064     return PF;
00065     }
00066   const PixelFormat &GetPixelFormat() const
00067     {
00068     return PF;
00069     }
00070   virtual void SetPixelFormat(PixelFormat const &pf)
00071     {
00072     PF = pf;
00073     }
00074   const PhotometricInterpretation &GetPhotometricInterpretation() const;
00075   void SetPhotometricInterpretation(PhotometricInterpretation const &pi);
00076
00077   bool GetNeedByteSwap() const
00078     {
00079     return NeedByteSwap;
00080     }
00081   void SetNeedByteSwap(bool b)
00082     {
00083     NeedByteSwap = b;
00084     }
00085   void SetNeedOverlayCleanup(bool b)
00086     {
00087     NeedOverlayCleanup = b;
00088     }
00089   void SetLUT(LookupTable const &lut)
00090     {
00091     LUT = SmartPointer<LookupTable>( const_cast<LookupTable*>(&lut) );
00092     }
00093   const LookupTable &GetLUT() const
00094     {
00095     return *LUT;
00096     }
00097
00098   void SetDimensions(const unsigned int d[3]);
00099   void SetDimensions(const std::vector<unsigned int> & d);
00100   const unsigned int *GetDimensions() const { return Dimensions; }
00101   void SetNumberOfDimensions(unsigned int dim);
00102   unsigned int GetNumberOfDimensions() const;
00103
00104   bool CleanupUnusedBits(char * data, size_t datalen);
00105
00106 protected:
00107   // Streaming (write) API:
00114   friend class FileChangeTransferSyntax;
00115   virtual bool StartEncode( std::ostream & os );
00116   virtual bool IsRowEncoder();
00117   virtual bool IsFrameEncoder();
00118   virtual bool AppendRowEncode( std::ostream & out, const char * data, size_t datalen );
00119   virtual bool AppendFrameEncode( std::ostream & out, const char * data, size_t datalen );
00120   virtual bool StopEncode( std::ostream & os);
00121
00122 protected:
00123   bool RequestPlanarConfiguration;
00124   bool RequestPaddedCompositePixelCode;
00125 //private:
00126   unsigned int PlanarConfiguration;
00127   PhotometricInterpretation PI;
00128   PixelFormat PF;
00129   bool NeedByteSwap;
00130   bool NeedOverlayCleanup;
00131
00132   typedef SmartPointer<LookupTable> LUTPtr;
00133   LUTPtr LUT;
```

```
00134   unsigned int Dimensions[3]; // FIXME
00135   unsigned int NumberOfDimensions;
00136   bool LossyFlag;
00137
00138   bool DoOverlayCleanup(std::istream &is_, std::ostream &os);
00139   bool DoByteSwap(std::istream &is_, std::ostream &os);
00140   bool DoYBR(std::istream &is_, std::ostream &os);
00141   bool DoYBRFull422(std::istream &is_, std::ostream &os);
00142   bool DoPlanarConfiguration(std::istream &is_, std::ostream &os);
00143   bool DoSimpleCopy(std::istream &is_, std::ostream &os);
00144   bool DoPaddedCompositePixelCode(std::istream &is_, std::ostream &os);
00145   bool DoInvertMonochrome(std::istream &is_, std::ostream &os);
00146
00147   //template <typename T>
00148   //bool DoInvertPlanarConfiguration(T *output, const T *input, uint32_t length);
00149 };
00150
00151 } // end namespace gdcm
00152
00153 #endif //GDCMIMAGECODEC_H
```

13.325 gdcmImageConverter.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmImageConverter.h:



Classes

- class gdcm::ImageConverter

  Image Converter.

Namespaces

- namespace gdcm

13.326 gdcmImageConverter.h

Go to the documentation of this file.

```
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00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMIMAGECONVERTER_H
00016 #define GDCMIMAGECONVERTER_H
00017
00018 #include "gdcmTypes.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class Image;
00033 class GDCM_EXPORT ImageConverter
00034 {
00035 public:
00036   ImageConverter();
00037   ~ImageConverter();
00038
00039   void SetInput(Image const &input);
00040   const Image& GetOuput() const;
00041
00042   void Convert();
00043
00044 private:
00045   Image *Input;
00046   Image *Output;
00047 };
00048
00049 } // end namespace gdcm
00050
00051 #endif //GDCMIMAGECONVERTER_H
```
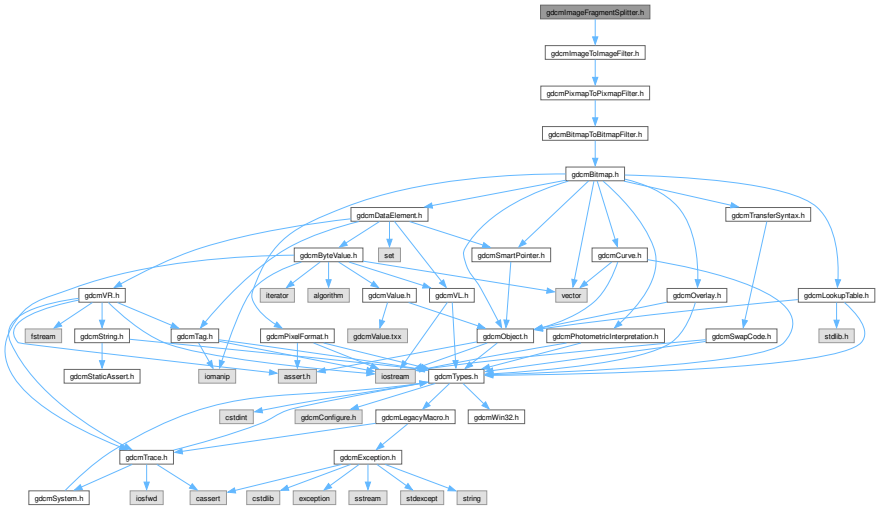

13.327 gdcmImageFragmentSplitter.h File Reference

`#include "gdcmImageToImageFilter.h"`
Include dependency graph for gdcmImageFragmentSplitter.h:



Classes

- class gdcm::ImageFragmentSplitter

  ImageFragmentSplitter class.

Namespaces

- namespace gdcm

13.328 gdcmImageFragmentSplitter.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGEFRAGMENTSPLITTER_H
00015 #define GDCMIMAGEFRAGMENTSPLITTER_H
00016
00017 #include "gdcmImageToImageFilter.h"
```
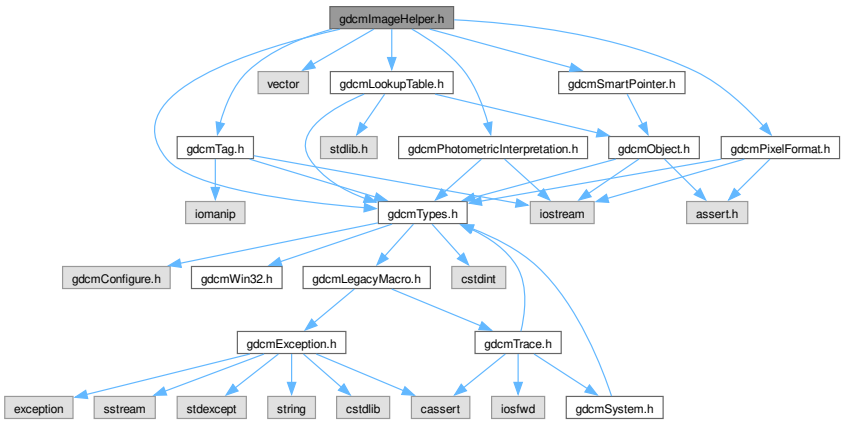

```
00018
00019 namespace gdcm
00020 {
00021
00022 class DataElement;
00027 class GDCM_EXPORT ImageFragmentSplitter : public ImageToImageFilter
00028 {
00029 public:
00030   ImageFragmentSplitter():FragmentSizeMax(0),Force(false) {}
00031   ~ImageFragmentSplitter() = default;
00032
00034   bool Split();
00035
00037   void SetFragmentSizeMax(unsigned int fragsize);
00038   unsigned int GetFragmentSizeMax() const { return FragmentSizeMax; }
00039
00042   void SetForce( bool f ) { Force = f; }
00043
00044 protected:
00045
00046 private:
00047   unsigned int FragmentSizeMax;
00048   bool Force;
00049 };
00050
00051 } // end namespace gdcm
00052
00053 #endif //GDCMIMAGEFRAGMENTSPLITTER_H
```

13.329 gdcmImageHelper.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include <vector>
#include "gdcmPixelFormat.h"
#include "gdcmPhotometricInterpretation.h"
#include "gdcmSmartPointer.h"
#include "gdcmLookupTable.h"
```

Include dependency graph for gdcmImageHelper.h:



Classes

- class gdcm::ImageHelper

ImageHelper (internal class, not intended for user level).

- struct gdcm::RealWorldValueMappingContent

Namespaces

- namespace gdcm

13.330 gdcmImageHelper.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGEHELPER_H
00015 #define GDCMIMAGEHELPER_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmTag.h"
00019 #include <vector>
00020 #include "gdcmPixelFormat.h"
00021 #include "gdcmPhotometricInterpretation.h"
00022 #include "gdcmSmartPointer.h"
00023 #include "gdcmLookupTable.h"
00024
00025 namespace gdcm
00026 {
00027
00028 class MediaStorage;
00029 class DataSet;
00030 class File;
00031 class Image;
00032 class Pixmap;
00033 class ByteValue;
00034
00035 // minimal struct:
00036 struct RealWorldValueMappingContent {
00037   double RealWorldValueIntercept;
00038   double RealWorldValueSlope;
00039   // http://dicom.nema.org/MEDICAL/DICOM/2014c/output/chtml/part16/sect_CID_7181.html
00040   std::string CodeValue;
00041   std::string CodeMeaning;
00042 };
00043
00059 class GDCM_EXPORT ImageHelper
00060 {
00061 public:
00068   static void SetForceRescaleInterceptSlope(bool);
00069   static bool GetForceRescaleInterceptSlope();
00070
00076   static void SetPMSRescaleInterceptSlope(bool);
00077   static bool GetPMSRescaleInterceptSlope();
00078
00085   static void SetForcePixelSpacing(bool);
00086   static bool GetForcePixelSpacing();
00087
00092   static void SetSecondaryCaptureImagePlaneModule(bool);
00093   static bool GetSecondaryCaptureImagePlaneModule();
00094
00098   static std::vector<unsigned int> GetDimensionsValue(const File& f);
00099   static void SetDimensionsValue(File& f, const Pixmap & img);
```
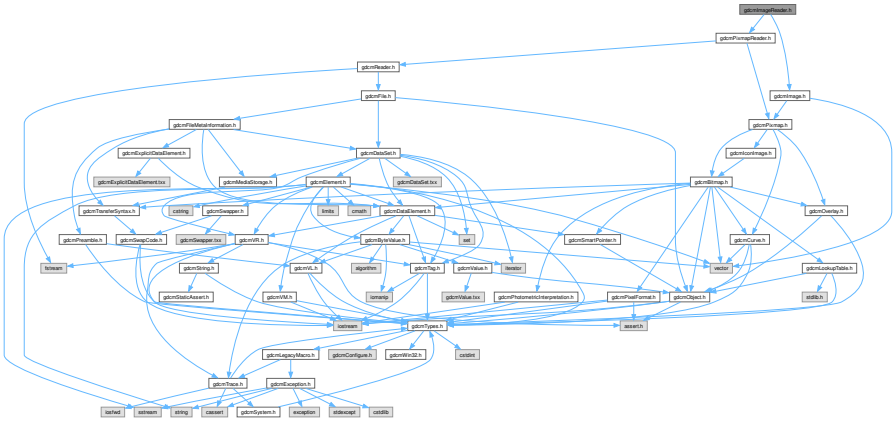

```
00100
00103   static PixelFormat GetPixelFormatValue(const File& f);
00104
00109   static std::vector<double> GetRescaleInterceptSlopeValue(File const & f);
00110   static void SetRescaleInterceptSlopeValue(File & f, const Image & img);
00111
00112   // read only for now
00113   static bool GetRealWorldValueMappingContent(File const & f, RealWorldValueMappingContent & rwvmc);
00114
00116   static std::vector<double> GetOriginValue(File const & f);
00117   static void SetOriginValue(DataSet & ds, const Image & img);
00118
00121   static std::vector<double> GetDirectionCosinesValue(File const & f);
00127   // FIXME: There is a major issue for image with multiple IOP (eg. Enhanced * Image Storage).
00128   static void SetDirectionCosinesValue(DataSet & ds, const std::vector<double> & dircos);
00129
00131   static std::vector<double> GetSpacingValue(File const & f);
00133   static void SetSpacingValue(DataSet & ds, const std::vector<double> & spacing);
00134
00136   static bool ComputeSpacingFromImagePositionPatient(const std::vector<double> &imageposition,
      std::vector<double> & spacing);
00137
00138   static bool GetDirectionCosinesFromDataSet(DataSet const & ds, std::vector<double> & dircos);
00139
00140   //functions to get more information from a file
00141   //useful for the stream image reader, which fills in necessary image information
00142   //distinctly from the reader-style data input
00143   static PhotometricInterpretation GetPhotometricInterpretationValue(File const& f);
00144   //returns the configuration of colors in a plane, either RGB RGB RGB or RRR GGG BBB
00145   static unsigned int GetPlanarConfigurationValue(const File& f);
00146
00148   static SmartPointer<LookupTable> GetLUT(File const& f);
00149
00150   // Moved from PixampReader to here. Generally used for photometric interpretation.
00151   static const ByteValue* GetPointerFromElement(Tag const &tag, File const& f);
00152
00154   static MediaStorage ComputeMediaStorageFromModality(const char *modality,
00155     unsigned int dimension = 2, PixelFormat const & pf = PixelFormat(),
00156     PhotometricInterpretation const & pi = PhotometricInterpretation(),
00157     double rescaleintercept = 0, double rescaleslope = 1 );
00158
00159 protected:
00160   static Tag GetSpacingTagFromMediaStorage(MediaStorage const &ms);
00161   static Tag GetZSpacingTagFromMediaStorage(MediaStorage const &ms);
00162
00163 private:
00164   static bool ForceRescaleInterceptSlope;
00165   static bool PMSRescaleInterceptSlope;
00166   static bool ForcePixelSpacing;
00167   static bool SecondaryCaptureImagePlaneModule;
00168 };
00169
00170 } // end namespace gdcm
00171
00172 #endif // GDCMIMAGEHELPER_H
```

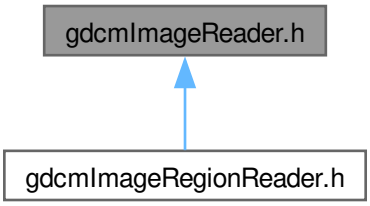
13.331 gdcmImageReader.h File Reference

```
#include "gdcmPixmapReader.h"
#include "gdcmImage.h"
```

Include dependency graph for gdcmImageReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::ImageReader

  ImageReader.

Namespaces

- namespace gdcm

13.332 gdcmImageReader.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGEREADER_H
00015 #define GDCMIMAGEREADER_H
00016
00017 #include "gdcmPixmapReader.h"
00018 #include "gdcmImage.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class MediaStorage;
00033 class GDCM_EXPORT ImageReader : public PixmapReader
00034 {
00035 public:
00036   ImageReader();
00037   ~ImageReader() override;//needs to be virtual to ensure lack of memory leaks
00038
00042
00043   bool Read() override;
00044
00045   // Following methods are valid only after a call to 'Read'
00046
00048   const Image& GetImage() const;
00049   Image& GetImage();
00050   //void SetImage(Image const &img);
00051
00052 protected:
00053   bool ReadImage(MediaStorage const &ms) override;
00054   bool ReadACRNEMAImage() override;
00055 };
00056
00057 } // end namespace gdcm
00058
00059 #endif //GDCMIMAGEREADER_H
```
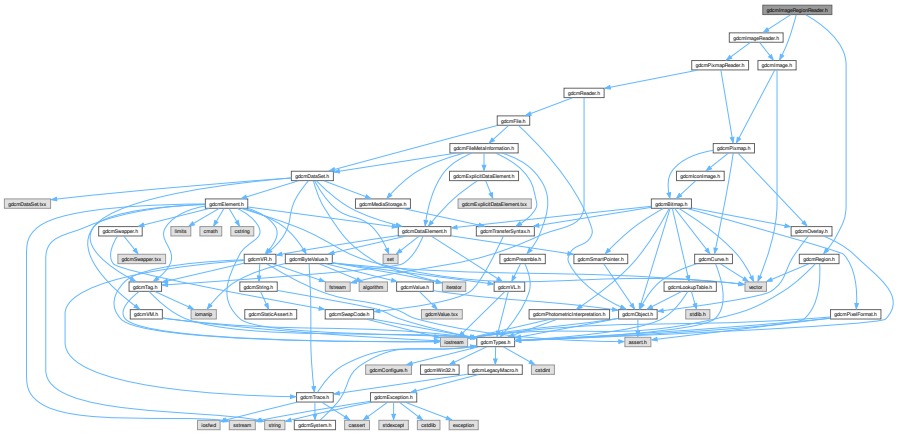

13.333 gdcmImageRegionReader.h File Reference

```
#include "gdcmImageReader.h"
#include "gdcmImage.h"
#include "gdcmRegion.h"
```

Include dependency graph for gdcmImageRegionReader.h:



Classes

- class gdcm::ImageRegionReader

  ImageRegionReader.

Namespaces

- namespace gdcm

13.334 gdcmImageRegionReader.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGEEXTENTREADER_H
00015 #define GDCMIMAGEEXTENTREADER_H
00016
00017 #include "gdcmImageReader.h"
00018 #include "gdcmImage.h"
00019 #include "gdcmRegion.h"
00020
00021 namespace gdcm
00022 {
00023
00024 class ImageRegionReaderInternals;
00034 class GDCM_EXPORT ImageRegionReader : public ImageReader
00035 {
00036 public:
```
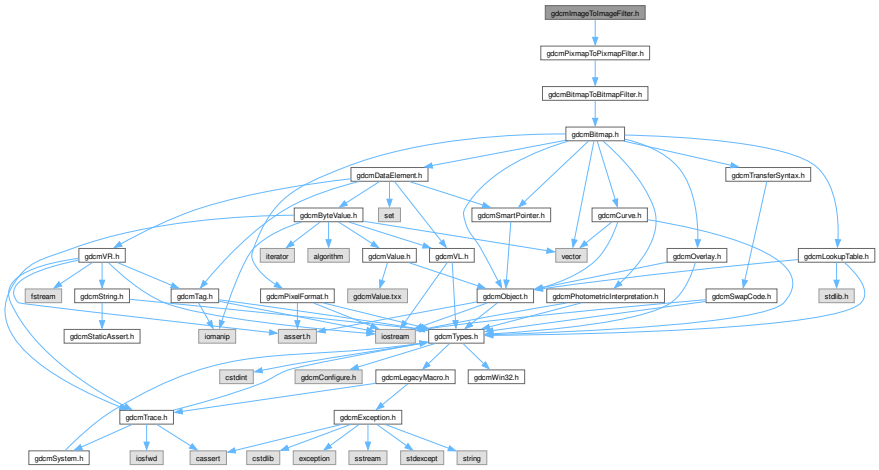
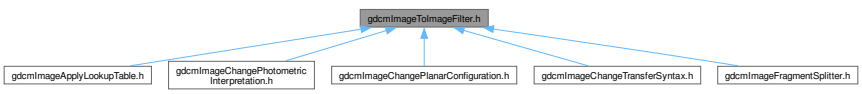

```
00037   ImageRegionReader();
00038   ~ImageRegionReader() override;
00039
00041   void SetRegion(Region const & region);
00042   Region const &GetRegion() const;
00043
00047   size_t ComputeBufferLength() const;
00048
00051   bool ReadInformation();
00052
00057   bool ReadIntoBuffer(char *inreadbuffer, size_t buflen);
00058
00059 protected:
00061   bool Read() override;
00062
00063 private:
00064   BoxRegion ComputeBoundingBox();
00065   bool ReadRAWIntoBuffer(char *buffer, size_t buflen);
00066   bool ReadRLEIntoBuffer(char *buffer, size_t buflen);
00067   bool ReadJPEG2000IntoBuffer(char *buffer, size_t buflen);
00068   bool ReadJPEGIntoBuffer(char *buffer, size_t buflen);
00069   bool ReadJPEGLSIntoBuffer(char *buffer, size_t buflen);
00070   ImageRegionReaderInternals *Internals;
00071 };
00072
00073 } // end namespace gdcm
00074
00075 #endif //GDCMIMAGEEXTENTREADER_H
```

13.335 gdcmImageToImageFilter.h File Reference

`#include "gdcmPixmapToPixmapFilter.h"`
Include dependency graph for gdcmImageToImageFilter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::ImageToImageFilter

  ImageToImageFilter class.

Namespaces

- namespace gdcm

13.336 gdcmImageToImageFilter.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGETOIMAGEFILTER_H
00015 #define GDCMIMAGETOIMAGEFILTER_H
00016
00017 #include "gdcmPixmapToPixmapFilter.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class Image;
00027 class GDCM_EXPORT ImageToImageFilter : public PixmapToPixmapFilter
00028 {
00029 public:
00030   ImageToImageFilter();
00031   ~ImageToImageFilter() = default;
00032
00033   Image &GetInput();
00034
00035   // NOTE: covariant return-type to preserve backward compatible API
00037   const Image &GetOutput() const;
00038
00039 protected:
00040 };
00041
00042 } // end namespace gdcm
00043
00044 #endif //GDCMIMAGETOIMAGEFILTER_H
```
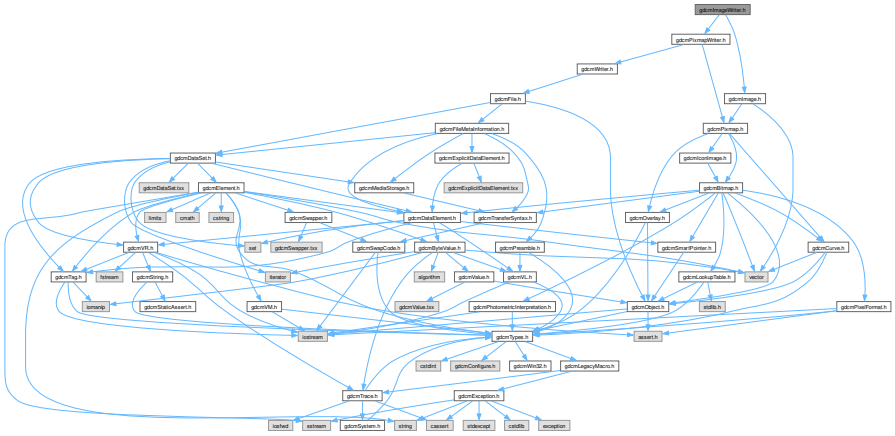

13.337 gdcmImageWriter.h File Reference

```
#include "gdcmPixmapWriter.h"
#include "gdcmImage.h"
```

Include dependency graph for gdcmImageWriter.h:



Classes

- class gdcm::ImageWriter

  ImageWriter.

Namespaces

- namespace gdcm

13.338 gdcmImageWriter.h

Go to the documentation of this file.

```
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGEWRITER_H
00015 #define GDCMIMAGEWRITER_H
00016
00017 #include "gdcmPixmapWriter.h"
00018 #include "gdcmImage.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class Image;
00032 class GDCM_EXPORT ImageWriter : public PixmapWriter
00033 {
00034 public:
00035   ImageWriter();
```
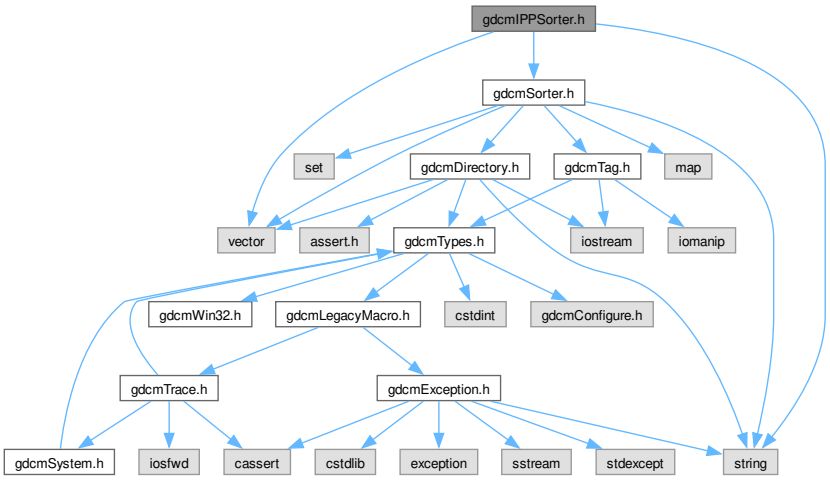

```
00036   ~ImageWriter() override;
00037
00041   const Image& GetImage() const override { return dynamic_cast<const Image&>(*PixelData); }
00042   Image& GetImage() override { return dynamic_cast<Image&>(*PixelData); } // FIXME
00043   //void SetImage(Image const &img);
00044
00046   bool Write() override; // Execute()
00047
00050   MediaStorage ComputeTargetMediaStorage();
00051 protected:
00052
00053 private:
00054 };
00055
00056 } // end namespace gdcm
00057
00058 #endif //GDCMIMAGEWRITER_H
```

13.339 gdcmIPPSorter.h File Reference

```
#include "gdcmSorter.h"
#include <vector>
#include <string>
```

Include dependency graph for gdcmIPPSorter.h:



Classes

- class gdcm::IPPSorter

  IPPSorter.

Namespaces

- namespace gdcm

13.340 gdcmIPPSorter.h

Go to the documentation of this file.

```
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIPPSORTER_H
00015 #define GDCMIPPSORTER_H
00016
00017 #include "gdcmSorter.h"
00018
00019 #include <vector>
00020 #include <string>
00021
00022 namespace gdcm
00023 {
00043 class GDCM_EXPORT IPPSorter : public Sorter
00044 {
00045 public:
00046   IPPSorter();
00047
00048   // FIXME: I do not like public virtual function...
00055   bool Sort(std::vector<std::string> const & filenames) override;
00056
00064   void SetComputeZSpacing(bool b) { ComputeZSpacing = b; }
00068   void SetZSpacingTolerance(double tol) { ZTolerance = tol; }
00069   double GetZSpacingTolerance() const { return ZTolerance; }
00070
00080   void SetDirectionCosinesTolerance(double tol) { DirCosTolerance = tol; }
00081   double GetDirectionCosinesTolerance() const { return DirCosTolerance; }
00082
00086   void SetDropDuplicatePositions(bool b) { DropDuplicatePositions = b; }
00087
00094   double GetZSpacing() const { return ZSpacing; }
00095
00096 protected:
00097   bool ComputeZSpacing;
00098   bool DropDuplicatePositions;
00099   double ZSpacing;
00100   double ZTolerance;
00101   double DirCosTolerance;
00102
00103 private:
00104   GDCM_LEGACY(bool ComputeSpacing(std::vector<std::string> const & filenames))
00105 };
00106
00107
00108 } // end namespace gdcm
00109
00110 #endif //GDCMIPPSORTER_H
```
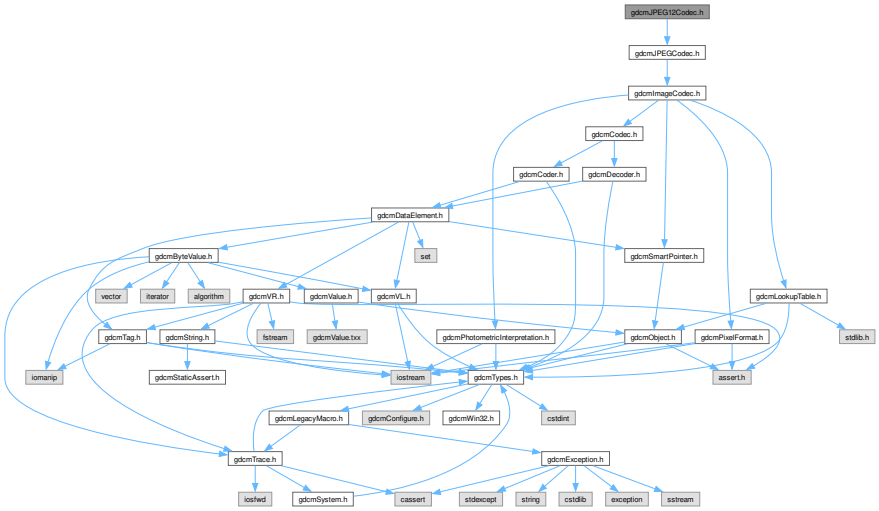

13.341 gdcmJPEG12Codec.h File Reference

`#include "gdcmJPEGCodec.h"`
Include dependency graph for gdcmJPEG12Codec.h:



Classes

- class gdcm::JPEG12Codec

  Class to do JPEG 12bits (lossy & lossless).

Namespaces

- namespace gdcm

13.342 gdcmJPEG12Codec.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMJPEG12CODEC_H
00015 #define GDCMJPEG12CODEC_H
00016
00017 #include "gdcmJPEGCodec.h"
```
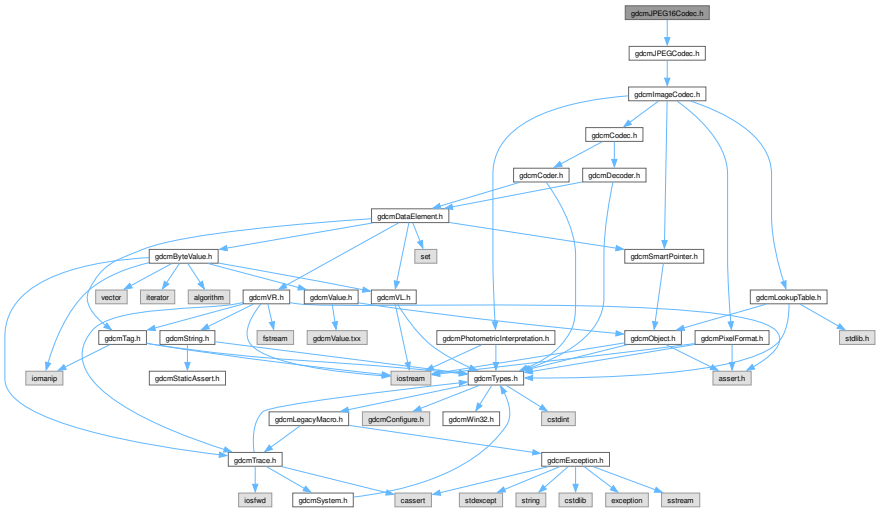

```
00018
00019 namespace gdcm
00020 {
00021
00022 class JPEGInternals_12BIT;
00023 class ByteValue;
00028 class JPEG12Codec : public JPEGCodec
00029 {
00030 public:
00031   JPEG12Codec();
00032   ~JPEG12Codec() override;
00033
00034   bool DecodeByStreams(std::istream &is, std::ostream &os) override;
00035   bool InternalCode(const char *input, unsigned long len, std::ostream &os) override;
00036
00037   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00038
00039 protected:
00040   bool IsStateSuspension() const override;
00041   bool EncodeBuffer(std::ostream &os, const char *data, size_t datalen) override;
00042
00043 private:
00044   JPEGInternals_12BIT *Internals;
00045 };
00046
00047 } // end namespace gdcm
00048
00049 #endif //GDCMJPEG12CODEC_H
```

13.343 gdcmJPEG16Codec.h File Reference

`#include "gdcmJPEGCodec.h"`

Include dependency graph for gdcmJPEG16Codec.h:



Classes

- class gdcm::JPEG16Codec

  Class to do JPEG 16bits (lossless).

Namespaces

- namespace gdcm

13.344 gdcmJPEG16Codec.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMJPEG16CODEC_H
00015 #define GDCMJPEG16CODEC_H
00016
00017 #include "gdcmJPEGCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class JPEGInternals_16BIT;
00023 class ByteValue;
00028 class JPEG16Codec : public JPEGCodec
00029 {
00030 public:
00031   JPEG16Codec();
00032   ~JPEG16Codec() override;
00033
00034   bool DecodeByStreams(std::istream &is, std::ostream &os) override;
00035   bool InternalCode(const char *input, unsigned long len, std::ostream &os) override;
00036
00037   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00038
00039 protected:
00040   bool IsStateSuspension() const override;
00041   bool EncodeBuffer(std::ostream &os, const char *data, size_t datalen) override;
00042
00043 private:
00044   JPEGInternals_16BIT *Internals;
00045 };
00046
00047 } // end namespace gdcm
00048
00049 #endif //GDCMJPEG16CODEC_H
```
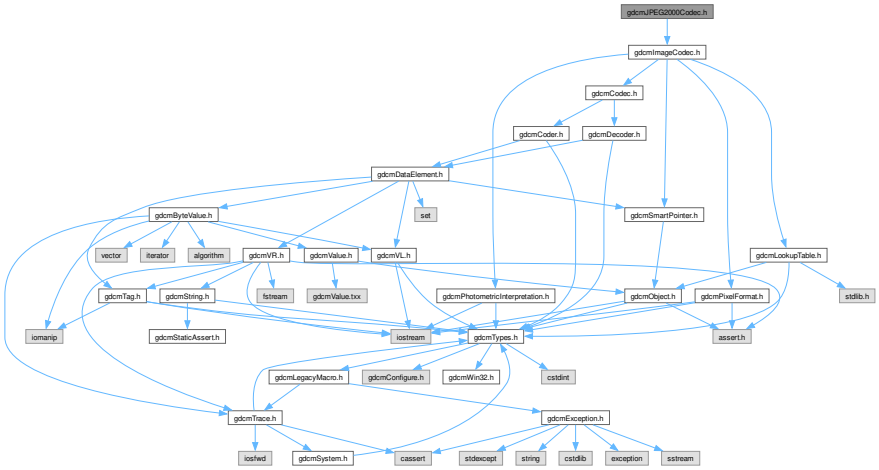

13.345 gdcmJPEG2000Codec.h File Reference

`#include "gdcmImageCodec.h"`
Include dependency graph for gdcmJPEG2000Codec.h:



Classes

- class gdcm::JPEG2000Codec

  Class to do JPEG 2000.

Namespaces

- namespace gdcm

13.346 gdcmJPEG2000Codec.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMJPEG2000CODEC_H
00015 #define GDCMJPEG2000CODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
```
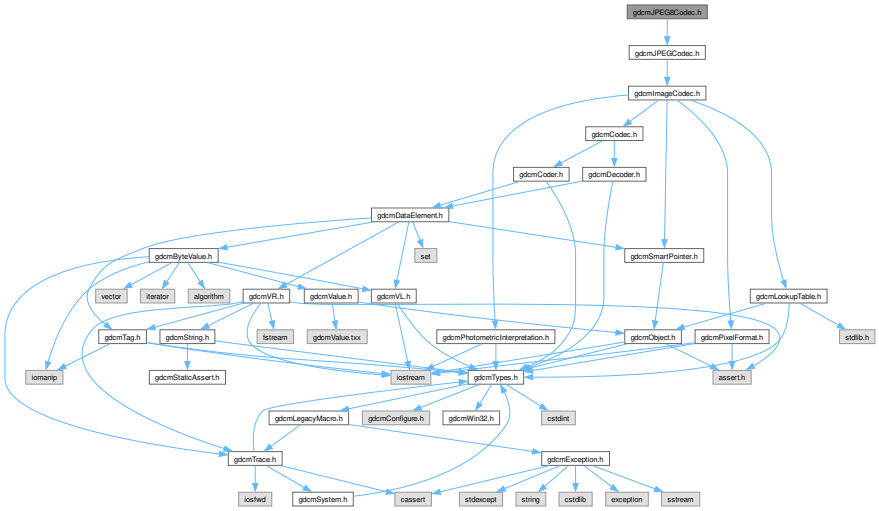

```
00020 {
00021
00022 class JPEG2000Internals;
00030 class GDCM_EXPORT JPEG2000Codec : public ImageCodec
00031 {
00032 friend class ImageRegionReader;
00033   friend class Bitmap;
00034 public:
00035   JPEG2000Codec();
00036   ~JPEG2000Codec() override;
00037
00038   bool CanDecode(TransferSyntax const &ts) const override;
00039   bool CanCode(TransferSyntax const &ts) const override;
00040
00041   bool Decode(DataElement const &is, DataElement &os) override;
00042   bool Code(DataElement const &in, DataElement &out) override;
00043
00044   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00045   ImageCodec * Clone() const override;
00046
00047   // JPEG-2000 / OpenJPEG specific way of encoding lossy-ness
00048   // ref: http://www.openjpeg.org/index.php?menu=doc#encoder
00049   void SetRate(unsigned int idx, double rate);
00050   double GetRate(unsigned int idx = 0) const;
00051
00052   void SetQuality(unsigned int idx, double q);
00053   double GetQuality(unsigned int idx = 0) const;
00054
00055   void SetTileSize(unsigned int tx, unsigned int ty);
00056
00057   void SetNumberOfResolutions(unsigned int nres);
00058
00061   void SetNumberOfThreadsForDecompression(int nThreads);
00062
00063   void SetReversible(bool res);
00064   void SetMCT(unsigned int mct);
00065
00066 protected:
00067   bool DecodeExtent(
00068     char *buffer,
00069     unsigned int xmin, unsigned int xmax,
00070     unsigned int ymin, unsigned int ymax,
00071     unsigned int zmin, unsigned int zmax,
00072     std::istream & is
00073   );
00074
00075   bool DecodeByStreams(std::istream &is, std::ostream &os) override;
00076
00077   bool StartEncode( std::ostream & ) override;
00078   bool IsRowEncoder() override;
00079   bool IsFrameEncoder() override;
00080   bool AppendRowEncode( std::ostream & out, const char * data, size_t datalen ) override;
00081   bool AppendFrameEncode( std::ostream & out, const char * data, size_t datalen ) override;
00082   bool StopEncode( std::ostream & ) override;
00083
00084 private:
00085   std::pair<char *, size_t> DecodeByStreamsCommon(char *dummy_buffer, size_t buf_size);
00086   bool CodeFrameIntoBuffer(char * outdata, size_t outlen, size_t & complen, const char * indata, size_t
      inlen );
00087   bool GetHeaderInfo(const char * dummy_buffer, size_t len, TransferSyntax &ts);
00088   JPEG2000Internals *Internals;
00089 };
00090
00091 } // end namespace gdcm
00092
00093 #endif //GDCMJPEG2000CODEC_H
```

13.347 gdcmJPEG8Codec.h File Reference

`#include "gdcmJPEGCodec.h"`
Include dependency graph for gdcmJPEG8Codec.h:



Classes

- class gdcm::JPEG8Codec

  Class to do JPEG 8bits (lossy & lossless).

Namespaces

- namespace gdcm

13.348 gdcmJPEG8Codec.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMJPEG8CODEC_H
00015 #define GDCMJPEG8CODEC_H
00016
00017 #include "gdcmJPEGCodec.h"
```
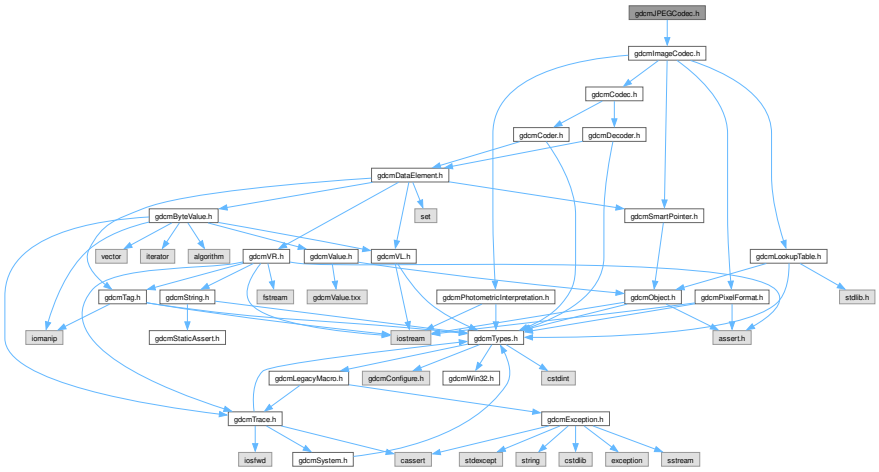

```
00018
00019 namespace gdcm
00020 {
00021
00022 class JPEGInternals_8BIT;
00023 class ByteValue;
00028 class JPEG8Codec : public JPEGCodec
00029 {
00030 public:
00031   JPEG8Codec();
00032   ~JPEG8Codec() override;
00033
00034   bool DecodeByStreams(std::istream &is, std::ostream &os) override;
00035   bool InternalCode(const char *input, unsigned long len, std::ostream &os) override;
00036
00037   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00038
00039 protected:
00040   bool IsStateSuspension() const override;
00041   bool EncodeBuffer(std::ostream &os, const char *data, size_t datalen) override;
00042
00043 private:
00044   JPEGInternals_8BIT *Internals;
00045 };
00046
00047 } // end namespace gdcm
00048
00049 #endif //GDCMJPEG8CODEC_H
```

13.349 gdcmJPEGCodec.h File Reference

`#include "gdcmImageCodec.h"`

Include dependency graph for gdcmJPEGCodec.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::JPEGCodec

  JPEG codec.

Namespaces

- namespace gdcm

13.350 gdcmJPEGCodec.h

Go to the documentation of this file.

```
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00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMJPEGCODEC_H
00015 #define GDCMJPEGCODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class PixelFormat;
00023 class TransferSyntax;
00040 class GDCM_EXPORT JPEGCodec : public ImageCodec
00041 {
00042 friend class ImageRegionReader;
00043 public:
00044   JPEGCodec();
00045   ~JPEGCodec() override;
00046   bool CanDecode(TransferSyntax const &ts) const override;
00047   bool CanCode(TransferSyntax const &ts) const override;
00048   bool Decode(DataElement const &is, DataElement &os) override;
00049   void SetPixelFormat(PixelFormat const &pf) override;
00050
```
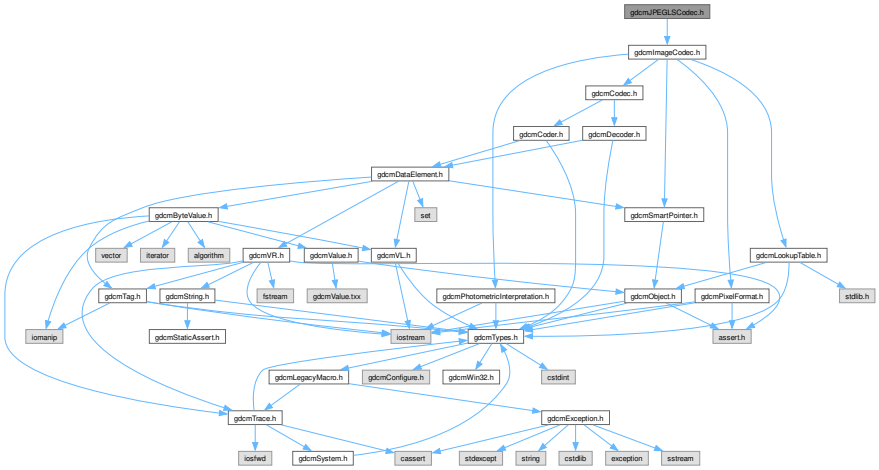

```
00052   void ComputeOffsetTable(bool b);
00053
00055   bool Code(DataElement const &in, DataElement &out) override;
00056
00057   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00058   ImageCodec * Clone() const override;
00059
00060   //void SetReversible(bool res);
00061
00062   void SetQuality(double q);
00063   double GetQuality() const;
00064
00065   void SetLossless(bool l);
00066   bool GetLossless() const;
00067
00068   virtual bool EncodeBuffer( std::ostream & out,
00069     const char *inbuffer, size_t inlen);
00070
00071 protected:
00072   bool DecodeExtent(
00073     char *buffer,
00074     unsigned int xmin, unsigned int xmax,
00075     unsigned int ymin, unsigned int ymax,
00076     unsigned int zmin, unsigned int zmax,
00077     std::istream & is
00078   );
00079
00080   bool DecodeByStreams(std::istream &is, std::ostream &os) override;
00081   bool IsValid(PhotometricInterpretation const &pi) override;
00082
00083   bool StartEncode( std::ostream & ) override;
00084   bool IsRowEncoder() override;
00085   bool IsFrameEncoder() override;
00086   bool AppendRowEncode( std::ostream & out, const char * data, size_t datalen ) override;
00087   bool AppendFrameEncode( std::ostream & out, const char * data, size_t datalen ) override;
00088   bool StopEncode( std::ostream & ) override;
00089
00090 protected:
00091   // Internal method called by SetPixelFormat
00092   // Instantiate the right jpeg codec (8, 12 or 16)
00093   void SetBitSample(int bit);
00094
00095   virtual bool IsStateSuspension() const;
00096
00097 protected:
00098   int BitSample;
00099   //bool Lossless;
00100   int Quality;
00101
00102 private:
00103   void SetupJPEGBitCodec(int bit);
00104   JPEGCodec *Internal;
00105 };
00106
00107 } // end namespace gdcm
00108
00109 #endif //GDCMJPEGCODEC_H
```

13.351 gdcmJPEGLSCodec.h File Reference

`#include "gdcmImageCodec.h"`
Include dependency graph for gdcmJPEGLSCodec.h:



Classes

- class gdcm::JPEGLSCodec

  JPEG-LS.

Namespaces

- namespace gdcm

13.352 gdcmJPEGLSCodec.h

Go to the documentation of this file.

```
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00012
00013 =========================================================================*/
00014 #ifndef GDCMJPEGLSCODEC_H
00015 #define GDCMJPEGLSCODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
```
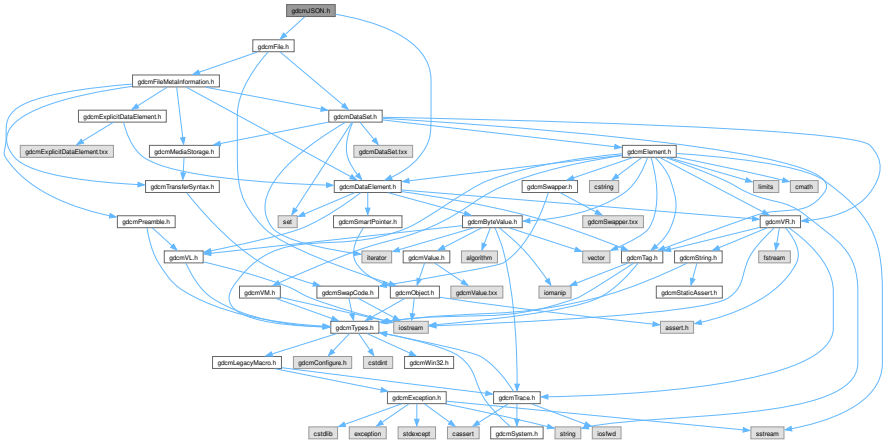

```
00020 {
00021
00022 class JPEGLSInternals;
00030 class GDCM_EXPORT JPEGLSCodec : public ImageCodec
00031 {
00032 friend class ImageRegionReader;
00033 public:
00034   JPEGLSCodec();
00035   ~JPEGLSCodec() override;
00036   bool CanDecode(TransferSyntax const &ts) const override;
00037   bool CanCode(TransferSyntax const &ts) const override;
00038
00039   unsigned long GetBufferLength() const { return BufferLength; }
00040   void SetBufferLength(unsigned long l) { BufferLength = l; }
00041
00042   bool Decode(DataElement const &is, DataElement &os) override;
00043   bool Decode(DataElement const &in, char* outBuffer, size_t inBufferLength,
00044               uint32_t inXMin, uint32_t inXMax, uint32_t inYMin,
00045               uint32_t inYMax, uint32_t inZMin, uint32_t inZMax);
00046   bool Code(DataElement const &in, DataElement &out) override;
00047
00048   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00049   ImageCodec * Clone() const override;
00050
00051   void SetLossless(bool l);
00052   bool GetLossless() const;
00053
00054 /*
00055  * test.acr can look pretty bad, even with a lossy error of 2. Explanation follows:
00056  * I agree that the test image looks ugly. In this particular case I can
00057  * explain though.
00058  *
00059  * The image is 8 bit, but it does not use the full 8 bit dynamic range. The
00060  * black pixels have value 234 and the white 255. If you set allowed lossy
00061  * error to 2, you allow an error of about 10% of the actual dynamic range.
00062  * That is of course very visible.
00063  */
00065   void SetLossyError(int error);
00066
00067 protected:
00068   bool DecodeExtent(
00069     char *buffer,
00070     unsigned int xmin, unsigned int xmax,
00071     unsigned int ymin, unsigned int ymax,
00072     unsigned int zmin, unsigned int zmax,
00073     std::istream & is
00074   );
00075
00076   bool StartEncode( std::ostream & ) override;
00077   bool IsRowEncoder() override;
00078   bool IsFrameEncoder() override;
00079   bool AppendRowEncode( std::ostream & out, const char * data, size_t datalen ) override;
00080   bool AppendFrameEncode( std::ostream & out, const char * data, size_t datalen ) override;
00081   bool StopEncode( std::ostream & ) override;
00082
00083 private:
00084   bool DecodeByStreamsCommon(const char *buffer, size_t totalLen, std::vector<unsigned char> &rgbyteOut);
00085   bool CodeFrameIntoBuffer(char * outdata, size_t outlen, size_t & complen, const char * indata, size_t
      inlen );
00086
00087   unsigned long BufferLength;
00088   int LossyError;
00089 };
00090
00091 } // end namespace gdcm
00092
00093 #endif //GDCMJPEGLSCODEC_H
```

13.353 gdcmJSON.h File Reference

```
#include "gdcmFile.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmJSON.h:



Classes

- class gdcm::JSON

Namespaces

- namespace gdcm

13.354 gdcmJSON.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMJSON_H
00015 #define GDCMJSON_H
00016
00017 /*
00018 See Sup 166 (QIDO-RS)
00019 http://www.dclunie.com/dicom-status/status.html#Supplement166
00020 */
00021
00022 #include "gdcmFile.h"
00023 #include "gdcmDataElement.h"
00024
00025 namespace gdcm
00026 {
00027
00028 class JSONInternal;
```
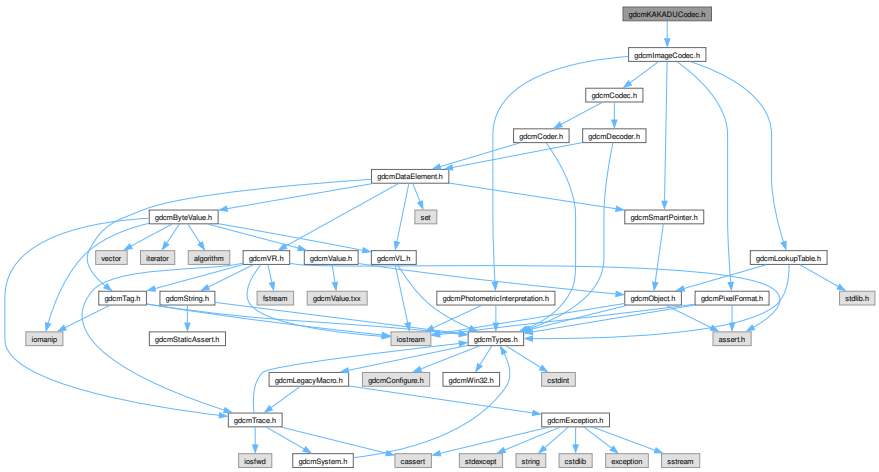

```
00029 class GDCM_EXPORT JSON
00030 {
00031 public:
00032   JSON();
00033   ~JSON();
00034
00035   bool GetPrettyPrint() const;
00036   void SetPrettyPrint(bool onoff);
00037   void PrettyPrintOn();
00038   void PrettyPrintOff();
00039
00040   bool Code(DataSet const & in, std::ostream & os);
00041   bool Decode(std::istream & is, DataSet & out);
00042
00043 private:
00044   JSONInternal *Internals;
00045 };
00046
00047 } // end namespace gdcm
00048
00049 #endif //GDCMXMLPRINTER_H
```

13.355 gdcmKAKADUCodec.h File Reference

`#include "gdcmImageCodec.h"`
Include dependency graph for gdcmKAKADUCodec.h:



Classes

- class gdcm::KAKADUCodec
  KAKADUCodec.

Namespaces

- namespace gdcm

13.356 gdcmKAKADUCodec.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMKAKADUCODEC_H
00015 #define GDCMKAKADUCODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00025 class KAKADUCodec : public ImageCodec
00026 {
00027 public:
00028   KAKADUCodec();
00029   ~KAKADUCodec() override;
00030   bool CanDecode(TransferSyntax const &ts) const override;
00031   bool CanCode(TransferSyntax const &ts) const override;
00032
00033   bool Decode(DataElement const &is, DataElement &os) override;
00034   bool Code(DataElement const &in, DataElement &out) override;
00035
00036   ImageCodec * Clone() const override;
00037 private:
00038 };
00039
00040 } // end namespace gdcm
00041
00042 #endif //GDCMKAKADUCODEC_H
```
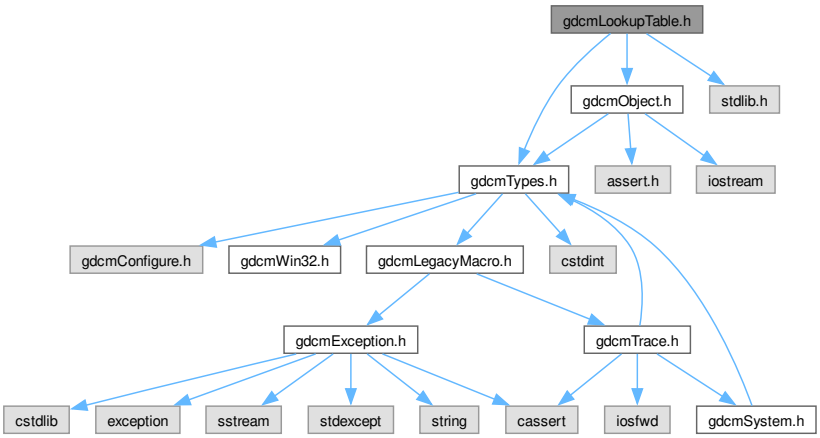
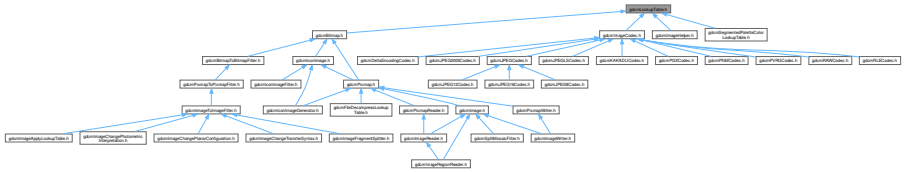

13.357 gdcmLookupTable.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmObject.h"
#include <stdlib.h>
```

Include dependency graph for gdcmLookupTable.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::LookupTable

  LookupTable class.

Namespaces

- namespace gdcm

13.358 gdcmLookupTable.h

Go to the documentation of this file.

```
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```

```
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00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMLOOKUPTABLE_H
00016 #define GDCMLOOKUPTABLE_H
00017
00018 #include "gdcmTypes.h"
00019 #include "gdcmObject.h"
00020 #include <stdlib.h>
00021
00022 namespace gdcm
00023 {
00024
00025 class LookupTableInternal;
00029 class GDCM_EXPORT LookupTable : public Object
00030 {
00031 public:
00032   typedef enum {
00033     RED = 0,  // Keep RED == 0
00034     GREEN,
00035     BLUE,
00036     GRAY,
00037     UNKNOWN
00038   } LookupTableType;
00039
00040   LookupTable();
00041   ~LookupTable() override;
00042   void Print(std::ostream &) const override;
00043
00045   void Allocate( unsigned short bitsample = 8 );
00047   //TODO: check to see if length should be unsigned short, unsigned int, or whatever
00048   void InitializeLUT(LookupTableType type, unsigned short length,
00049     unsigned short subscript, unsigned short bitsize);
00050   unsigned int GetLUTLength(LookupTableType type) const;
00051   virtual void SetLUT(LookupTableType type, const unsigned char *array,
00052     unsigned int length);
00053   void GetLUT(LookupTableType type, unsigned char *array, unsigned int &length) const;
00054   void GetLUTDescriptor(LookupTableType type, unsigned short &length,
00055     unsigned short &subscript, unsigned short &bitsize) const;
00056
00058   void InitializeRedLUT(unsigned short length, unsigned short subscript,
00059     unsigned short bitsize);
00060   void SetRedLUT(const unsigned char *red, unsigned int length);
00061   void InitializeGreenLUT(unsigned short length, unsigned short subscript,
00062     unsigned short bitsize);
00063   void SetGreenLUT(const unsigned char *green, unsigned int length);
00064   void InitializeBlueLUT(unsigned short length, unsigned short subscript,
00065     unsigned short bitsize);
00066   void SetBlueLUT(const unsigned char *blue, unsigned int length);
00067
00069   void Clear();
00070
00072   void Decode(std::istream &is, std::ostream &os) const;
00073
00077   bool Decode(char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const;
00078
00080   bool IsRGB8() const;
00081
00083   bool Decode8(char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const;
00084
00085   LookupTable(LookupTable const &lut):Object(lut)
00086     {
00087     assert(0);
00088     }
00089
00091   bool GetBufferAsRGBA(unsigned char *rgba) const;
00092
00094   const unsigned char *GetPointer() const;
00095
00097   bool WriteBufferAsRGBA(const unsigned char *rgba);
00098
00100   unsigned short GetBitSample() const { return BitSample; }
00101
00103   bool Initialized() const;
00104
00105 private:
```
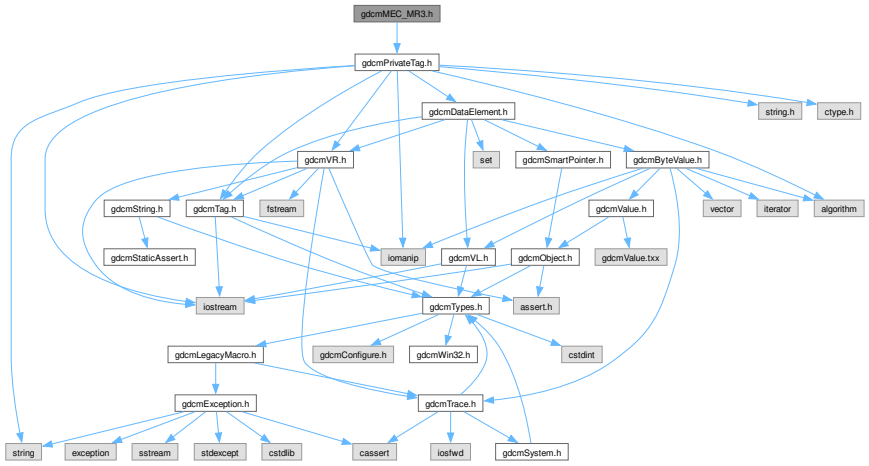

```
00107   void Encode(std::istream &is, std::ostream &os);
00108
00109 protected:
00110   LookupTableInternal *Internal;
00111   unsigned short BitSample; // refer to the pixel type (not the bit size of LUT)
00112   bool IncompleteLUT:1;
00113 };
00114
00115 } // end namespace gdcm
00116
00117 #endif //GDCMLOOKUPTABLE_H
```

13.359 gdcmMEC_MR3.h File Reference

`#include "gdcmPrivateTag.h"`
Include dependency graph for gdcmMEC_MR3.h:



Classes

- class gdcm::MEC_MR3

  Class for MEC_MR3.

Namespaces

- namespace gdcm

13.360 gdcmMEC_MR3.h

Go to the documentation of this file.

```
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00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMEC_MR3_H
00015 #define GDCMMEC_MR3_H
00016
00017 #include "gdcmPrivateTag.h"
00018
00019 namespace gdcm {
00024 class GDCM_EXPORT MEC_MR3 {
00025  public:
00026   static bool Print(const char *src, size_t srclen);
00027
00030   static const PrivateTag &GetPMTFInformationDataTag();
00031
00034   static const PrivateTag &GetCanonMECMR3Tag();
00035
00038   static const PrivateTag &GetToshibaMECMR3Tag();
00039 };
00040
00041 }  // end namespace gdcm
00042
00043 #endif  // GDCMMEC_MR3_H
```
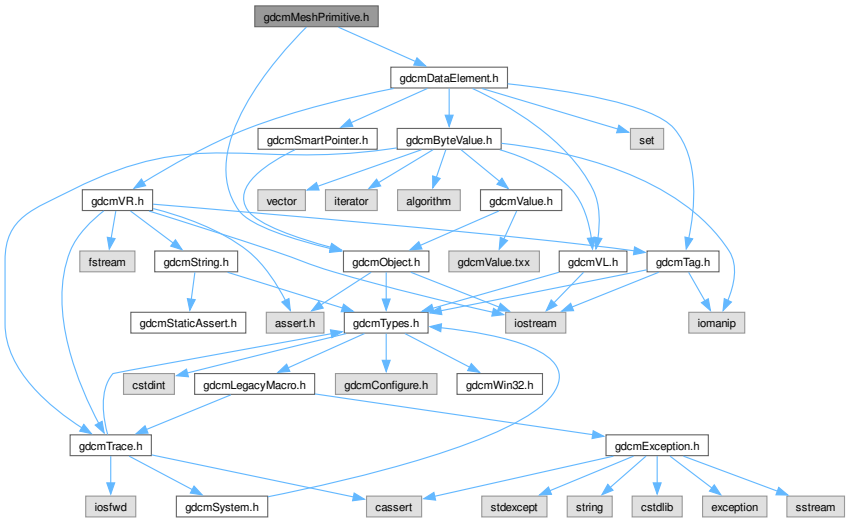
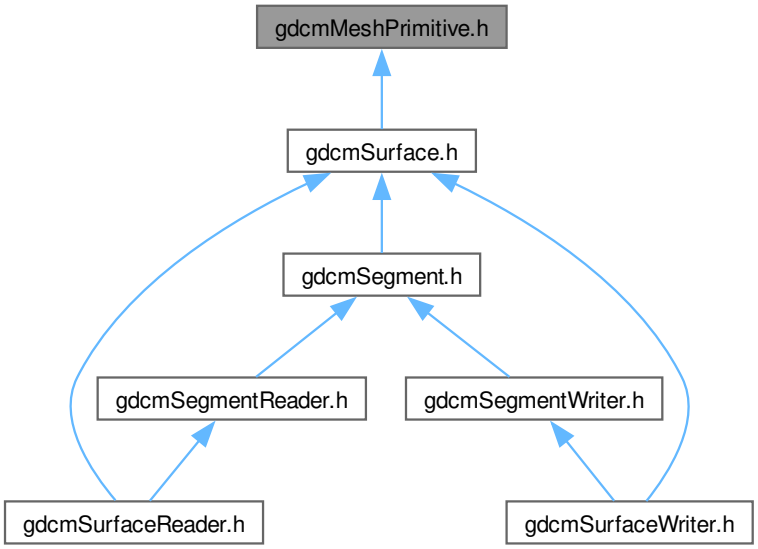

13.361 gdcmMeshPrimitive.h File Reference

```
#include <gdcmObject.h>
#include <gdcmDataElement.h>
```

Include dependency graph for gdcmMeshPrimitive.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::MeshPrimitive

  This class defines surface mesh primitives.

Namespaces

- namespace gdcm

13.362 gdcmMeshPrimitive.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMMESHPRIMITIVE_H
```
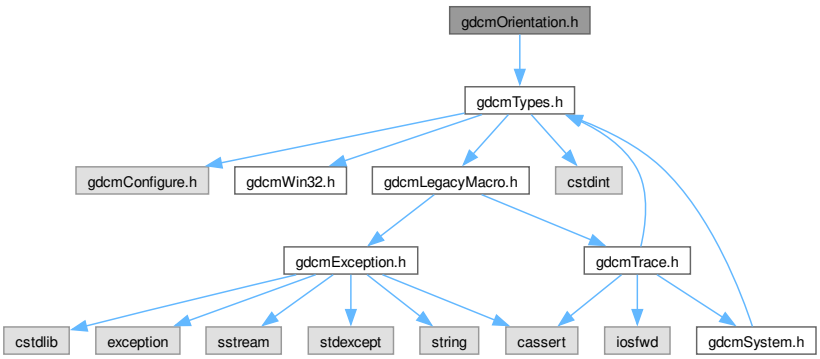

```
00016 #define GDCMMESHPRIMITIVE_H
00017
00018 #include <gdcmObject.h>
00019 #include <gdcmDataElement.h>
00020
00021 namespace gdcm
00022 {
00023
00030 class GDCM_EXPORT MeshPrimitive : public Object
00031 {
00032 public:
00033
00034   typedef std::vector< DataElement > PrimitivesData;
00035
00041     typedef enum {
00042         VERTEX = 0,
00043         EDGE,
00044         TRIANGLE,
00045         TRIANGLE_STRIP,
00046         TRIANGLE_FAN,
00047         LINE,
00048         FACET,
00049         MPType_END
00050         } MPType;
00051
00052     static const char * GetMPTypeString(const MPType type);
00053
00054     static MPType GetMPType(const char * type);
00055
00056     MeshPrimitive();
00057
00058     ~MeshPrimitive() override;
00059
00060     MPType GetPrimitiveType() const;
00061     void SetPrimitiveType(const MPType type);
00062
00063     const DataElement & GetPrimitiveData() const;
00064     DataElement & GetPrimitiveData();
00065     void SetPrimitiveData(DataElement const & de);
00066
00067     const PrimitivesData & GetPrimitivesData() const;
00068     PrimitivesData & GetPrimitivesData();
00069     void SetPrimitivesData(PrimitivesData const & DEs);
00070
00071     const DataElement & GetPrimitiveData(const unsigned int idx) const;
00072     DataElement & GetPrimitiveData(const unsigned int idx);
00073     void SetPrimitiveData(const unsigned int idx, DataElement const & de);
00074     void AddPrimitiveData(DataElement const & de);
00075
00076     unsigned int GetNumberOfPrimitivesData() const;
00077
00078 protected:
00079
00080     // Use to define tag where PrimitiveData will be put.
00081     MPType          PrimitiveType;
00082
00083     // PrimitiveData contains point index list.
00084     // It shall have 1 or 1-n DataElement following PrimitiveType.
00085     PrimitivesData  PrimitiveData;
00086 };
00087
00088 }
00089
00090 #endif // GDCMMESHPRIMITIVE_H
```

13.363 gdcmOrientation.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmOrientation.h:



Classes

- class gdcm::Orientation

  class to handle Orientation

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Orientation &o)

13.364 gdcmOrientation.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
```
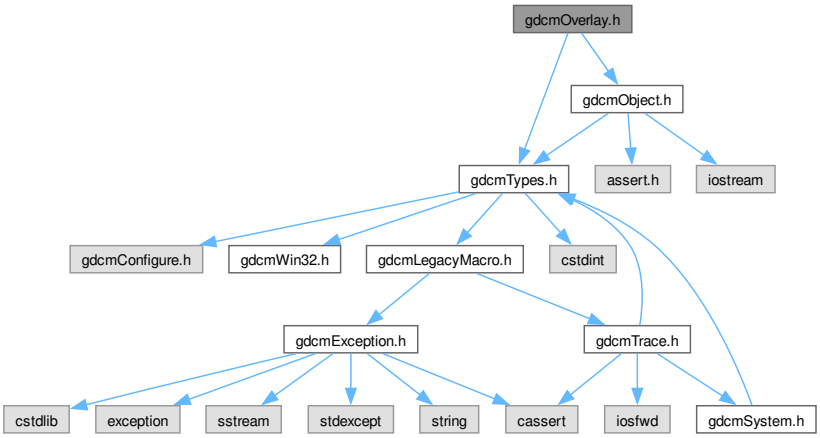

```
00014 #ifndef GDCMORIENTATION_H
00015 #define GDCMORIENTATION_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00025 class GDCM_EXPORT Orientation
00026 {
00027   friend std::ostream& operator<<(std::ostream &_os, const Orientation &o);
00028 public:
00029   Orientation();
00030   ~Orientation() = default;
00031
00033   void Print(std::ostream &) const;
00034
00035   typedef enum {
00036     UNKNOWN,
00037     AXIAL,
00038     CORONAL,
00039     SAGITTAL,
00040     OBLIQUE
00041   } OrientationType;
00042
00045   static OrientationType GetType(const double dircos[6]);
00046
00048   static void SetObliquityThresholdCosineValue(double val);
00049   static double GetObliquityThresholdCosineValue();
00050
00052   static const char *GetLabel(OrientationType type);
00053
00054 protected:
00055   static char GetMajorAxisFromPatientRelativeDirectionCosine(double x, double y, double z);
00056
00057 private:
00058   static double ObliquityThresholdCosineValue;
00059 };
00060 //-----------------------------------------------------------------------------
00061 inline std::ostream& operator<<(std::ostream &os, const Orientation &o)
00062 {
00063   o.Print( os );
00064   return os;
00065 }
00066
00067 } // end namespace gdcm
00068
00069 #endif //GDCMORIENTATION_H
```

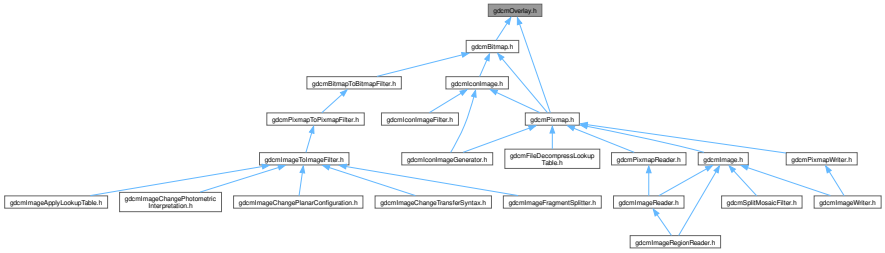
13.365 gdcmOverlay.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmObject.h"
```

Include dependency graph for gdcmOverlay.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Overlay

  Overlay class.

Namespaces

- namespace gdcm

13.366 gdcmOverlay.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
```

```
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMOVERLAY_H
00015 #define GDCMOVERLAY_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmObject.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class OverlayInternal;
00024 class ByteValue;
00025 class DataSet;
00026 class DataElement;
00038 class GDCM_EXPORT Overlay : public Object
00039 {
00040 public:
00041   Overlay();
00042   ~Overlay() override;
00044   void Print(std::ostream &) const override;
00045
00047   void Update(const DataElement & de);
00048
00050   void SetGroup(unsigned short group);
00052   unsigned short GetGroup() const;
00054   void SetRows(unsigned short rows);
00056   unsigned short GetRows() const;
00058   void SetColumns(unsigned short columns);
00060   unsigned short GetColumns() const;
00062   void SetNumberOfFrames(unsigned int numberofframes);
00064   void SetDescription(const char* description);
00066   const char *GetDescription() const;
00067   typedef enum {
00068     Invalid  = 0,
00069     Graphics = 1,
00070     ROI      = 2
00071   } OverlayType;
00073   void SetType(const char* type);
00075   const char *GetType() const;
00076   OverlayType GetTypeAsEnum() const;
00077   static const char *GetOverlayTypeAsString(OverlayType ot);
00078   static OverlayType GetOverlayTypeFromString(const char *);
00080   void SetOrigin(const signed short origin[2]);
00082   const signed short * GetOrigin() const;
00084   void SetFrameOrigin(unsigned short frameorigin);
00086   void SetBitsAllocated(unsigned short bitsallocated);
00088   unsigned short GetBitsAllocated() const;
00090   void SetBitPosition(unsigned short bitposition);
00092   unsigned short GetBitPosition() const;
00093
00095   void SetOverlay(const char *array, size_t length);
00097   bool GrabOverlayFromPixelData(DataSet const &ds);
00098
00101   const ByteValue &GetOverlayData() const;
00102
00104   bool IsEmpty() const;
00105
00107   bool IsZero() const;
00108
00110   bool IsInPixelData() const;
00111
00113   void IsInPixelData(bool b);
00114
00116   void Decompress(std::ostream &os) const;
00117
00120   size_t GetUnpackBufferLength() const;
00121
00124   bool GetUnpackBuffer(char *buffer, size_t len) const;
00125
00126   Overlay(Overlay const &ov);
00127   Overlay &operator=(Overlay const &ov);
```
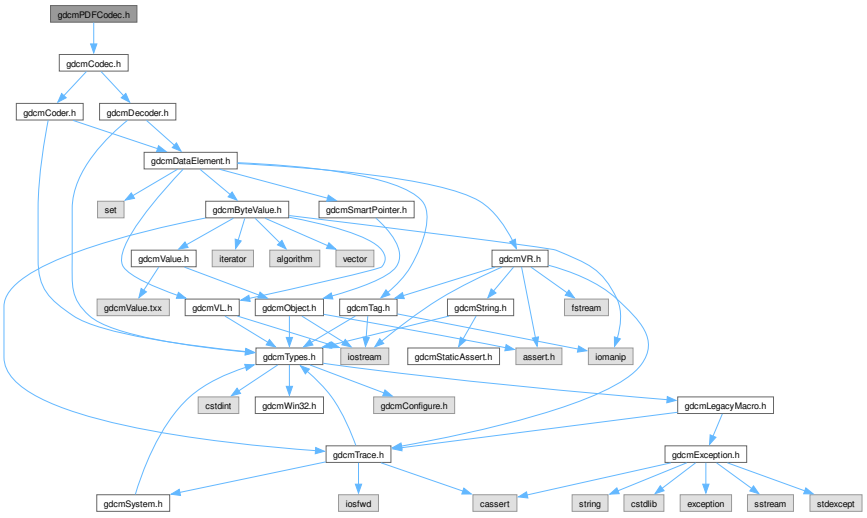

```
00128
00129 private:
00130   OverlayInternal *Internal;
00131 };
00132
00133 } // end namespace gdcm
00134
00135 #endif //GDCMOVERLAY_H
```

13.367 gdcmPDFCodec.h File Reference

`#include "gdcmCodec.h"`
Include dependency graph for gdcmPDFCodec.h:



Classes

- class gdcm::PDFCodec
  PDFCodec class.

Namespaces

- namespace gdcm

13.368 gdcmPDFCodec.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
```

```
00004
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPDFCODEC_H
00015 #define GDCMPDFCODEC_H
00016
00017 #include "gdcmCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00025 class GDCM_EXPORT PDFCodec : public Codec
00026 {
00027 public:
00028   PDFCodec();
00029   ~PDFCodec() override;
00030   bool CanCode(TransferSyntax const &) const override { return false; }
00031   bool CanDecode(TransferSyntax const &) const override { return false; }
00032   bool Decode(DataElement const &is, DataElement &os) override;
00033 };
00034
00035 } // end namespace gdcm
00036
00037 #endif //GDCMPDFCODEC_H
```
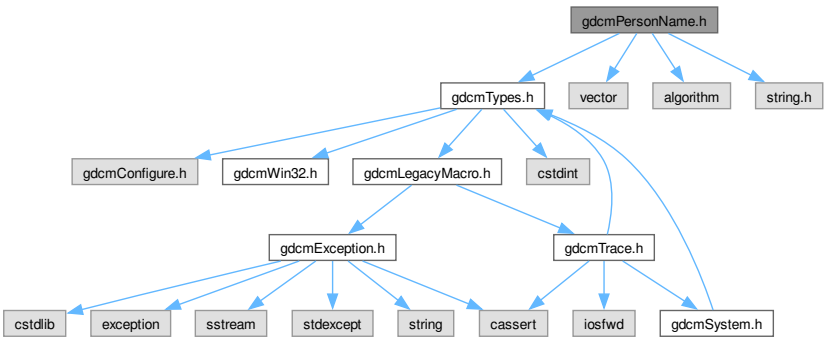

13.369 gdcmPersonName.h File Reference

```
#include "gdcmTypes.h"
#include <vector>
#include <algorithm>
#include <string.h>
```

Include dependency graph for gdcmPersonName.h:



Classes

- class gdcm::PersonName

  PersonName class.

Namespaces

- namespace gdcm

13.370 gdcmPersonName.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMPERSONNAME_H
00016 #define GDCMPERSONNAME_H
00017
00018 #include "gdcmTypes.h"
00019 #include <vector>
00020 #include <algorithm> // std::min
00021 #include <string.h> // strlen
00022
00023 namespace gdcm
00024 {
00025
00029 class GDCM_EXPORT PersonName
00030 {
00031 public:
00032   static const unsigned int MaxNumberOfComponents = 5;
00033   static const unsigned int MaxLength = 64;
00034   char Component[MaxNumberOfComponents][MaxLength+1];
00035   static const char Separator = '^';
00036   static const char Padding   = ' ';
00037
00038   unsigned int GetNumberOfComponents() const {
00039     unsigned int r = 0;
00040     for(unsigned int i = 0; i < 5; ++i) {
00041       if( *Component[i] != '\0' ) r = i;
00042       }
00043     return r+1;
00044   }
00045   unsigned int GetMaxLength() const { return MaxLength; }
00046   void SetBlob(const std::vector<char>& v) {
00047   (void)v;
00048     //assert(0); //TODO
00049   }
00050   void SetComponents(const char *comp1 = "",
00051     const char *comp2 = "",
00052     const char *comp3 = "",
00053     const char *comp4 = "",
00054     const char *comp5 = "") {
00055     const char *components[5] = { comp1, comp2, comp3, comp4, comp5 };
00056     SetComponents( components );
00057   }
00058   void SetComponents(const char *components[]) {
00059     if( components )
00060       for(unsigned int i = 0; i < 5; ++i) {
00061         if( components[i] && strlen(components[i]) < GetMaxLength() )
00062           strcpy(Component[i], components[i]);
00063         assert( strlen(Component[i]) < GetMaxLength() );
00064       }
00065   }
00066   void Print(std::ostream &os) const
00067   {
00068     //os « "Family Name Complex: " « Component[0] « std::endl;
00069     //os « "Given  Name Complex: " « Component[1] « std::endl;
```
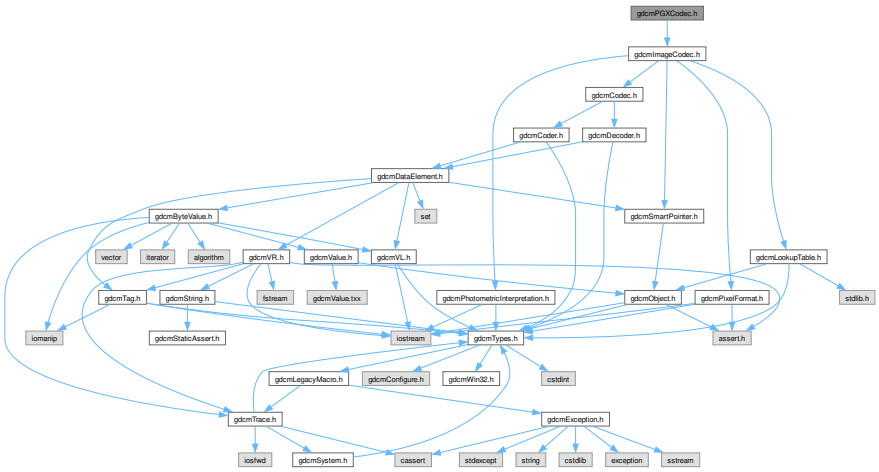

```
00070     //os « "Middle Name        : " « Component[2] « std::endl;
00071     //os « "Name Suffix        : " « Component[3] « std::endl;
00072     //os « "Name Prefix        : " « Component[4] « std::endl;
00073     os « Component[0] « '^';
00074     os « Component[1] « '^';
00075     os « Component[2] « '^';
00076     os « Component[3] « '^';
00077     os « Component[4];
00078   }
00079 };
00080
00081 } // end namespace gdcm
00082
00083 #endif //GDCMPERSONNAME_H
```

13.371 gdcmPGXCodec.h File Reference

`#include "gdcmImageCodec.h"`
Include dependency graph for gdcmPGXCodec.h:



Classes

- class gdcm::PGXCodec

  Class to do PGX.

Namespaces

- namespace gdcm

13.372 gdcmPGXCodec.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPGXCODEC_H
00015 #define GDCMPGXCODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00026 class GDCM_EXPORT PGXCodec : public ImageCodec
00027 {
00028 public:
00029   PGXCodec();
00030   ~PGXCodec() override;
00031   bool CanDecode(TransferSyntax const &ts) const override;
00032   bool CanCode(TransferSyntax const &ts) const override;
00033
00034   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00035   ImageCodec * Clone() const override;
00036
00037   bool Read(const char *filename, DataElement &out) const;
00038   bool Write(const char *filename, const DataElement &out) const;
00039 private:
00040 };
00041
00042 } // end namespace gdcm
00043
00044 #endif //GDCMPGXCODEC_H
```
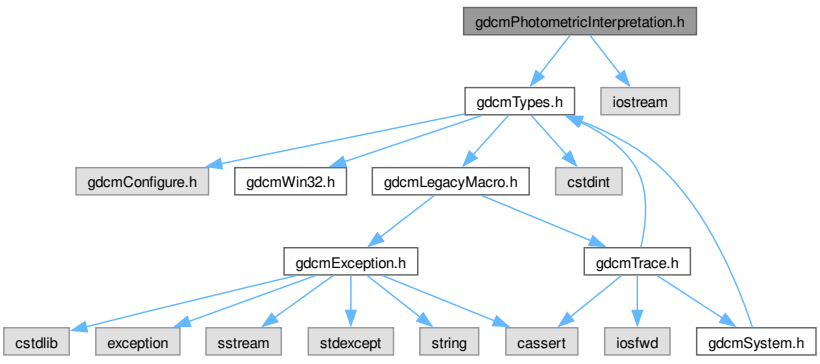

13.373 gdcmPhotometricInterpretation.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmPhotometricInterpretation.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::PhotometricInterpretation

  Class to represent an PhotometricInterpretation.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const PhotometricInterpretation &val)

13.374 gdcmPhotometricInterpretation.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMPHOTOMETRICINTERPRETATION_H
00016 #define GDCMPHOTOMETRICINTERPRETATION_H
00017
00018 #include "gdcmTypes.h"
00019 #include <iostream>
00020
00021 namespace gdcm
00022 {
00023
00024 class TransferSyntax;
00028 class GDCM_EXPORT PhotometricInterpretation
00029 {
00030 public:
00031   typedef enum {
00032     UNKNOWN = 0,
00033     MONOCHROME1,
00034     MONOCHROME2,
00035     PALETTE_COLOR,
00036     RGB,
```
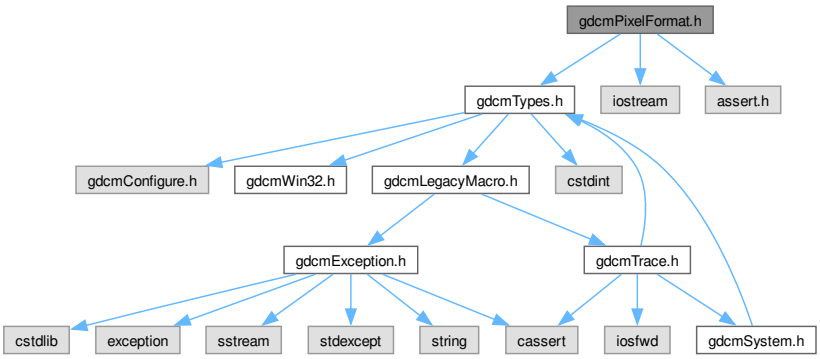

```
00037     HSV,
00038     ARGB, // retired
00039     CMYK,
00040     YBR_FULL,
00041     YBR_FULL_422,
00042     YBR_PARTIAL_422,
00043     YBR_PARTIAL_420,
00044     YBR_ICT,
00045     YBR_RCT,
00046     // PALETTE_COLOR ?
00047     //MONOCHROME = MONOCHROME1 | MONOCHROME2,
00048     //COLOR      = RGB | HSV | ARGB | CMYK | YBR_FULL | YBR_FULL_422 | YBR_PARTIAL_422 | YBR_PARTIAL_420 |
      YBR_ICT | YBR_RCT,
00049     PI_END  // Helpful for internal implementation
00050   } PIType; // PhotometricInterpretationType
00051
00052   PhotometricInterpretation(PIType pi = UNKNOWN):PIField(pi) {}
00053
00054   static const char *GetPIString(PIType pi);
00055
00056   const char *GetString() const;
00057
00058   // You need to make sure end of string is \0
00059   static PIType GetPIType(const char *pi);
00060
00061   static bool IsRetired(PIType pi);
00062
00063   bool IsLossy() const;
00064   bool IsLossless() const;
00065
00067   unsigned short GetSamplesPerPixel() const;
00068
00069   // TODO
00070   // not all PhotometricInterpretation are allowed for compressed Transfer
00071   // syntax
00072   // static bool IsAllowedForCompressedTS(PIType pi);
00073
00074   friend std::ostream& operator<<(std::ostream& os, const PhotometricInterpretation& pi);
00075
00076   operator PIType () const { return PIField; }
00077
00078   PIType GetType () const { return PIField; }
00079
00080   // Will return whether current PhotometricInterpretation is the same Color Space as input:
00081   // eg. RGB and YBR_RCT are
00082   bool IsSameColorSpace( PhotometricInterpretation const &pi ) const;
00083
00084   //static PIType GetEquivalent(TransferSyntax const &ts);
00085
00086 private:
00087   PIType PIField;
00088 };
00089 //-----------------------------------------------------------------------------
00090 inline std::ostream& operator<<(std::ostream& os, const PhotometricInterpretation &val)
00091 {
00092   const char *s = PhotometricInterpretation::GetPIString(val.PIField);
00093   os << (s ? s : "");
00094   return os;
00095 }
00096
00097
00098 } // end namespace gdcm
00099
00100 #endif //GDCMPHOTOMETRICINTERPRETATION_H
```

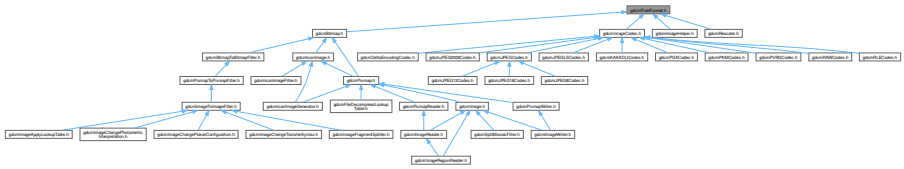
13.375 gdcmPixelFormat.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
#include <assert.h>
```

Include dependency graph for gdcmPixelFormat.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::PixelFormat

  PixelFormat.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const PixelFormat &pf)

13.376 gdcmPixelFormat.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMPIXELFORMAT_H
00016 #define GDCMPIXELFORMAT_H
00017
00018 #include "gdcmTypes.h"
00019 #include <iostream>
00020 #include <assert.h>
00021
00022 namespace gdcm
00023 {
00024
00025 class TransferSyntax;
00026
00045 class GDCM_EXPORT PixelFormat
00046 {
00047   friend class Bitmap;
00048   friend std::ostream& operator<<(std::ostream &_os, const PixelFormat &pf);
00049 public:
00050   // When adding a type please add its dual type (its unsigned counterpart)
00051   typedef enum {
00052     UINT8,
00053     INT8,
00054     UINT12,
00055     INT12,
00056     UINT16,
00057     INT16,
00058     UINT32,  // For some DICOM files (RT or SC)
00059     INT32,   //                          "   "
00060     UINT64,  // Needed when input is 32bits + intercept/slope (incomplete support)
00061     INT64,   //                          "   "
00062     FLOAT16, // sure why not...
00063     FLOAT32, // good ol' 'float'
00064     FLOAT64, // aka 'double'
00065     SINGLEBIT, // bool / monochrome
00066     UNKNOWN // aka BitsAllocated == 0 && PixelRepresentation == 0
00067   } ScalarType;
00068
00069   // default cstor:
00070   PixelFormat () : PixelFormat(1, 8, 8, 7, 0) {}
00071
00072   explicit PixelFormat (
00073     unsigned short samplesperpixel,
00074     unsigned short bitsallocated = 8,
00075     unsigned short bitsstored = 8,
00076     unsigned short highbit = 7,
00077     unsigned short pixelrepresentation = 0 ) :
00078   SamplesPerPixel(samplesperpixel),
00079   BitsAllocated(bitsallocated),
00080   BitsStored(bitsstored),
00081   HighBit(highbit),
00082   PixelRepresentation(pixelrepresentation) {}
00083   // helper, for the common case
00084   PixelFormat(ScalarType st);
00085
00086   // For transparency of use
00087   operator ScalarType() const { return GetScalarType(); }
00088
00091   unsigned short GetSamplesPerPixel() const;
00092   void SetSamplesPerPixel(unsigned short spp)
00093     {
00094     gdcmAssertMacro( spp <= 4 );
00095     SamplesPerPixel = spp;
```

```
00096     assert( SamplesPerPixel == 1 || SamplesPerPixel == 3 || SamplesPerPixel == 4 );
00097     }
00098
00100   unsigned short GetBitsAllocated() const
00101     {
00102     return BitsAllocated;
00103     }
00104   void SetBitsAllocated(unsigned short ba)
00105     {
00106     if( ba )
00107       {
00108       switch( ba )
00109         {
00110         /* some devices (FUJIFILM CR + MONO1) incorrectly set BitsAllocated/BitsStored
00111          * as bitmask instead of value. Do what they mean instead of what they say.
00112          */
00113         case 0xffff: ba = 16; break;
00114         case 0x0fff: ba = 12; break;
00115         case 0x00ff: ba =  8; break;
00116         }
00117       BitsAllocated = ba;
00118       BitsStored = ba;
00119       HighBit = (unsigned short)(ba - 1);
00120       }
00121     else // Make the PixelFormat as UNKNOWN
00122       {
00123       BitsAllocated = 0;
00124       PixelRepresentation = 0;
00125       }
00126     }
00127
00129   unsigned short GetBitsStored() const
00130     {
00131     assert( BitsStored <= BitsAllocated );
00132     return BitsStored;
00133     }
00134   void SetBitsStored(unsigned short bs)
00135     {
00136     switch( bs )
00137       {
00138       /* see SetBitsAllocated for explanation
00139        */
00140       case 0xffff: bs = 16; break;
00141       case 0x0fff: bs = 12; break;
00142       case 0x00ff: bs =  8; break;
00143       }
00144     if( bs <= BitsAllocated && bs )
00145       {
00146       BitsStored = bs;
00147       SetHighBit( (unsigned short) (bs - 1) );
00148       }
00149     }
00150
00152   unsigned short GetHighBit() const
00153     {
00154     assert( HighBit < BitsStored );
00155     return HighBit;
00156     }
00157   void SetHighBit(unsigned short hb)
00158     {
00159     switch( hb )
00160       {
00161       /* broken implementations that use bitmask for BitsAllocated/Stored
00162        * nonetheless use (BitsStored-1) for HighBit. correct for this here.
00163        */
00164       case 0xfffe: hb = 15; break;
00165       case 0x0ffe: hb = 11; break;
00166       case 0x00fe: hb =  7; break;
00167       }
00168     if( hb < BitsStored )
00169       HighBit = hb;
00170     }
00171
00173   unsigned short GetPixelRepresentation() const
00174     {
00175     return (unsigned short)(PixelRepresentation ? 1 : 0);
00176     }
00177   void SetPixelRepresentation(unsigned short pr)
00178     {
00179     PixelRepresentation = (unsigned short)(pr ? 1 : 0);
00180     }
```

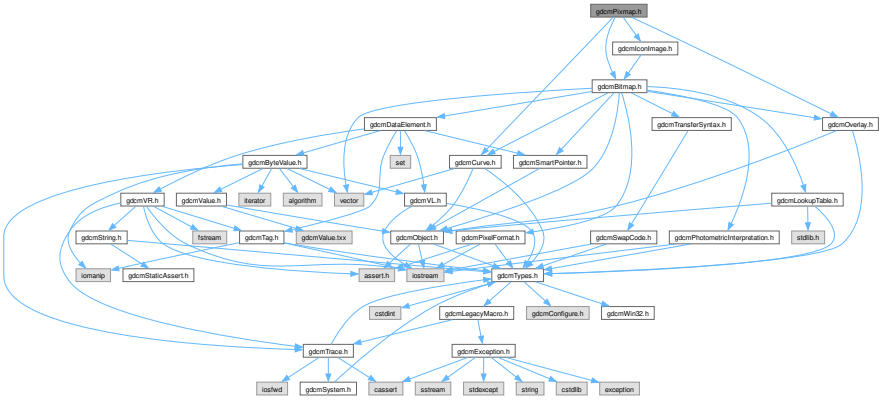
```
00181
00183   ScalarType GetScalarType() const;
00184
00187   void SetScalarType(ScalarType st);
00188   const char *GetScalarTypeAsString() const;
00189
00195   uint8_t GetPixelSize() const;
00196
00198   void Print(std::ostream &os) const;
00199
00201   int64_t GetMin() const;
00202
00204   int64_t GetMax() const;
00205
00207   bool IsValid() const;
00208
00209   bool operator==(ScalarType st) const
00210     {
00211     return GetScalarType() == st;
00212     }
00213   bool operator!=(ScalarType st) const
00214     {
00215     return GetScalarType() != st;
00216     }
00217   bool operator==(const PixelFormat &pf) const
00218     {
00219     return
00220       SamplesPerPixel     == pf.SamplesPerPixel &&
00221       BitsAllocated       == pf.BitsAllocated &&
00222       BitsStored          == pf.BitsStored &&
00223       HighBit             == pf.HighBit &&
00224       PixelRepresentation == pf.PixelRepresentation;
00225     }
00226   bool operator!=(const PixelFormat &pf) const
00227     {
00228     return
00229       SamplesPerPixel     != pf.SamplesPerPixel ||
00230       BitsAllocated       != pf.BitsAllocated ||
00231       BitsStored          != pf.BitsStored ||
00232       HighBit             != pf.HighBit ||
00233       PixelRepresentation != pf.PixelRepresentation;
00234     }
00235
00236   bool IsCompatible(const TransferSyntax & ts ) const;
00237 protected:
00239   bool Validate();
00240
00241 private:
00242   // D 0028|0002 [US] [Samples per Pixel] [1]
00243   unsigned short SamplesPerPixel;
00244   // D 0028|0100 [US] [Bits Allocated] [8]
00245   unsigned short BitsAllocated;
00246   // D 0028|0101 [US] [Bits Stored] [8]
00247   unsigned short BitsStored;
00248   // D 0028|0102 [US] [High Bit] [7]
00249   unsigned short HighBit;
00250   // D 0028|0103 [US] [Pixel Representation] [0]
00251   unsigned short PixelRepresentation;
00252 };
00253 //-----------------------------------------------------------------------------
00254 inline std::ostream& operator«(std::ostream &os, const PixelFormat &pf)
00255 {
00256   pf.Print( os );
00257   return os;
00258 }
00259
00260 } // end namespace gdcm
00261
00262 #endif //GDCMPIXELFORMAT_H
```

13.377 gdcmPixmap.h File Reference

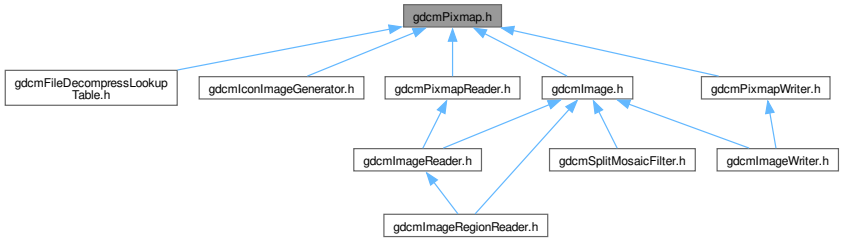
```
#include "gdcmBitmap.h"
#include "gdcmCurve.h"
```

```
#include "gdcmIconImage.h"
#include "gdcmOverlay.h"
```

Include dependency graph for gdcmPixmap.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Pixmap

  Pixmap class.

Namespaces

- namespace gdcm

13.378 gdcmPixmap.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
```

```
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPIXMAP_H
00015 #define GDCMPIXMAP_H
00016
00017 #include "gdcmBitmap.h"
00018 #include "gdcmCurve.h"
00019 #include "gdcmIconImage.h"
00020 #include "gdcmOverlay.h"
00021
00022 namespace gdcm
00023 {
00024
00032 class GDCM_EXPORT Pixmap : public Bitmap
00033 {
00034 public:
00035   Pixmap();
00036   ~Pixmap() override;
00037   void Print(std::ostream &) const override;
00038
00040   bool AreOverlaysInPixelData() const override;
00042   bool UnusedBitsPresentInPixelData() const override;
00043
00045   Curve& GetCurve(size_t i = 0) {
00046     assert( i < Curves.size() );
00047     return Curves[i];
00048   }
00049   const Curve& GetCurve(size_t i = 0) const {
00050     assert( i < Curves.size() );
00051     return Curves[i];
00052   }
00053   size_t GetNumberOfCurves() const { return Curves.size(); }
00054   void SetNumberOfCurves(size_t n) { Curves.resize(n); }
00055
00057   Overlay& GetOverlay(size_t i = 0) {
00058     assert( i < Overlays.size() );
00059     return Overlays[i];
00060   }
00061   const Overlay& GetOverlay(size_t i = 0) const {
00062     assert( i < Overlays.size() );
00063     return Overlays[i];
00064   }
00065   size_t GetNumberOfOverlays() const { return Overlays.size(); }
00066   void SetNumberOfOverlays(size_t n) { Overlays.resize(n); }
00067   void RemoveOverlay(size_t i) {
00068     assert( i < Overlays.size() );
00069     Overlays.erase( Overlays.begin() + i );
00070   }
00071
00073   const IconImage &GetIconImage() const { return *Icon; }
00074   IconImage &GetIconImage() { return *Icon; }
00075   void SetIconImage(IconImage const &ii) { Icon = ii; }
00076
00077 //private:
00078 protected:
00079   std::vector<Overlay>  Overlays;
00080   std::vector<Curve>  Curves;
00081   SmartPointer<IconImage> Icon;
00082 };
00083
00084 } // end namespace gdcm
00085
00086 #endif //GDCMPIXMAP_H
```
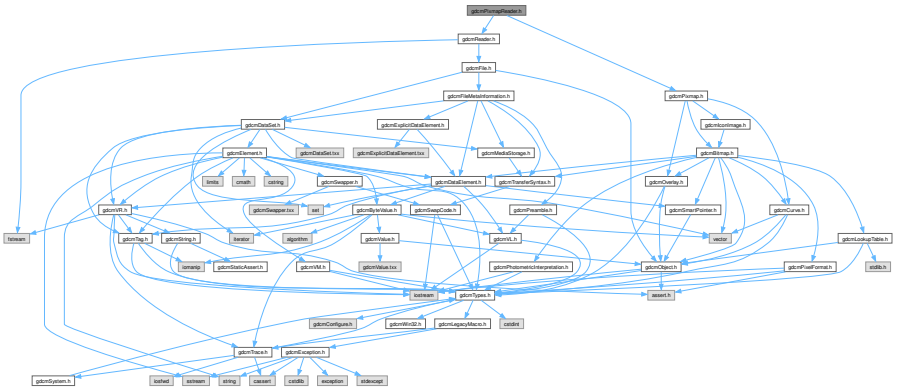
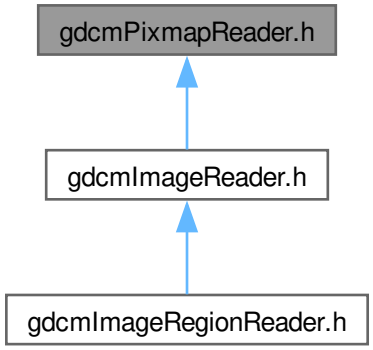

13.379 gdcmPixmapReader.h File Reference

```
#include "gdcmReader.h"
#include "gdcmPixmap.h"
```

Include dependency graph for gdcmPixmapReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::PixmapReader
  PixmapReader.

Namespaces

- namespace gdcm

13.380 gdcmPixmapReader.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00006   All rights reserved.
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPIXMAPREADER_H
00015 #define GDCMPIXMAPREADER_H
00016
00017 #include "gdcmReader.h"
00018 #include "gdcmPixmap.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class ByteValue;
00024 class MediaStorage;
00039 class GDCM_EXPORT PixmapReader : public Reader
00040 {
00041 public:
00042   PixmapReader();
00043   ~PixmapReader() override; //needs to be virtual to ensure lack of memory leaks
00044
00048
00049   bool Read() override;
00050
00051   // Following methods are valid only after a call to 'Read'
00052
00054   const Pixmap& GetPixmap() const;
00055   Pixmap& GetPixmap();
00056   //void SetPixamp(Pixmap const &pix);
00057
00058 protected:
00059   bool ReadImageInternal(MediaStorage const &ms, bool handlepixeldata = true);
00060   virtual bool ReadImage(MediaStorage const &ms);
00061   virtual bool ReadACRNEMAImage();
00062
00063   SmartPointer<Pixmap> PixelData;
00064 };
00065
00070
00071 } // end namespace gdcm
00072
00073 #endif //GDCMPIXMAPREADER_H
```
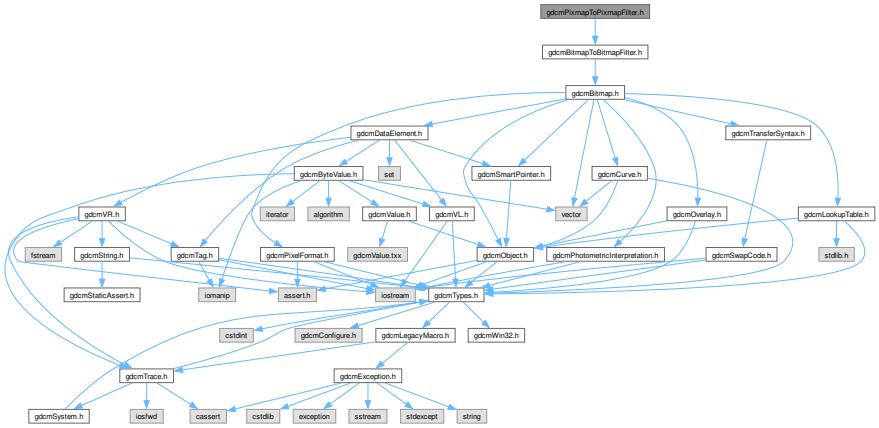
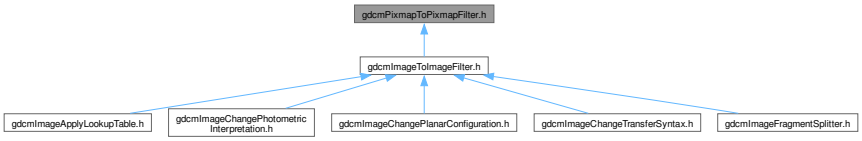

13.381 gdcmPixmapToPixmapFilter.h File Reference

`#include "gdcmBitmapToBitmapFilter.h"`
Include dependency graph for gdcmPixmapToPixmapFilter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::PixmapToPixmapFilter

  PixmapToPixmapFilter class.

Namespaces

- namespace gdcm

13.382 gdcmPixmapToPixmapFilter.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
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```

```
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPIXMAPTOPIXMAPFILTER_H
00015 #define GDCMPIXMAPTOPIXMAPFILTER_H
00016
00017 #include "gdcmBitmapToBitmapFilter.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class Pixmap;
00027 class GDCM_EXPORT PixmapToPixmapFilter : public BitmapToBitmapFilter
00028 {
00029 public:
00030   PixmapToPixmapFilter();
00031   ~PixmapToPixmapFilter() = default;
00032
00033   Pixmap &GetInput();
00034
00036   const Pixmap &GetOutput() const;
00037
00038   // SWIG/Java hack:
00039   const Pixmap &GetOutputAsPixmap() const;
00040 };
00041
00042 } // end namespace gdcm
00043
00044 #endif //GDCMPIXMAPTOPIXMAPFILTER_H
```
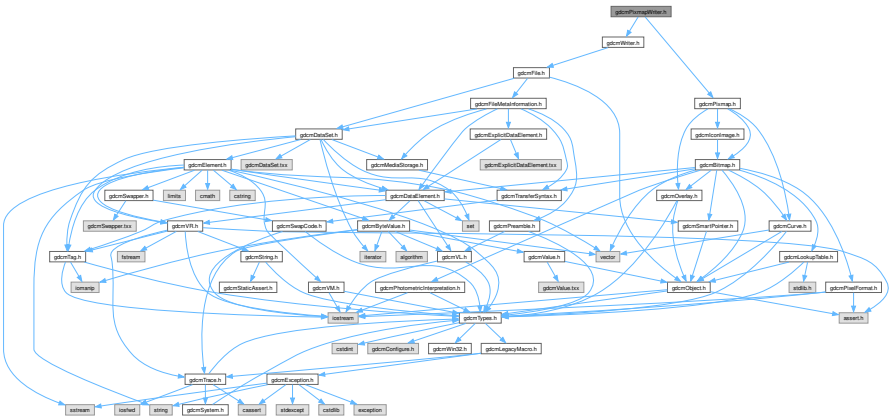
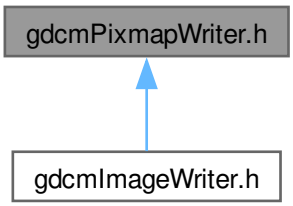

13.383 gdcmPixmapWriter.h File Reference

```
#include "gdcmWriter.h"
#include "gdcmPixmap.h"
```

Include dependency graph for gdcmPixmapWriter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::PixmapWriter

  PixmapWriter.

Namespaces

- namespace gdcm

13.384 gdcmPixmapWriter.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPIXMAPWRITER_H
00015 #define GDCMPIXMAPWRITER_H
00016
00017 #include "gdcmWriter.h"
00018 #include "gdcmPixmap.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class StreamImageWriter;
00024 class Pixmap;
00036 class GDCM_EXPORT PixmapWriter : public Writer
00037 {
00038 public:
00039   PixmapWriter();
00040   ~PixmapWriter() override;
00041
```
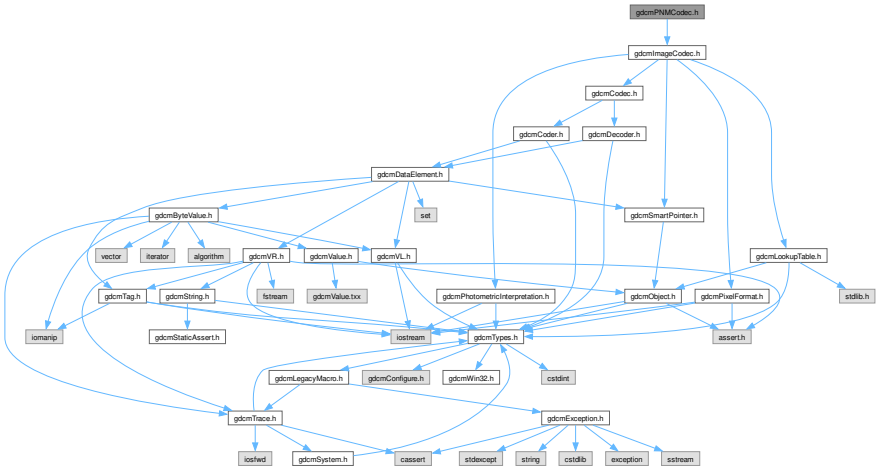

```
00042   const Pixmap& GetPixmap() const { return *PixelData; }
00043   Pixmap& GetPixmap() { return *PixelData; } // FIXME
00044   void SetPixmap(Pixmap const &img);
00045
00049   virtual const Pixmap& GetImage() const { return *PixelData; }
00050   virtual Pixmap& GetImage() { return *PixelData; } // FIXME
00051   virtual void SetImage(Pixmap const &img);
00052
00054   bool Write() override; // Execute()
00055
00056 protected:
00057   void DoIconImage(DataSet & ds, Pixmap const & image);
00058   bool PrepareWrite( MediaStorage const & refms );
00059
00060   SmartPointer<Pixmap> PixelData;
00061 };
00062
00067
00068 } // end namespace gdcm
00069
00070 #endif //GDCMPIXMAPWRITER_H
```

13.385 gdcmPNMCodec.h File Reference

`#include "gdcmImageCodec.h"`

Include dependency graph for gdcmPNMCodec.h:



Classes

- class gdcm::PNMCodec

  Class to do PNM.

Namespaces

- namespace gdcm

13.386 gdcmPNMCodec.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPNMCODEC_H
00015 #define GDCMPNMCODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00029 class GDCM_EXPORT PNMCodec : public ImageCodec
00030 {
00031 public:
00032   PNMCodec();
00033   ~PNMCodec() override;
00034   bool CanDecode(TransferSyntax const &ts) const override;
00035   bool CanCode(TransferSyntax const &ts) const override;
00036
00037   unsigned long GetBufferLength() const { return BufferLength; }
00038   void SetBufferLength(unsigned long l) { BufferLength = l; }
00039
00040   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00041   ImageCodec * Clone() const override;
00042
00043   bool Read(const char *filename, DataElement &out) const;
00044   bool Write(const char *filename, const DataElement &out) const;
00045   //bool Write(const char *filename);
00046 private:
00047   unsigned long BufferLength;
00048 };
00049
00050 } // end namespace gdcm
00051
00052 #endif //GDCMPNMCODEC_H
```
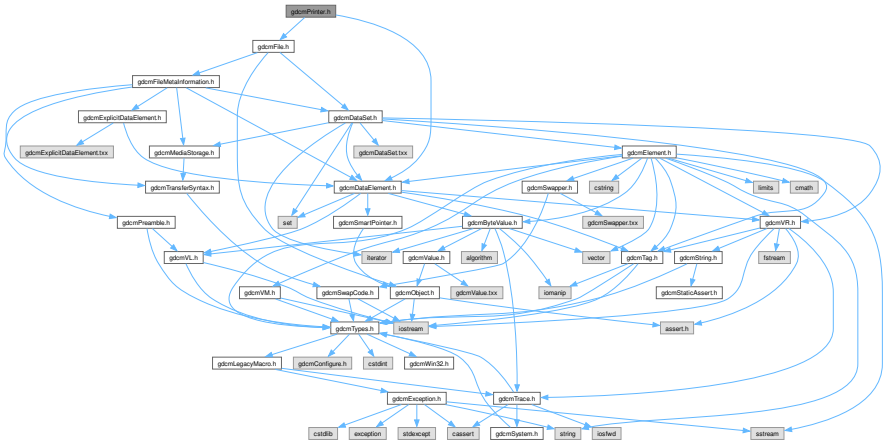
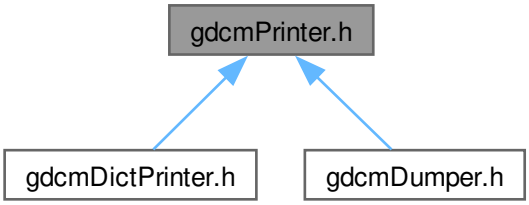

13.387 gdcmPrinter.h File Reference

```
#include "gdcmFile.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmPrinter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Printer

  Printer class.

Namespaces

- namespace gdcm

13.388 gdcmPrinter.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPRINTER_H
00015 #define GDCMPRINTER_H
00016
00017 // TODO Class to implement printing
00018 // Since DICOM does printing ?
00019 // Also I would like to encapsulate the IsCharacterPrintable thing
00020 // (to avoid printing \0 and other weird characters)
00021 // \todo I still need to implement skipping of group (shadow)
00022 // need to implement longer field to read
00023
00024 /*
00025  * Output:
00026  * For ASCII:
00027  * Typically will look like:
00028  * [ORIGINAL\PRIMARY\OTHER]
00029  * If a non printable character is found: RED and INVERSE is used:
00030  * [                .]
00031  *
00032  * when the VR is not found (file or dict), we check if we can print the output:
00033  * on success ASCII mode is used, on failure the output is printed a series of bytes
00034  *
00035  * Special case when the data element is empty:
00036  * INVERSE « (no value)
00037  *
00038  * retired public element are printed in red and underline
00039  * unknown private element are printed in RED followed by 'UNKNOWN'
00040  *
00041  * Correct VR is printed in green just after the found VR
00042  *
00043  * length of data element is printed in bytes, followed by the VM, a green VM is appended
00044  * if this is not compatible
00045  */
00046 #include "gdcmFile.h"
00047 #include "gdcmDataElement.h"
00048
00049 namespace gdcm
00050 {
00051
00052 class DataSet;
00053 class DictEntry;
00054 class Dicts;
00058 // It's a sink there is no output
00059 class GDCM_EXPORT Printer
00060 {
00061 public:
00062   Printer();
00063   ~Printer() = default;
00064
00066   void SetFile(File const &f) { F = &f; }
00067
00069   void SetColor(bool c);
00070
00071   typedef enum {
00072     VERBOSE_STYLE = 0, // GDCM Legacy VERBOSE one
00073     CONDENSED_STYLE, //
00074     // Ok I am missing voc here ...better naming would be nice
00075     XML, //
00076     CXX
00077   } PrintStyles;
00078
00080   void SetStyle(PrintStyles ps) {
00081     PrintStyle = ps;
```
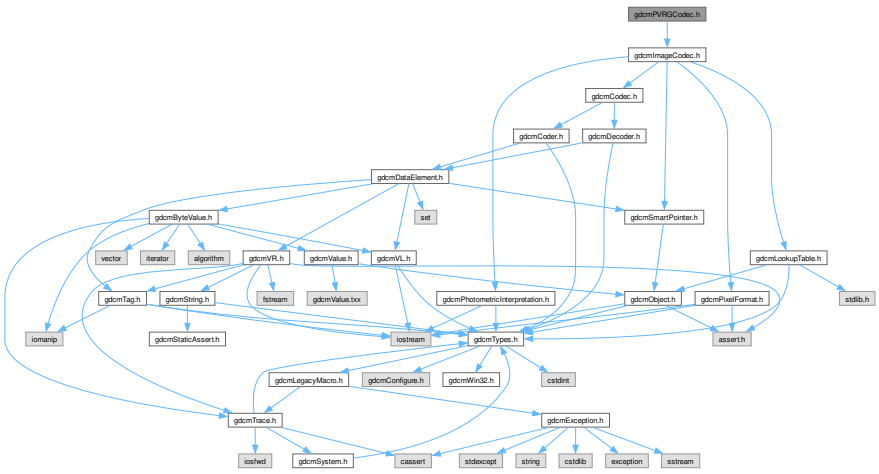

```
00082   }
00084   PrintStyles GetPrintStyle() const {
00085     return PrintStyle;
00086     }
00087
00089   void Print(std::ostream& os);
00090
00092   void PrintDataSet(const DataSet &ds, std::ostream& os, const std::string &s = "");
00093
00094 protected:
00095   VR PrintDataElement(std::ostringstream & os, const Dicts &dicts, const DataSet & ds, const DataElement
      &de, std::ostream &out, std::string const & indent );
00096 void PrintSQ(const SequenceOfItems *sqi, std::ostream & os, std::string const & indent);
00097
00098   PrintStyles PrintStyle;
00099   const File *F;
00100   VL MaxPrintLength;
00101 };
00102
00103 } // end namespace gdcm
00104
00105 #endif //GDCMPRINTER_H
```

13.389 gdcmPVRGCodec.h File Reference

`#include "gdcmImageCodec.h"`
Include dependency graph for gdcmPVRGCodec.h:



Classes

- class gdcm::PVRGCodec
  PVRGCodec.

Namespaces

- namespace gdcm

13.390 gdcmPVRGCodec.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPVRGCODEC_H
00015 #define GDCMPVRGCODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00034 class PVRGCodec : public ImageCodec
00035 {
00036 public:
00037   PVRGCodec();
00038   ~PVRGCodec() override;
00039   bool CanDecode(TransferSyntax const &ts) const override;
00040   bool CanCode(TransferSyntax const &ts) const override;
00041
00042   bool Decode(DataElement const &is, DataElement &os) override;
00043   bool Code(DataElement const &in, DataElement &out) override;
00044   void SetLossyFlag( bool l );
00045
00046   ImageCodec * Clone() const override;
00047 private:
00048 };
00049
00050 } // end namespace gdcm
00051
00052 #endif //GDCMPVRGCODEC_H
```
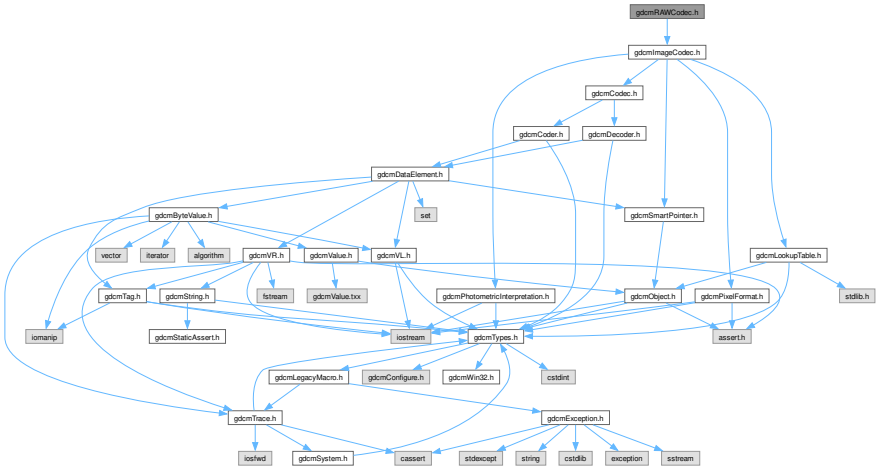

13.391 gdcmRAWCodec.h File Reference

`#include "gdcmImageCodec.h"`
Include dependency graph for gdcmRAWCodec.h:



Classes

- class gdcm::RAWCodec

  RAWCodec class.

Namespaces

- namespace gdcm

13.392 gdcmRAWCodec.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMRAWCODEC_H
00015 #define GDCMRAWCODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
```
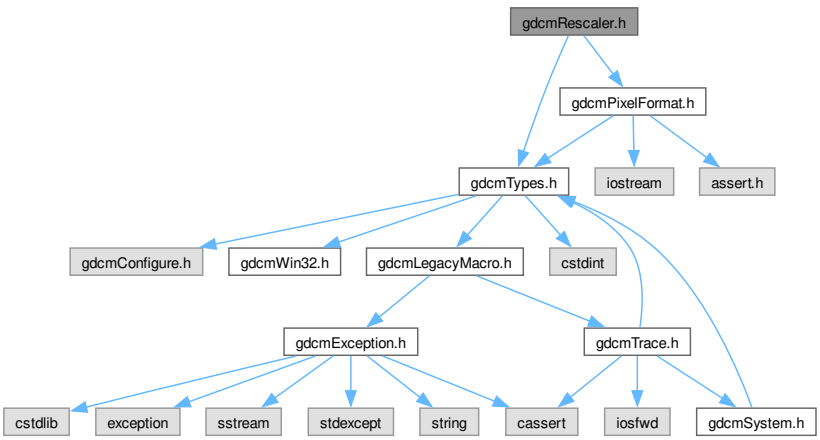

```
00020 {
00021
00022 class RAWInternals;
00026 class GDCM_EXPORT RAWCodec : public ImageCodec
00027 {
00028 public:
00029   RAWCodec();
00030   ~RAWCodec() override;
00031   bool CanCode(TransferSyntax const &ts) const override;
00032   bool CanDecode(TransferSyntax const &ts) const override;
00033   bool Decode(DataElement const &is, DataElement &os) override;
00034   bool Code(DataElement const &in, DataElement &out) override;
00035
00036   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00037   ImageCodec * Clone() const override;
00038
00041   bool DecodeBytes(const char* inBytes, size_t inBufferLength,
00042     char* outBytes, size_t inOutBufferLength);
00043
00044 protected:
00045   bool DecodeByStreams(std::istream &is, std::ostream &os) override;
00046
00047 private:
00048   RAWInternals *Internals;
00049 };
00050
00051 } // end namespace gdcm
00052
00053 #endif // GDCMRAWCODEC_H
```

13.393 gdcmRescaler.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmPixelFormat.h"
```

Include dependency graph for gdcmRescaler.h:



Classes

- class gdcm::Rescaler

  Rescale class.

Namespaces

- namespace gdcm

13.394 gdcmRescaler.h

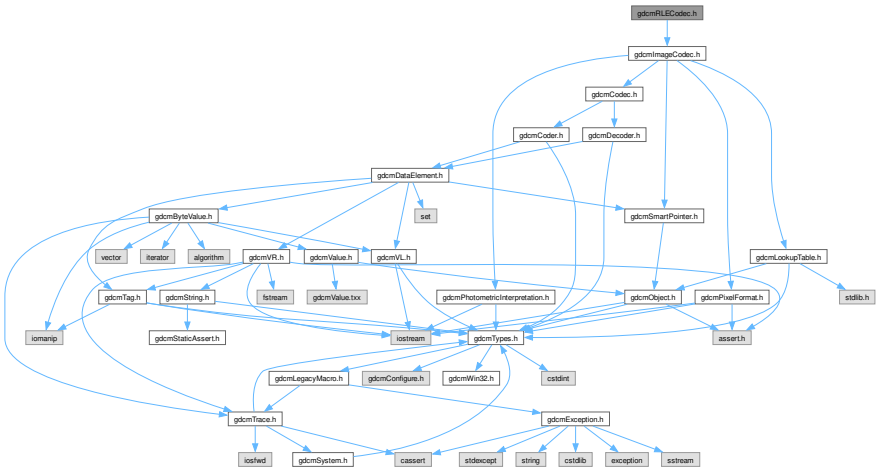
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMRESCALER_H
00015 #define GDCMRESCALER_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmPixelFormat.h"
00019
00020 namespace gdcm
00021 {
00022
00068 class GDCM_EXPORT Rescaler
00069 {
00070 public:
00071   Rescaler():Intercept(0),Slope(1),PF(PixelFormat::UNKNOWN),TargetScalarType(PixelFormat::UNKNOWN),
      ScalarRangeMin(0), ScalarRangeMax(0), UseTargetPixelType(false) {}
00072   ~Rescaler() = default;
00073
00075   bool Rescale(char *out, const char *in, size_t n);
00076
00078   bool InverseRescale(char *out, const char *in, size_t n);
00079
00081   void SetIntercept(double i) { Intercept = i; }
00082   double GetIntercept() const { return Intercept; }
00083
00085   void SetSlope(double s) { Slope = s; }
00086   double GetSlope() const { return Slope; }
00087
00092   void SetTargetPixelType( PixelFormat const & targetst );
00093
00095   void SetUseTargetPixelType(bool b);
00096
00098   void SetPixelFormat(PixelFormat const & pf) { PF = pf; }
00099
00102   PixelFormat::ScalarType ComputeInterceptSlopePixelType();
00103
00106   void SetMinMaxForPixelType(double min, double max);
00107
00110   PixelFormat ComputePixelTypeFromMinMax();
00111
00112 protected:
00113   template <typename TIn>
00114     void RescaleFunctionIntoBestFit(char *out, const TIn *in, size_t n);
00115   template <typename TIn>
00116     void InverseRescaleFunctionIntoBestFit(char *out, const TIn *in, size_t n);
00117
00118 private:
00119   double Intercept; // 0028,1052
00120   double Slope;     // 0028,1053
00121   PixelFormat PF;
00122   PixelFormat::ScalarType TargetScalarType;
00123   double ScalarRangeMin;
00124   double ScalarRangeMax;
00125   bool UseTargetPixelType;
00126 };
```

```
00127
00128 } // end namespace gdcm
00129
00130 #endif //GDCMRESCALER_H
```

13.395 gdcmRLECodec.h File Reference

`#include "gdcmImageCodec.h"`
Include dependency graph for gdcmRLECodec.h:



Classes

- class gdcm::RLECodec
  Class to do RLE.

Namespaces

- namespace gdcm

13.396 gdcmRLECodec.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
```

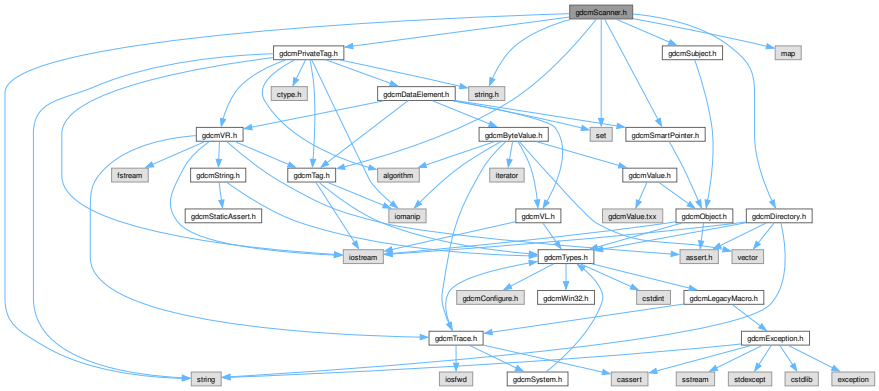
```
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMRLECODEC_H
00015 #define GDCMRLECODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class Fragment;
00023 class RLEInternals;
00036 class GDCM_EXPORT RLECodec : public ImageCodec
00037 {
00038 friend class ImageRegionReader;
00039 public:
00040   RLECodec();
00041   ~RLECodec() override;
00042   bool CanCode(TransferSyntax const &ts) const override;
00043   bool CanDecode(TransferSyntax const &ts) const override;
00044   bool Decode(DataElement const &is, DataElement &os) override;
00045   unsigned long GetBufferLength() const { return BufferLength; }
00046   void SetBufferLength(unsigned long l) { BufferLength = l; }
00047
00048   bool Code(DataElement const &in, DataElement &out) override;
00049   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00050   ImageCodec * Clone() const override;
00051
00052 protected:
00053   bool DecodeExtent(
00054     char *buffer,
00055     unsigned int XMin, unsigned int XMax,
00056     unsigned int YMin, unsigned int YMax,
00057     unsigned int ZMin, unsigned int ZMax,
00058     std::istream & is
00059   );
00060
00061   bool DecodeByStreams(std::istream &is, std::ostream &os) override;
00062 public:
00063
00064   void SetLength(unsigned long l)
00065     {
00066     Length = l;
00067     }
00068
00069 protected:
00070   bool StartEncode( std::ostream & ) override;
00071   bool IsRowEncoder() override;
00072   bool IsFrameEncoder() override;
00073   bool AppendRowEncode( std::ostream & out, const char * data, size_t datalen ) override;
00074   bool AppendFrameEncode( std::ostream & out, const char * data, size_t datalen ) override;
00075   bool StopEncode( std::ostream & ) override;
00076
00077 private:
00078   bool DecodeByStreamsCommon(std::istream &is, std::ostream &os);
00079   RLEInternals *Internals;
00080   unsigned long Length;
00081   unsigned long BufferLength;
00082   size_t DecodeFragment(Fragment const & frag, char *buffer, size_t llen);
00083 };
00084
00085 } // end namespace gdcm
00086
00087 #endif //GDCMRLECODEC_H
```

13.397 gdcmScanner.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmSubject.h"
#include "gdcmTag.h"
#include "gdcmPrivateTag.h"
#include "gdcmSmartPointer.h"
```

```
#include <map>
#include <set>
#include <string>
#include <string.h>
```

Include dependency graph for gdcmScanner.h:



Classes

- struct gdcm::Scanner::ltstr
- class gdcm::Scanner

  Scanner.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Scanner &s)

13.398 gdcmScanner.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
```

```
00014 #ifndef GDCMSCANNER_H
00015 #define GDCMSCANNER_H
00016
00017 #include "gdcmDirectory.h"
00018 #include "gdcmSubject.h"
00019 #include "gdcmTag.h"
00020 #include "gdcmPrivateTag.h"
00021 #include "gdcmSmartPointer.h"
00022
00023 #include <map>
00024 #include <set>
00025 #include <string>
00026
00027 #include <string.h> // strcmp
00028
00029 namespace gdcm
00030 {
00031 class StringFilter;
00032
00055 class GDCM_EXPORT Scanner : public Subject
00056 {
00057   friend std::ostream& operator<<(std::ostream &_os, const Scanner &s);
00058 public:
00059   Scanner():Values(),Filenames(),Mappings() {}
00060   ~Scanner() override;
00061
00068   typedef std::map<Tag, const char*> TagToValue;
00069   //typedef std::map<Tag, ConstCharWrapper> TagToValue; //StringMap;
00070   //typedef TagToStringMap TagToValue;
00071   typedef TagToValue::value_type TagToValueValueType;
00072
00074   void AddTag( Tag const & t );
00075   void ClearTags();
00076
00077   // Work in progress do not use:
00078   void AddPrivateTag( PrivateTag const & t );
00079
00081   void AddSkipTag( Tag const & t );
00082   void ClearSkipTags();
00083
00085   bool Scan( Directory::FilenamesType const & filenames );
00086
00087   Directory::FilenamesType const &GetFilenames() const { return Filenames; }
00088
00090   void Print( std::ostream & os ) const override;
00091
00092   void PrintTable( std::ostream & os ) const;
00093
00097   bool IsKey( const char * filename ) const;
00098
00101   Directory::FilenamesType GetKeys() const;
00102
00103   // struct to store all the values found:
00104   typedef std::set< std::string > ValuesType;
00105
00107   ValuesType const & GetValues() const { return Values; }
00108
00110   ValuesType GetValues(Tag const &t) const;
00111
00115   Directory::FilenamesType GetOrderedValues(Tag const &t) const;
00116
00117   /* ltstr is CRITICAL, otherwise pointers value are used to do the key comparison */
00118   struct ltstr
00119     {
00120     bool operator()(const char* s1, const char* s2) const
00121       {
00122       assert( s1 && s2 );
00123       return strcmp(s1, s2) < 0;
00124       }
00125     };
00126   typedef std::map<const char *,TagToValue, ltstr> MappingType;
00127   typedef MappingType::const_iterator ConstIterator;
00128   ConstIterator Begin() const { return Mappings.begin(); }
00129   ConstIterator End() const { return Mappings.end(); }
00130
00132   MappingType const & GetMappings() const { return Mappings; }
00133
00135   TagToValue const & GetMapping(const char *filename) const;
00136
00139   const char *GetFilenameFromTagToValue(Tag const &t, const char *valueref) const;
00140
```

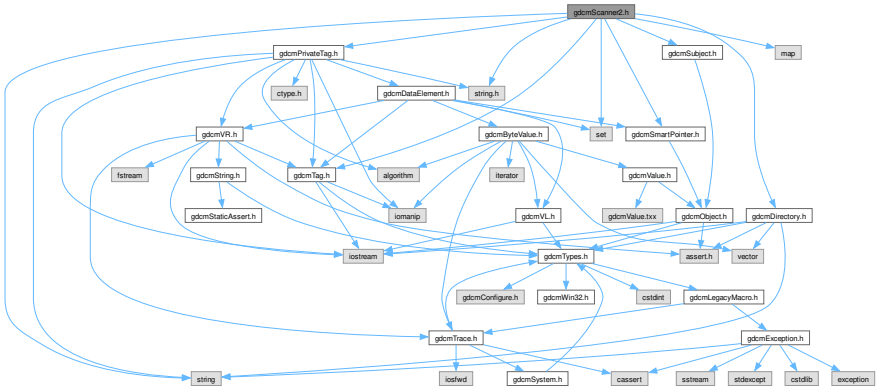
```
00143   Directory::FilenamesType GetAllFilenamesFromTagToValue(Tag const &t, const char *valueref) const;
00144
00146   // by a call to GetMapping()
00147   TagToValue const & GetMappingFromTagToValue(Tag const &t, const char *value) const;
00148
00154   const char* GetValue(const char *filename, Tag const &t) const;
00155
00157   static SmartPointer<Scanner> New() { return new Scanner; }
00158
00159 protected:
00160   void ProcessPublicTag(StringFilter &sf, const char *filename);
00161 private:
00162   // struct to store all uniq tags in ascending order:
00163   typedef std::set< Tag > TagsType;
00164   typedef std::set< PrivateTag > PrivateTagsType;
00165   std::set< Tag > Tags;
00166   std::set< PrivateTag > PrivateTags;
00167   std::set< Tag > SkipTags;
00168   ValuesType Values;
00169   Directory::FilenamesType Filenames;
00170
00171   // Main struct that will hold all mapping:
00172   MappingType Mappings;
00173
00174   double Progress;
00175 };
00176 //-----------------------------------------------------------------------------
00177 inline std::ostream& operator<<(std::ostream &os, const Scanner &s)
00178 {
00179   s.Print( os );
00180   return os;
00181 }
00182
00183 #if defined(SWIGPYTHON) || defined(SWIGCSHARP) || defined(SWIGJAVA) || defined(SWIGPHP)
00184 /*
00185  * HACK: I need this temp class to be able to manipulate a std::map from python,
00186  * swig does not support wrapping of simple class like std::map...
00187  */
00188 class SWIGTagToValue
00189 {
00190 public:
00191   SWIGTagToValue(Scanner::TagToValue const &t2v):Internal(t2v),it(t2v.begin()) {}
00192   const Scanner::TagToValueValueType& GetCurrent() const { return *it; }
00193   const Tag& GetCurrentTag() const { return it->first; }
00194   const char *GetCurrentValue() const { return it->second; }
00195   void Start() { it = Internal.begin(); }
00196   bool IsAtEnd() const { return it == Internal.end(); }
00197   void Next() { ++it; }
00198 private:
00199   const Scanner::TagToValue& Internal;
00200   Scanner::TagToValue::const_iterator it;
00201 };
00202 #endif /* SWIG */
00203
00208
00209 } // end namespace gdcm
00210
00211 #endif //GDCMSCANNER_H
```

13.399 gdcmScanner2.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmSubject.h"
#include "gdcmTag.h"
#include "gdcmPrivateTag.h"
#include "gdcmSmartPointer.h"
#include <map>
#include <set>
#include <string>
```

`#include <string.h>`

Include dependency graph for gdcmScanner2.h:



Classes

- struct gdcm::Scanner2::ltstr
- class gdcm::Scanner2

  Scanner2.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Scanner2 &s)

13.400 gdcmScanner2.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSCANNER2_H
00015 #define GDCMSCANNER2_H
00016
00017 #include "gdcmDirectory.h"
```

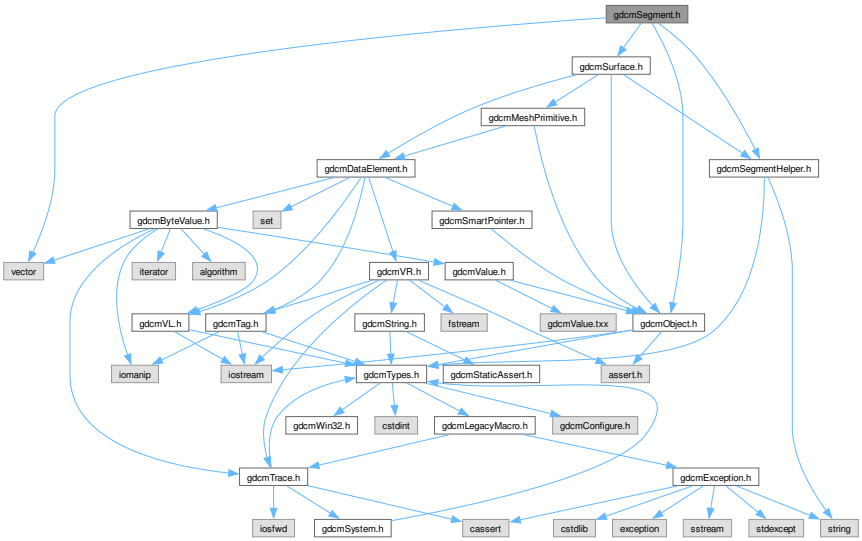
```
00018 #include "gdcmSubject.h"
00019 #include "gdcmTag.h"
00020 #include "gdcmPrivateTag.h"
00021 #include "gdcmSmartPointer.h"
00022
00023 #include <map>
00024 #include <set>
00025 #include <string>
00026
00027 #include <string.h> // strcmp
00028
00029 namespace gdcm
00030 {
00031 class StringFilter;
00032
00055 class GDCM_EXPORT Scanner2 : public Subject
00056 {
00057   friend std::ostream& operator<<(std::ostream &_os, const Scanner2 &s);
00058 public:
00059   Scanner2():Values(),Filenames(),PublicMappings(),PrivateMappings(),Progress(0.0) {}
00060   ~Scanner2() override;
00061
00068   typedef std::map<Tag, const char*> PublicTagToValue;
00069   typedef PublicTagToValue::value_type PublicTagToValueValueType;
00070
00071   typedef std::map<PrivateTag, const char*> PrivateTagToValue;
00072   typedef PrivateTagToValue::value_type PrivateTagToValueValueType;
00073
00075   bool AddPublicTag( Tag const & t );
00076   void ClearPublicTags();
00077
00078   // Work in progress do not use:
00079   bool AddPrivateTag( PrivateTag const & pt );
00080   void ClearPrivateTags();
00081
00083   bool AddSkipTag( Tag const & t );
00084   void ClearSkipTags();
00085
00087   bool Scan( Directory::FilenamesType const & filenames );
00088
00090   Directory::FilenamesType const &GetFilenames() const { return Filenames; }
00091
00093   void Print( std::ostream & os ) const override;
00094
00096   void PrintTable( std::ostream & os, bool header = false ) const;
00097
00101   bool IsKey( const char * filename ) const;
00102
00105   Directory::FilenamesType GetKeys() const;
00106
00107   // struct to store all the values found:
00108   typedef std::set< std::string > ValuesType;
00109
00111   ValuesType const & GetValues() const { return Values; }
00112
00114   ValuesType GetPublicValues(Tag const &t) const;
00115
00117   ValuesType GetPrivateValues(PrivateTag const &pt) const;
00118
00122   Directory::FilenamesType GetPublicOrderedValues(Tag const &t) const;
00123
00124   Directory::FilenamesType GetPrivateOrderedValues(PrivateTag const &pt) const;
00125
00126   /* ltstr is CRITICAL, otherwise pointers value are used to do the key comparison */
00127   struct ltstr
00128     {
00129     bool operator()(const char* s1, const char* s2) const
00130       {
00131       assert( s1 && s2 );
00132       return strcmp(s1, s2) < 0;
00133       }
00134     };
00135   typedef std::map<const char *,PublicTagToValue, ltstr> PublicMappingType;
00136   typedef PublicMappingType::const_iterator PublicConstIterator;
00137   PublicConstIterator Begin() const { return PublicMappings.begin(); }
00138   PublicConstIterator End() const { return PublicMappings.end(); }
00139
00140   typedef std::map<const char *,PrivateTagToValue, ltstr> PrivateMappingType;
00141   typedef PrivateMappingType::const_iterator PrivateConstIterator;
00142   PrivateConstIterator PrivateBegin() const { return PrivateMappings.begin(); }
00143   PrivateConstIterator PrivateEnd() const { return PrivateMappings.end(); }
```

```
00144
00146   PublicMappingType const & GetPublicMappings() const { return PublicMappings; }
00147   PrivateMappingType const & GetPrivateMappings() const { return PrivateMappings; }
00148
00150   PublicTagToValue const & GetPublicMapping(const char *filename) const;
00151   PrivateTagToValue const & GetPrivateMapping(const char *filename) const;
00152
00155   const char *GetFilenameFromPublicTagToValue(Tag const &t, const char *valueref) const;
00156   const char *GetFilenameFromPrivateTagToValue(PrivateTag const &pt, const char *valueref) const;
00157
00160   Directory::FilenamesType GetAllFilenamesFromPublicTagToValue(Tag const &t, const char *valueref) const;
00161   Directory::FilenamesType GetAllFilenamesFromPrivateTagToValue(PrivateTag const &pt, const char
      *valueref) const;
00162
00164   // by a call to GetMapping()
00165   PublicTagToValue const & GetMappingFromPublicTagToValue(Tag const &t, const char *value) const;
00166   PrivateTagToValue const & GetMappingFromPrivateTagToValue(PrivateTag const &pt, const char *value)
      const;
00167
00173   const char* GetPublicValue(const char *filename, Tag const &t) const;
00174   const char* GetPrivateValue(const char *filename, PrivateTag const &t) const;
00175
00177   static SmartPointer<Scanner2> New() { return new Scanner2; }
00178
00179 protected:
00180   void ProcessPublicTag(StringFilter &sf, const char *filename);
00181   void ProcessPrivateTag(StringFilter &sf, const char *filename);
00182 private:
00183   // struct to store all uniq tags in ascending order:
00184   typedef std::set< Tag > PublicTagsType;
00185   typedef std::set< PrivateTag > PrivateTagsType;
00186   std::set< Tag > PublicTags; // Public and Private Creator
00187   std::set< PrivateTag > PrivateTags; // Only Private (no Private Creator)
00188   std::set< Tag > SkipTags;
00189   ValuesType Values;
00190   Directory::FilenamesType Filenames;
00191
00192   // Main struct that will hold all public mapping:
00193   PublicMappingType PublicMappings;
00194   // Main struct that will hold all private mapping:
00195   PrivateMappingType PrivateMappings;
00196
00197   double Progress;
00198 };
00199 //-----------------------------------------------------------------------------
00200 inline std::ostream& operator<<(std::ostream &os, const Scanner2 &s)
00201 {
00202   s.Print( os );
00203   return os;
00204 }
00205
00206 } // end namespace gdcm
00207
00208 #endif //GDCMSCANNER2_H
```

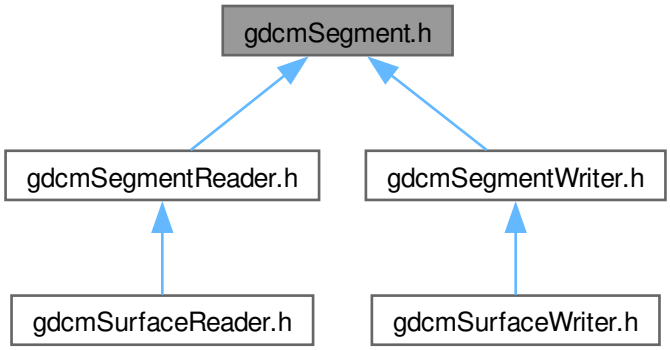
13.401 gdcmSegment.h File Reference

```
#include <vector>
#include <gdcmObject.h>
#include <gdcmSurface.h>
#include "gdcmSegmentHelper.h"
```

Include dependency graph for gdcmSegment.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Segment

  This class defines a segment.

Namespaces

- namespace gdcm

13.402 gdcmSegment.h

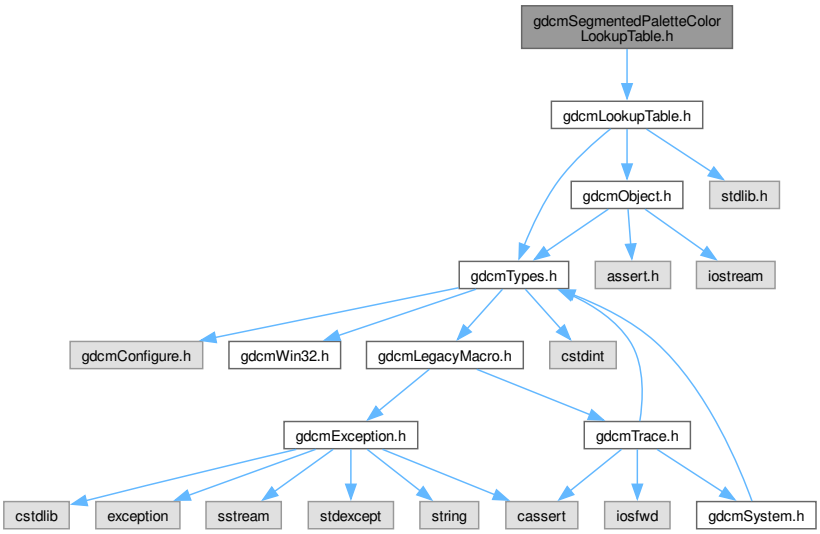
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSEGMENT_H
00015 #define GDCMSEGMENT_H
00016
00017 #include <vector>
00018
00019 #include <gdcmObject.h>
00020 #include <gdcmSurface.h>
00021 #include "gdcmSegmentHelper.h"
00022
00023 namespace gdcm
00024 {
00025
00033 class GDCM_EXPORT Segment : public Object
00034 {
00035 public:
00036
00037   typedef std::vector< SmartPointer< Surface > > SurfaceVector;
00038   typedef std::vector< SegmentHelper::BasicCodedEntry > BasicCodedEntryVector;
00039
00040   typedef enum {
00041     AUTOMATIC = 0,
00042     SEMIAUTOMATIC,
00043     MANUAL,
00044     ALGOType_END
00045   } ALGOType;
00046
00047   static const char * GetALGOTypeString(ALGOType type);
00048   static ALGOType GetALGOType(const char * type);
00049
00050
00051   Segment();
00052
00053   ~Segment() override;
00054
00055   //**        Segment getters/setters     **//
00056   unsigned short GetSegmentNumber() const;
00057   void SetSegmentNumber(const unsigned short num);
00058
00059   const char * GetSegmentLabel() const;
00060   void SetSegmentLabel(const char * label);
00061
00062   const char * GetSegmentDescription() const;
00063   void SetSegmentDescription(const char * description);
00064
00065   SegmentHelper::BasicCodedEntry const & GetAnatomicRegion() const;
00066   SegmentHelper::BasicCodedEntry & GetAnatomicRegion();
00067   void SetAnatomicRegion(SegmentHelper::BasicCodedEntry const & BSE);
00068
00069   BasicCodedEntryVector const & GetAnatomicRegionModifiers() const;
00070   BasicCodedEntryVector & GetAnatomicRegionModifiers();
00071   void SetAnatomicRegionModifiers(BasicCodedEntryVector const & BSEV);
00072
00073   SegmentHelper::BasicCodedEntry const & GetPropertyCategory() const;
00074   SegmentHelper::BasicCodedEntry & GetPropertyCategory();
00075   void SetPropertyCategory(SegmentHelper::BasicCodedEntry const & BSE);
00076
00077   SegmentHelper::BasicCodedEntry const & GetPropertyType() const;
00078   SegmentHelper::BasicCodedEntry & GetPropertyType();
00079   void SetPropertyType(SegmentHelper::BasicCodedEntry const & BSE);
00080
00081   BasicCodedEntryVector const & GetPropertyTypeModifiers() const;
00082   BasicCodedEntryVector & GetPropertyTypeModifiers();
```

```
00083   void SetPropertyTypeModifiers(BasicCodedEntryVector const & BSEV);
00084
00085   ALGOType GetSegmentAlgorithmType() const;
00086   void SetSegmentAlgorithmType(ALGOType type);
00087   void SetSegmentAlgorithmType(const char * typeStr);
00088
00089   const char * GetSegmentAlgorithmName() const;
00090   void SetSegmentAlgorithmName(const char * name);
00091
00092   //**        Surface getters/setters     **//
00093   unsigned long GetSurfaceCount();
00094   void SetSurfaceCount(const unsigned long nb);
00095
00096   SurfaceVector const & GetSurfaces() const;
00097   SurfaceVector & GetSurfaces();
00098
00099   SmartPointer< Surface > GetSurface(const unsigned int idx = 0) const;
00100
00101   void AddSurface(SmartPointer< Surface > surface);
00102
00103 protected :
00104   //**        Segment members     **//
00105   //0062 0004 US 1 Segment Number
00106   unsigned short  SegmentNumber;
00107   //0062 0005 LO 1 Segment Label
00108   std::string     SegmentLabel;
00109   //0062 0006 ST 1 Segment Description
00110   std::string     SegmentDescription;
00111
00112   // General Anatomic Region
00113   SegmentHelper::BasicCodedEntry AnatomicRegion;
00114   // General Anatomic Region Modifier
00115   BasicCodedEntryVector AnatomicRegionModifiers;
00116   // Property Category Code
00117   SegmentHelper::BasicCodedEntry PropertyCategory;
00118   // Property Type Code
00119   SegmentHelper::BasicCodedEntry PropertyType;
00120   // Property Type Modifier Code
00121   BasicCodedEntryVector PropertyTypeModifiers;
00122
00123   //0062 0008 CS 1 Segment Algorithm Type
00124   ALGOType        SegmentAlgorithmType;
00125   //0062 0009 LO 1 Segment Algorithm Name
00126   std::string     SegmentAlgorithmName;
00127
00128   //**        Surface members     **//
00129   //0066 002a UL 1 Surface Count
00130   unsigned long   SurfaceCount;
00131
00132   SurfaceVector   Surfaces;
00133
00134 private :
00135   void ComputeSurfaceCount();
00136 };
00137
00138 }
00139
00140 #endif // GDCMSEGMENT_H
```

13.403 gdcmSegmentedPaletteColorLookupTable.h File Reference

`#include "gdcmLookupTable.h"`
Include dependency graph for gdcmSegmentedPaletteColorLookupTable.h:



Classes

- class gdcm::SegmentedPaletteColorLookupTable
  SegmentedPaletteColorLookupTable class.

Namespaces

- namespace gdcm

13.404 gdcmSegmentedPaletteColorLookupTable.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
```
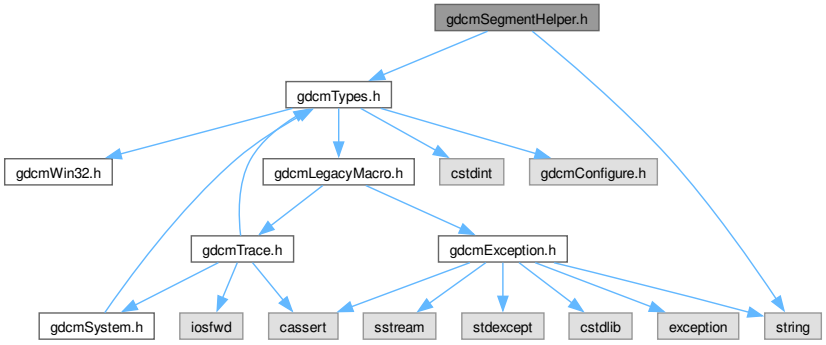

```
00014
00015 #ifndef GDCMSEGMENTEDPALETTECOLORLOOKUPTABLE_H
00016 #define GDCMSEGMENTEDPALETTECOLORLOOKUPTABLE_H
00017
00018 #include "gdcmLookupTable.h"
00019
00020 namespace gdcm
00021 {
00022
00026 class GDCM_EXPORT SegmentedPaletteColorLookupTable : public LookupTable
00027 {
00028 public:
00029   SegmentedPaletteColorLookupTable();
00030   ~SegmentedPaletteColorLookupTable() override;
00031   void Print(std::ostream &) const override {}
00032
00034   void SetLUT(LookupTableType type, const unsigned char *array,
00035     unsigned int length) override;
00036
00037 };
00038
00039 } // end namespace gdcm
00040
00041 #endif //GDCMSEGMENTEDPALETTECOLORLOOKUPTABLE_H
```

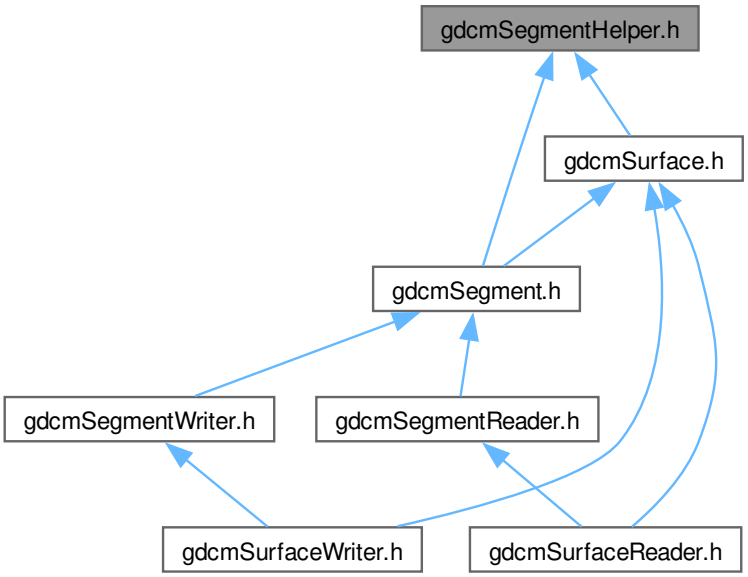
13.405 gdcmSegmentHelper.h File Reference

```
#include "gdcmTypes.h"
#include <string>
```

Include dependency graph for gdcmSegmentHelper.h:



This graph shows which files directly or indirectly include this file:



Classes

- struct gdcm::SegmentHelper::BasicCodedEntry

  This structure defines a basic coded entry with all of its attributes.

Namespaces

- namespace gdcm
- namespace gdcm::SegmentHelper

13.406 gdcmSegmentHelper.h

Go to the documentation of this file.

```
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00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
```
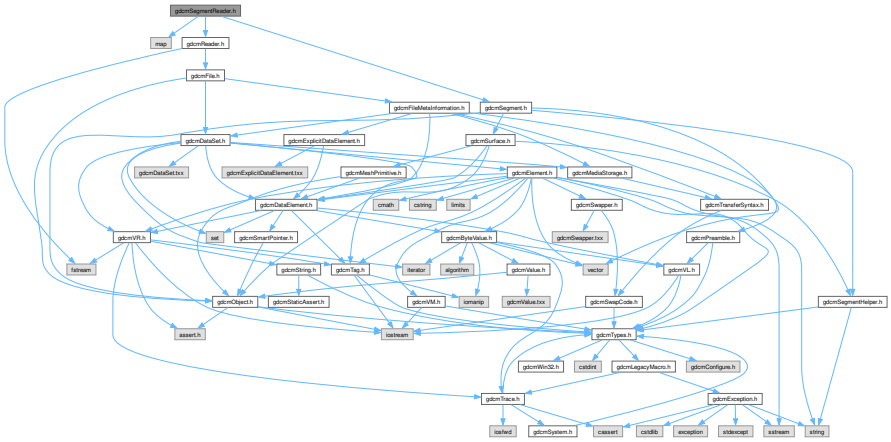

```
00013 =========================================================================*/
00014 #ifndef GDCMSEGMENTHELPER_H
00015 #define GDCMSEGMENTHELPER_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <string>
00020
00021 namespace gdcm
00022 {
00023
00024 namespace SegmentHelper
00025 {
00026
00032 struct GDCM_EXPORT BasicCodedEntry
00033 {
00037   BasicCodedEntry():
00038     CV(""),
00039     CSD(""),
00040     CSV(""),
00041     CM("")
00042   {}
00043
00047   BasicCodedEntry(const char * a_CV,
00048                   const char * a_CSD,
00049                   const char * a_CM):
00050     CV(a_CV),
00051     CSD(a_CSD),
00052     CSV(""),
00053     CM(a_CM)
00054   {}
00055
00059   BasicCodedEntry(const char * a_CV,
00060                   const char * a_CSD,
00061                   const char * a_CSV,
00062                   const char * a_CM):
00063     CV(a_CV),
00064     CSD(a_CSD),
00065     CSV(a_CSV),
00066     CM(a_CM)
00067   {}
00068
00074   bool IsEmpty(const bool checkOptionalAttributes = false) const;
00075
00076
00077   //**      Members     **//
00078   // 0008 0100 1   Code Value
00079   std::string CV;
00080   // 0008 0102 1   Coding Scheme Designator
00081   std::string CSD;
00082   // 0008 0103 1C  Coding Scheme Version
00083   std::string CSV;
00084   // 0008 0104 1   Code Meaning
00085   std::string CM;
00086 };
00087
00088 } // end of SegmentHelper namespace
00089
00090 } // end of gdcm namespace
00091
00092 #endif // GDCMSEGMENTHELPER_H
```

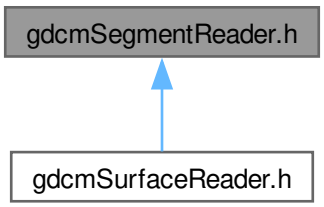
13.407 gdcmSegmentReader.h File Reference

```
#include <map>
#include <gdcmReader.h>
#include <gdcmSegment.h>
```

Include dependency graph for gdcmSegmentReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::SegmentReader

  This class defines a segment reader.

Namespaces

- namespace gdcm

13.408 gdcmSegmentReader.h

Go to the documentation of this file.

```
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00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSEGMENTREADER_H
00015 #define GDCMSEGMENTREADER_H
00016
00017 #include <map>
00018
00019 #include <gdcmReader.h>
00020 #include <gdcmSegment.h>
00021
00022 namespace gdcm
00023 {
00024
00031 class GDCM_EXPORT SegmentReader : public Reader
00032 {
00033 public:
00034   typedef std::vector< SmartPointer< Segment > > SegmentVector;
00035
00036   SegmentReader();
00037
00038   ~SegmentReader() override;
00039
00041   bool Read() override; // Set to protected ?
00042
00043   //**        Segment getters/setters     **//
00044   SegmentVector GetSegments() const;
00045   SegmentVector GetSegments();
00046
00047 //  unsigned int GetNumberOfSegments();
00048
00049 protected:
00050
00051   typedef std::map< unsigned long, SmartPointer< Segment > > SegmentMap;
00052
00053   bool ReadSegments();
00054
00055   bool ReadSegment(const Item & segmentItem, const unsigned int idx);
00056
00057
00058   SegmentMap Segments;  // The key value is item number (in segment sequence)
00059                         // or the surface number (for a surface segmentation).
00060
00061 };
00062
00063 }
00064
00065 #endif // GDCMSEGMENTREADER_H
```
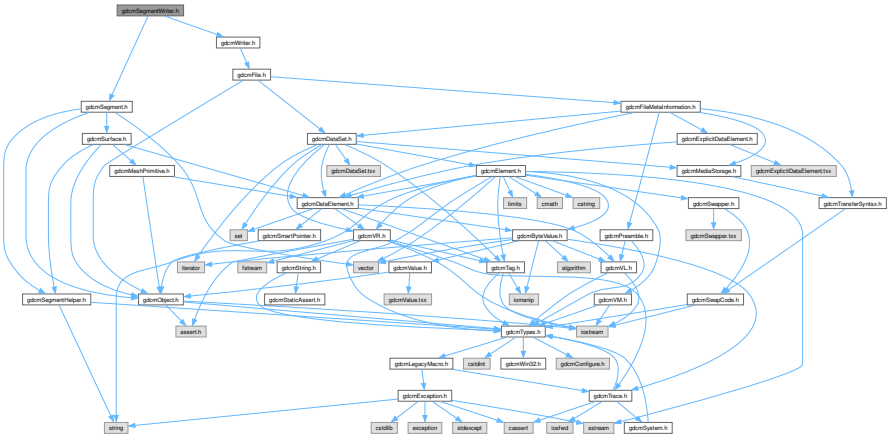
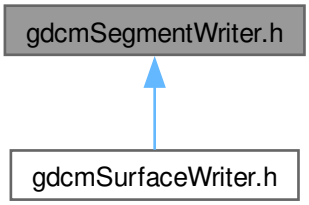

13.409 gdcmSegmentWriter.h File Reference

```
#include <gdcmWriter.h>
#include <gdcmSegment.h>
```

Include dependency graph for gdcmSegmentWriter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::SegmentWriter

  This class defines a segment writer.

Namespaces

- namespace gdcm

13.410 gdcmSegmentWriter.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSEGMENTWRITER_H
00015 #define GDCMSEGMENTWRITER_H
00016
00017 #include <gdcmWriter.h>
00018 #include <gdcmSegment.h>
00019
00020 namespace gdcm
00021 {
00022
00029 class GDCM_EXPORT SegmentWriter : public Writer
00030 {
00031 public:
00032   typedef std::vector< SmartPointer< Segment > > SegmentVector;
00033
00034   SegmentWriter();
00035
00036   ~SegmentWriter() override;
00037
00039   bool Write() override; // Set to protected ?
00040
00041   //**        Segment getters/setters     **//
00042   unsigned int GetNumberOfSegments() const;
00043   void SetNumberOfSegments(const unsigned int size);
00044
00045   const SegmentVector & GetSegments() const;
00046   SegmentVector & GetSegments();
00047   SmartPointer< Segment > GetSegment(const unsigned int idx = 0) const;
00048
00049   void AddSegment(SmartPointer< Segment > segment);
00050
00051   void SetSegments(SegmentVector & segments);
00052
00053 protected:
00054
00055   bool PrepareWrite();
00056
00057
00058   SegmentVector Segments;
00059 };
00060
00061 }
00062
00063 #endif // GDCMSEGMENTWRITER_H
```
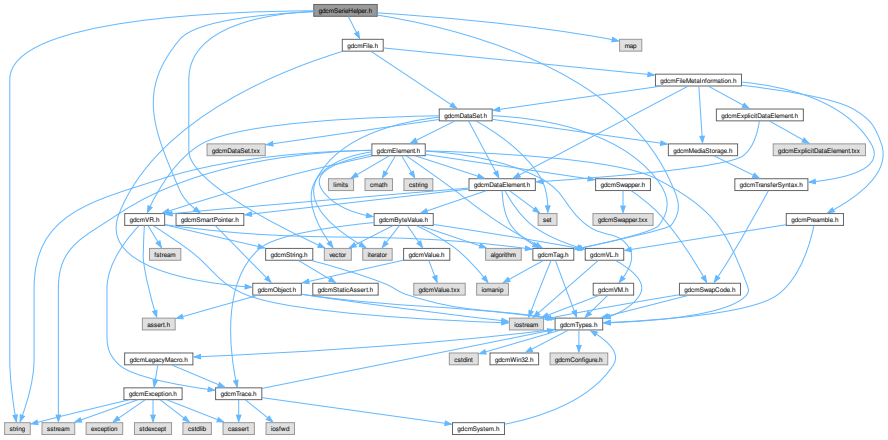

13.411 gdcmSerieHelper.h File Reference

```
#include "gdcmTag.h"
#include "gdcmSmartPointer.h"
#include "gdcmFile.h"
#include <vector>
#include <string>
```

```
#include <map>
```

Include dependency graph for gdcmSerieHelper.h:



Classes

- class gdcm::FileWithName

  FileWithName.
- class gdcm::SerieHelper

  SerieHelper DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned.

Namespaces

- namespace gdcm

Typedefs

- typedef bool(∗ gdcm::BOOL_FUNCTION_PFILE_PFILE_POINTER) (File ∗, File ∗)
- typedef std::vector< SmartPointer< FileWithName > > gdcm::FileList

Enumerations

- enum gdcm::CompOperators {
  gdcm::GDCM_EQUAL = 0 ,
  gdcm::GDCM_DIFFERENT ,
  gdcm::GDCM_GREATER ,
  gdcm::GDCM_GREATEROREQUAL ,
  gdcm::GDCM_LESS ,
  gdcm::GDCM_LESSOREQUAL }
- enum gdcm::LodModeType {
  gdcm::LD_ALL = 0x00000000 ,
  gdcm::LD_NOSEQ = 0x00000001 ,
  gdcm::LD_NOSHADOW = 0x00000002 ,
  gdcm::LD_NOSHADOWSEQ = 0x00000004 }

13.412 gdcmSerieHelper.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSERIEHELPER_H
00015 #define GDCMSERIEHELPER_H
00016
00017 #include "gdcmTag.h"
00018 #include "gdcmSmartPointer.h"
00019 #include "gdcmFile.h"
00020 #include <vector>
00021 #include <string>
00022 #include <map>
00023
00024 namespace gdcm
00025 {
00026
00027 enum CompOperators {
00028    GDCM_EQUAL = 0,
00029    GDCM_DIFFERENT,
00030    GDCM_GREATER,
00031    GDCM_GREATEROREQUAL,
00032    GDCM_LESS,
00033    GDCM_LESSOREQUAL
00034 };
00035 enum LodModeType
00036 {
00037    LD_ALL         = 0x00000000,
00038    LD_NOSEQ       = 0x00000001,
00039    LD_NOSHADOW    = 0x00000002,
00040    LD_NOSHADOWSEQ = 0x00000004
00041 };
00042
00043
00050 class GDCM_EXPORT FileWithName : public File
00051 {
00052 public:
00053   FileWithName(File &f):File(f),filename(){}
00054   std::string filename;
00055 };
00056
00057 typedef std::vector< SmartPointer<FileWithName> > FileList;
00058 typedef bool (*BOOL_FUNCTION_PFILE_PFILE_POINTER)(File *, File *);
00059 class Scanner;
00060
00068 class GDCM_EXPORT SerieHelper
00069 {
00070 public:
00071   SerieHelper();
00072   ~SerieHelper();
00073
00074   void Clear();
00075   void SetLoadMode (int ) {}
00076   void SetDirectory(std::string const &dir, bool recursive=false);
00077
00078   void AddRestriction(const std::string & tag);
00079   void SetUseSeriesDetails( bool useSeriesDetails );
00080   void CreateDefaultUniqueSeriesIdentifier();
00081   FileList *GetFirstSingleSerieUIDFileSet();
00082   FileList *GetNextSingleSerieUIDFileSet();
00083   std::string CreateUniqueSeriesIdentifier( File * inFile );
00084   void OrderFileList(FileList *fileSet);
00085   void AddRestriction(uint16_t group, uint16_t elem, std::string const &value, int op);
00086
00087 protected:
00088   bool UserOrdering(FileList *fileSet);
```
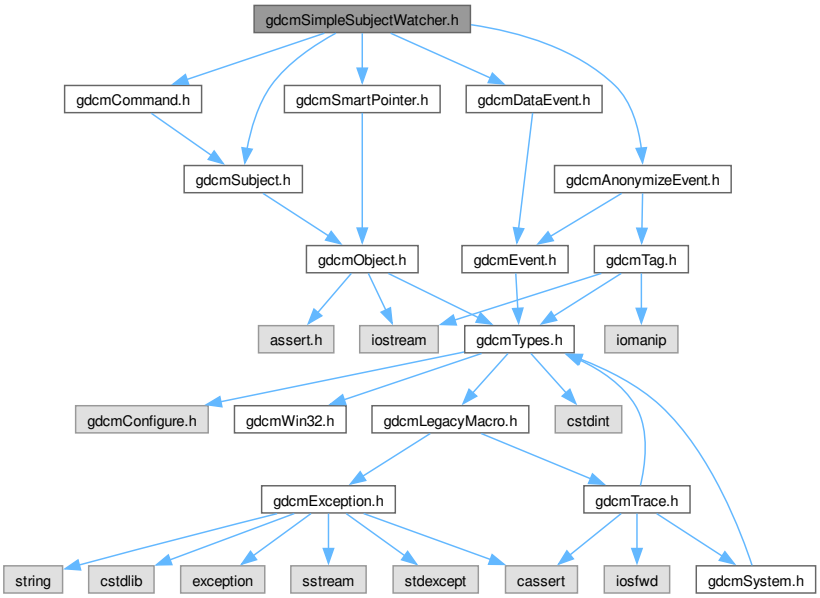

```
00089   void AddFileName(std::string const &filename);
00090   bool AddFile(FileWithName &header);
00091   void AddRestriction(const Tag& tag);
00092   bool ImagePositionPatientOrdering(FileList *fileSet);
00093   bool ImageNumberOrdering( FileList *fileList );
00094   bool FileNameOrdering( FileList *fileList );
00095
00096   using Rule = struct RuleStructure{
00097     uint16_t group;
00098     uint16_t elem;
00099     std::string value;
00100     int op;
00101   };
00102   typedef std::vector<Rule> SerieRestrictions;
00103
00104   typedef std::map<std::string, FileList *> SingleSerieUIDFileSetmap;
00105   SingleSerieUIDFileSetmap SingleSerieUIDFileSetHT;
00106   SingleSerieUIDFileSetmap::iterator ItFileSetHt;
00107
00108 private:
00109   SerieRestrictions Restrictions;
00110   SerieRestrictions Refine;
00111
00112   bool UseSeriesDetails;
00113   bool DirectOrder;
00114
00115   BOOL_FUNCTION_PFILE_PFILE_POINTER UserLessThanFunction;
00116 };
00117
00118 // backward compat
00119 } // end namespace gdcm
00120
00121
00122 #endif //GDCMSERIEHELPER_H
```

13.413 gdcmSimpleSubjectWatcher.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmCommand.h"
#include "gdcmSmartPointer.h"
#include "gdcmAnonymizeEvent.h"
#include "gdcmDataEvent.h"
```

Include dependency graph for gdcmSimpleSubjectWatcher.h:



Classes

- class gdcm::SimpleSubjectWatcher

  SimpleSubjectWatcher.

Namespaces

- namespace gdcm

13.414 gdcmSimpleSubjectWatcher.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSIMPLESUBJECTWATCHER_H
00015 #define GDCMSIMPLESUBJECTWATCHER_H
00016
```

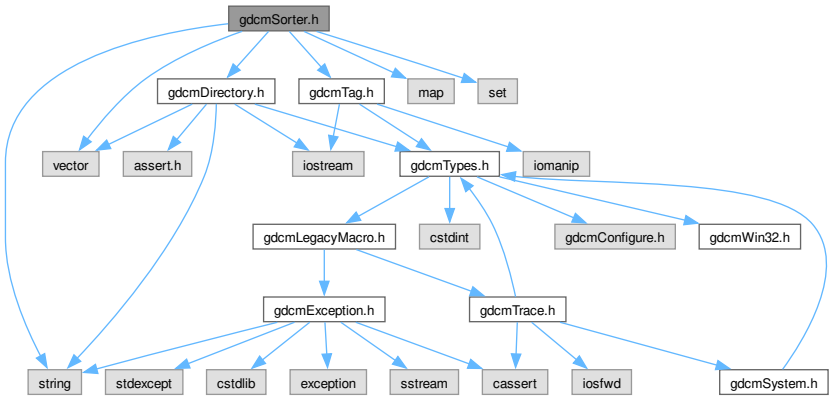
```
00017 #include "gdcmSubject.h"
00018 #include "gdcmCommand.h"
00019 #include "gdcmSmartPointer.h"
00020 #include "gdcmAnonymizeEvent.h"
00021 #include "gdcmDataEvent.h"
00022
00023 namespace gdcm
00024 {
00025 //-----------------------------------------------------------------------------
00026 class Event;
00031 class GDCM_EXPORT SimpleSubjectWatcher
00032 {
00033 public:
00034   SimpleSubjectWatcher(Subject * s, const char *comment = "");
00035   virtual ~SimpleSubjectWatcher();
00036   SimpleSubjectWatcher(const SimpleSubjectWatcher&) = delete;
00037   void operator=(const SimpleSubjectWatcher&) = delete;
00038
00039 protected:
00040   virtual void StartFilter();
00041   virtual void EndFilter();
00042   virtual void ShowProgress(Subject *caller, const Event &evt);
00043   virtual void ShowFileName(Subject *caller, const Event &evt);
00044   virtual void ShowIteration();
00045   virtual void ShowAnonymization(Subject *caller, const Event &evt);
00046   virtual void ShowDataSet(Subject *caller, const Event &evt);
00047   virtual void ShowData(Subject *caller, const Event &evt);
00048   virtual void ShowAbort();
00049
00050 protected:
00051   // Custom API used for internal Testing do not use !
00052   void TestAbortOn();
00053   void TestAbortOff();
00054
00055 private:
00056   SmartPointer<Subject> m_Subject;
00057   std::string m_Comment;
00058
00059   typedef SimpleMemberCommand<SimpleSubjectWatcher> SimpleCommandType;
00060   typedef MemberCommand<SimpleSubjectWatcher> CommandType;
00061
00062   SmartPointer<SimpleCommandType> m_StartFilterCommand;
00063   SmartPointer<SimpleCommandType> m_EndFilterCommand;
00064   SmartPointer<CommandType> m_ProgressFilterCommand;
00065   SmartPointer<CommandType> m_FileNameFilterCommand;
00066   SmartPointer<SimpleCommandType> m_IterationFilterCommand;
00067   SmartPointer<SimpleCommandType> m_AbortFilterCommand;
00068   SmartPointer<CommandType> m_AnonymizeFilterCommand;
00069   SmartPointer<CommandType> m_DataFilterCommand;
00070   SmartPointer<CommandType> m_DataSetFilterCommand;
00071
00072   unsigned long m_StartTag;
00073   unsigned long m_EndTag;
00074   unsigned long m_ProgressTag;
00075   unsigned long m_FileNameTag;
00076   unsigned long m_IterationTag;
00077   unsigned long m_AbortTag;
00078   unsigned long m_AnonymizeTag;
00079   unsigned long m_DataTag;
00080   unsigned long m_DataSetTag;
00081
00082   bool m_TestAbort;
00083
00084 };
00085 } // end namespace gdcm
00086 //-----------------------------------------------------------------------------
00087 #endif //GDCMSIMPLESUBJECTWATCHER_H
```

13.415 gdcmSorter.h File Reference

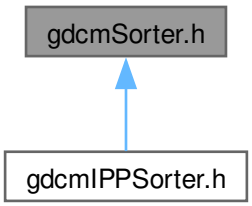
```
#include "gdcmDirectory.h"
#include "gdcmTag.h"
#include <vector>
#include <string>
```

```
#include <map>
#include <set>
```

Include dependency graph for gdcmSorter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Sorter

  Sorter.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Sorter &s)

13.416 gdcmSorter.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSORTER_H
00015 #define GDCMSORTER_H
00016
00017 #include "gdcmDirectory.h"
00018 #include "gdcmTag.h"
00019
00020 #include <vector>
00021 #include <string>
00022 #include <map>
00023 #include <set>
00024
00025 namespace gdcm
00026 {
00027 class DataSet;
00028
00039 class GDCM_EXPORT Sorter
00040 {
00041   friend std::ostream& operator<<(std::ostream &_os, const Sorter &s);
00042 public:
00043   Sorter();
00044   virtual ~Sorter();
00045
00047   virtual bool Sort(std::vector<std::string> const & filenames);
00048
00051   const std::vector<std::string> &GetFilenames() const { return Filenames; }
00052
00054   void Print(std::ostream &os) const;
00055
00057   bool AddSelect( Tag const &tag, const char *value );
00058
00062   void SetTagsToRead( std::set<Tag> const & tags );
00063
00065   typedef bool (*SortFunction)(DataSet const &, DataSet const &);
00066   void SetSortFunction( SortFunction f );
00067
00068   virtual bool StableSort(std::vector<std::string> const & filenames);
00069
00070 protected:
00071   std::vector<std::string> Filenames;
00072   typedef std::map<Tag,std::string> SelectionMap;
00073   std::map<Tag,std::string> Selection;
00074   SortFunction SortFunc;
00075   std::set<Tag> TagsToRead;
00076 };
00077 //-----------------------------------------------------------------------------
00078 inline std::ostream& operator<<(std::ostream &os, const Sorter &s)
00079 {
00080   s.Print( os );
00081   return os;
00082 }
00083
00084
00085 } // end namespace gdcm
00086
00087 #endif //GDCMSORTER_H
```
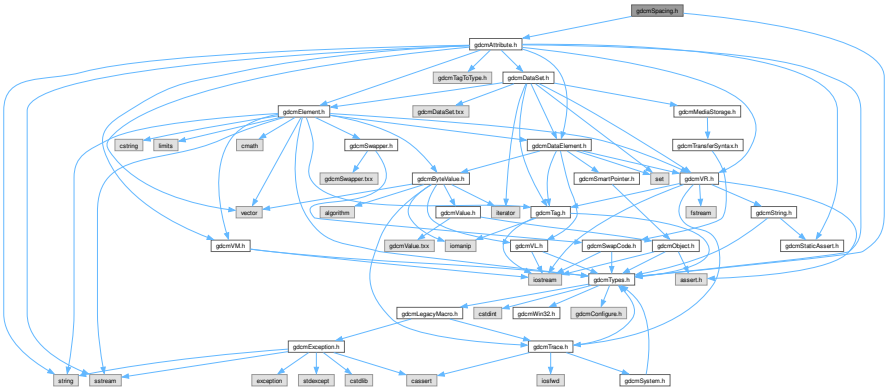

13.417 gdcmSpacing.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmAttribute.h"
```

Include dependency graph for gdcmSpacing.h:



Classes

- class gdcm::Spacing

  Class for Spacing.

Namespaces

- namespace gdcm

13.418 gdcmSpacing.h

Go to the documentation of this file.

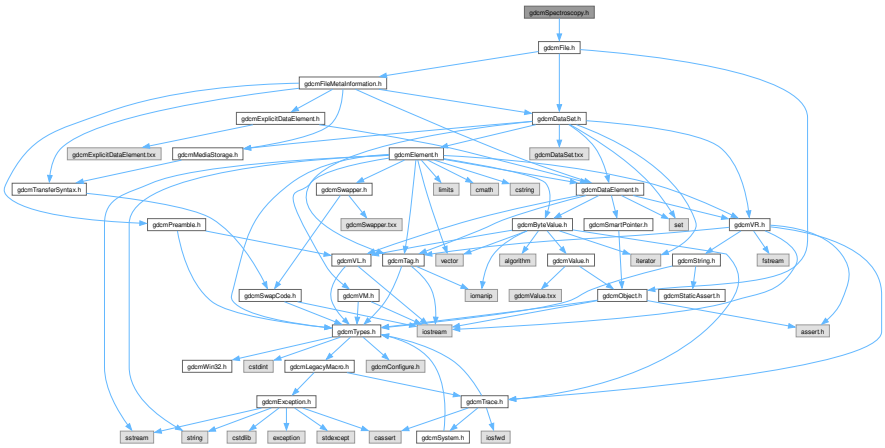
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSPACING_H
00015 #define GDCMSPACING_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmAttribute.h"
00019
00020 namespace gdcm
00021 {
```

```
00056
00085 class GDCM_EXPORT Spacing
00086 {
00087 public :
00088   Spacing();
00089   ~Spacing() = default;
00090
00091   // Here are the list of spacing we support:
00092   // (0018,0088) DS [1.500000]                                    # 8,1 Spacing Between Slices
00093   // (0018,1164) DS [0.5\0.5 ]                                    # 8,2 Imager Pixel Spacing
00094   // (0018,2010) DS [0.664062\0.664062 ]                          # 18,2 Nominal Scanned Pixel
      Spacing
00095   // (0018,7022) DS [0.125\0.125 ]                                # 12,2 Detector Element Spacing
00096   // (0028,0030) DS [0.25\0.25 ]                                  # 10,2 Pixel Spacing
00097   // > (0028,0a02) CS [FIDUCIAL]                                    # 8,1 Pixel Spacing Calibration
      Type
00098   // > (0028,0a04) LO [Used fiducial ]                              # 14,1 Pixel Spacing Calibration
      Description
00099   // (0028,0034) IS [4\3 ]                                        # 4,2 Pixel Aspect Ratio
00100   // (3002,0011) DS [0.8\0.8 ]                                    # 8,2 Image Plane Pixel Spacing
00101
00102   // Here is the list of Spacing we do not support:
00103   // <entry group="0018" element="7041" vr="LT" vm="1" name="Grid Spacing Material"/>
00104   // <entry group="0018" element="9030" vr="FD" vm="1" name="Tag Spacing First Dimension"/>
00105   // <entry group="0018" element="9218" vr="FD" vm="1" name="Tag Spacing Second Dimension"/>
00106   // <entry group="0018" element="9322" vr="FD" vm="2" name="Reconstruction Pixel Spacing"/>
00107   // <entry group="0018" element="9404" vr="FL" vm="2" name="Object Pixel Spacing in Center of Beam"/>
00108   // <entry group="0040" element="08d8" vr="SQ" vm="1" name="Pixel Spacing Sequence"/>
00109   // <entry group="0070" element="0101" vr="DS" vm="2" name="Presentation Pixel Spacing"/>
00110   // <entry group="2010" element="0376" vr="DS" vm="2" name="Printer Pixel Spacing"/>
00111   // <entry group="300a" element="00e9" vr="DS" vm="2" name="Compensator Pixel Spacing"/>
00112
00113   typedef enum {
00114     DETECTOR = 0, // (0018,1164) Imager Pixel Spacing
00115     MAGNIFIED,    // (0018,1114) (IHE Mammo)
00116     CALIBRATED,   // (0028,0030) Pixel Spacing -> (0028,0a04) Pixel Spacing Calibration Description
00117     UNKNOWN
00118   } SpacingType;
00119
00120   static Attribute<0x28,0x34> ComputePixelAspectRatioFromPixelSpacing(const Attribute<0x28,0x30>&
      pixelspacing);
00121 };
00122 } // end namespace gdcm
00123 //-----------------------------------------------------------------------------
00124 #endif //GDCMSPACING_H
```

13.419 gdcmSpectroscopy.h File Reference

`#include "gdcmFile.h"`

Include dependency graph for gdcmSpectroscopy.h:



Classes

- class gdcm::Spectroscopy

  Spectroscopy class.

Namespaces

- namespace gdcm

13.420 gdcmSpectroscopy.h

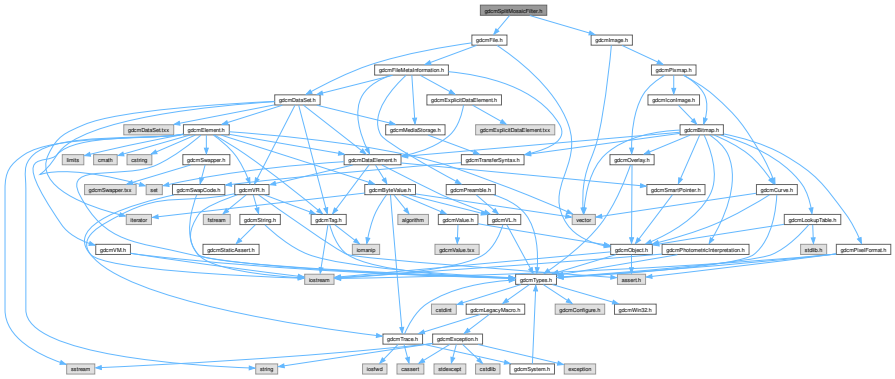
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSPECTROSCOPY_H
00015 #define GDCMSPECTROSCOPY_H
00016
00017 #include "gdcmFile.h"
00018
00019 namespace gdcm
00020 {
00024 class GDCM_EXPORT Spectroscopy
00025 {
00026 public:
00027   Spectroscopy() = default;
00028
00029 private:
00030 };
00031
00032 } // end namespace gdcm
00033
00034 #endif //GDCMSPECTROSCOPY_H
```

13.421 gdcmSplitMosaicFilter.h File Reference

```
#include "gdcmFile.h"
#include "gdcmImage.h"
```

Include dependency graph for gdcmSplitMosaicFilter.h:



Classes

- class gdcm::SplitMosaicFilter

  SplitMosaicFilter class.

Namespaces

- namespace gdcm

13.422 gdcmSplitMosaicFilter.h

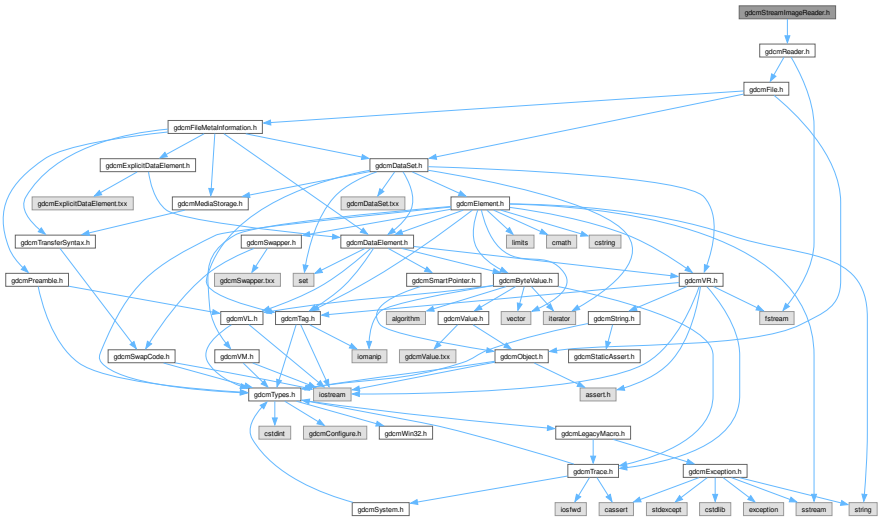
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSPLITMOSAICFILTER_H
00015 #define GDCMSPLITMOSAICFILTER_H
00016
00017 #include "gdcmFile.h"
00018 #include "gdcmImage.h"
00019
00020 namespace gdcm
00021 {
00022
00023 /*
00024  * Everything done in this code is for the sole purpose of writing interoperable
00025  * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
00026  * If you believe anything in this code violates any law or any of your rights,
00027  * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
00028  * find a solution.
00029  */
```

```
00043 class GDCM_EXPORT SplitMosaicFilter
00044 {
00045 public:
00046   SplitMosaicFilter();
00047   ~SplitMosaicFilter();
00048
00050   bool Split();
00051
00054   bool ComputeMOSAICDimensions(unsigned int dims[3]);
00055
00057   bool ComputeMOSAICSliceNormal( double dims[3], bool & inverted );
00058
00061   bool ComputeMOSAICSlicePosition( double pos[3], bool inverted );
00062
00064   bool ComputeMOSAICImagePositionPatient( double pos[3],
00065     const double ipp[6],
00066     const double dircos[6],
00067     const double pixelspacing[3],
00068     const unsigned int image_dims[3] ,
00069     const unsigned int mosaic_dims[3], bool inverted );
00070
00071   void SetImage(const Image& image);
00072   const Image &GetImage() const { return *I; }
00073   Image &GetImage() { return *I; }
00074
00075   void SetFile(const File& f) { F = f; }
00076   File &GetFile() { return *F; }
00077   const File &GetFile() const { return *F; }
00078
00080   static bool GetAcquisitionSize(unsigned int size[2], DataSet const & ds);
00081
00083   static unsigned int GetNumberOfImagesInMosaic( File const & file );
00084
00085 protected:
00086
00087 private:
00088   SmartPointer<File> F;
00089   SmartPointer<Image> I;
00090 };
00091
00092 } // end namespace gdcm
00093
00094 #endif //GDCMSPLITMOSAICFILTER_H
```

13.423 gdcmStreamImageReader.h File Reference

`#include "gdcmReader.h"`
Include dependency graph for gdcmStreamImageReader.h:



Classes

- class gdcm::StreamImageReader
  StreamImageReader.

Namespaces

- namespace gdcm

13.424 gdcmStreamImageReader.h

Go to the documentation of this file.

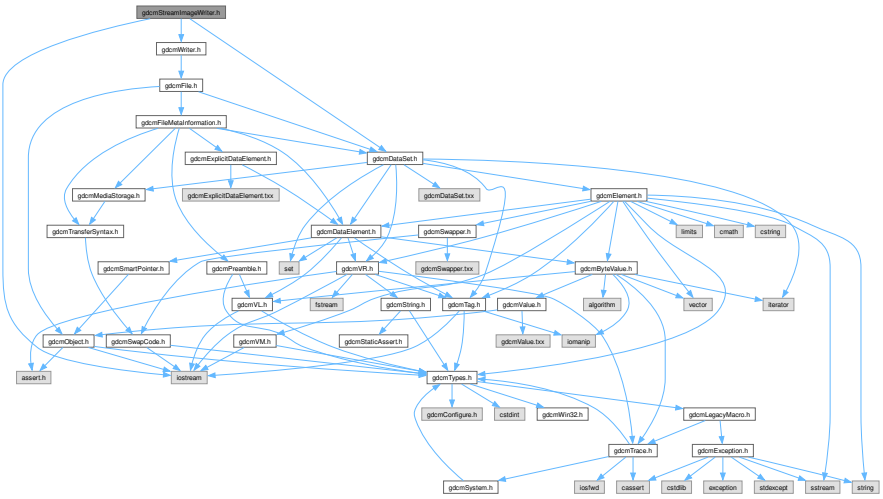
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
```

```
00017  *=========================================================================*/
00018 #ifndef GDCMSTREAMIMAGEREADER_H
00019 #define GDCMSTREAMIMAGEREADER_H
00020
00021 #include "gdcmReader.h"
00022
00023 namespace gdcm
00024 {
00025
00026 class MediaStorage;
00038 class GDCM_EXPORT StreamImageReader
00039 {
00040
00041 public:
00042   StreamImageReader();
00043   virtual ~StreamImageReader();
00044
00048   void SetFileName(const char* inFileName);
00049   void SetStream(std::istream& inStream);
00050
00051   std::vector<unsigned int> GetDimensionsValueForResolution( unsigned int  );
00052
00060   void DefinePixelExtent(uint16_t inXMin, uint16_t inXMax,
00061     uint16_t inYMin, uint16_t inYMax, uint16_t inZMin = 0, uint16_t inZMax = 1);
00062
00067   uint32_t DefineProperBufferLength() const;
00068
00076   bool Read(char* inReadBuffer, const std::size_t& inBufferLength);
00077
00083   bool CanReadImage() const;
00084
00088   virtual bool ReadImageInformation();
00089
00093   File const & GetFile() const;
00094
00095 protected:
00096 private:
00097   //contains a reader for being able to ReadUpToTag
00098   //however, we don't want the user to be able to call Read
00099   //either directly or via a parent class call, so we hide the reader in here.
00100   Reader mReader;
00101
00102   std::streamoff mFileOffset; //the file offset for getting header information
00103 #if 0
00104   std::streamoff mFileOffset1;
00105 #endif
00106   DataSet mHeaderInformation; //all the non-pixel information
00107
00108   //for thread safety, these should not be stored here, but should be used
00109   //for every read subregion operation.
00110   uint16_t mXMin, mYMin, mXMax, mYMax, mZMin, mZMax;
00111
00116   bool ReadImageSubregionRAW(char* inReadBuffer, const std::size_t& inBufferLength);
00117
00120   bool ReadImageSubregionJpegLS(char* inReadBuffer, const std::size_t& inBufferLength);
00121 };
00122
00123 } // end namespace gdcm
00124
00125 #endif //GDCMSTREAMIMAGEREADER_H
00126
```

13.425 gdcmStreamImageWriter.h File Reference

```
#include "gdcmWriter.h"
#include <iostream>
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmStreamImageWriter.h:



Classes

- class gdcm::StreamImageWriter

  StreamImageReader.

Namespaces

- namespace gdcm

13.426 gdcmStreamImageWriter.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018
00019 #ifndef GDCMSTREAMIMAGEWRITER_H
00020 #define GDCMSTREAMIMAGEWRITER_H
00021
00022 #include "gdcmWriter.h"
00023 #include <iostream>
```

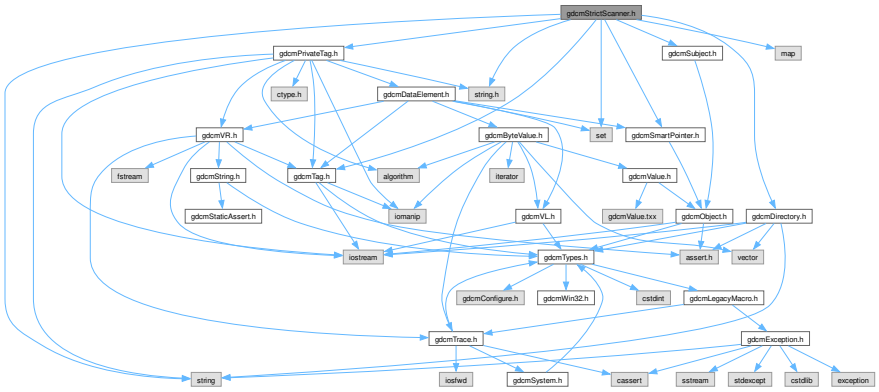
```
00024 #include "gdcmDataSet.h"
00025
00026 namespace gdcm
00027 {
00028
00029 class MediaStorage;
00030 class RAWCodec;
00042 class GDCM_EXPORT StreamImageWriter
00043 {
00044
00045 public:
00046   StreamImageWriter();
00047   virtual ~StreamImageWriter();
00048
00049
00053   void SetFileName(const char* inFileName);
00054   void SetStream(std::ostream& inStream);
00055
00064   void DefinePixelExtent(uint16_t inXMin, uint16_t inXMax,
00065     uint16_t inYMin, uint16_t inYMax, uint16_t inZMin = 0, uint16_t inZMax = 1);
00066
00067
00073   uint32_t DefineProperBufferLength();
00074
00082   bool Write(void* inWriteBuffer, const std::size_t& inBufferLength);
00083
00087   virtual bool WriteImageInformation();
00088
00092   bool CanWriteFile() const;
00093
00094
00097   void SetFile(const File& inFile);
00098
00099 protected:
00100
00101   //contains the PrepareWrite function, which will get the given dataset ready
00102   //for writing to disk by manufacturing the header information.
00103   //note that if there is a pixel element in the given dataset, that will be removed
00104   //during the copy, so that the imagewriter can write everything else out
00105   Writer mWriter;
00106
00107   //is the offset necessary if we always append?
00108   //std::streamoff mFileOffset; //the fileoffset for getting header information
00109   SmartPointer<File> mspFile; //all the non-pixel information
00110
00111   //for thread safety, these should not be stored here, but should be used
00112   //for every read subregion operation.
00113   uint16_t mXMin, mYMin, mXMax, mYMax, mZMin, mZMax;
00114
00119   //virtual bool ReadImageSubregionRAW(std::ostream& os);
00120   virtual bool WriteImageSubregionRAW(char* inWriteBuffer, const std::size_t& inBufferLength);
00121
00131   int WriteRawHeader(RAWCodec* inCodec, std::ostream* inStream);
00132
00137   int mElementOffsets;
00138   int mElementOffsets1;
00139
00140 };
00141
00142
00143 } // end namespace gdcm
00144
00145 #endif //GDCMSTREAMIMAGEWRITER_H
```

13.427 gdcmStrictScanner.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmSubject.h"
#include "gdcmTag.h"
#include "gdcmPrivateTag.h"
#include "gdcmSmartPointer.h"
#include <map>
```

```
#include <set>
#include <string>
#include <string.h>
```

Include dependency graph for gdcmStrictScanner.h:



Classes

- struct gdcm::StrictScanner::ltstr
- class gdcm::StrictScanner

  StrictScanner.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const StrictScanner &s)

13.428 gdcmStrictScanner.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSTRICTSCANNER_H
```

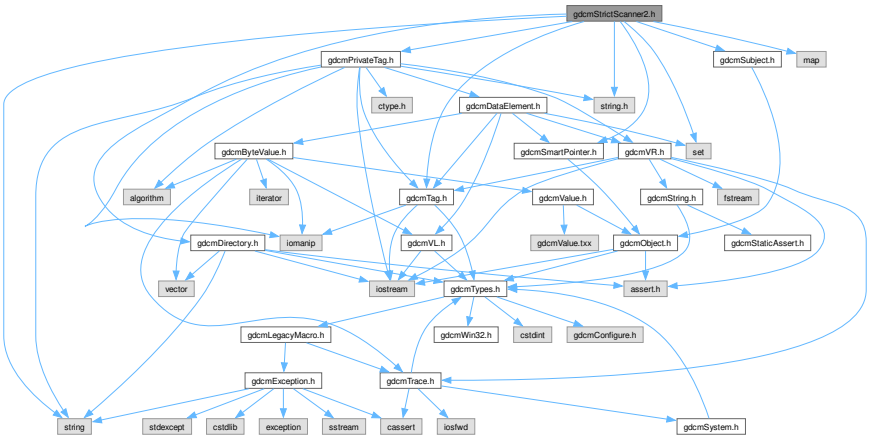
```
00015 #define GDCMSTRICTSCANNER_H
00016
00017 #include "gdcmDirectory.h"
00018 #include "gdcmSubject.h"
00019 #include "gdcmTag.h"
00020 #include "gdcmPrivateTag.h"
00021 #include "gdcmSmartPointer.h"
00022
00023 #include <map>
00024 #include <set>
00025 #include <string>
00026
00027 #include <string.h> // strcmp
00028
00029 namespace gdcm
00030 {
00031 class StringFilter;
00032
00055 class GDCM_EXPORT StrictScanner : public Subject
00056 {
00057   friend std::ostream& operator<<(std::ostream &_os, const StrictScanner &s);
00058 public:
00059   StrictScanner():Values(),Filenames(),Mappings() {}
00060   ~StrictScanner() override;
00061
00068   typedef std::map<Tag, const char*> TagToValue;
00069   //typedef std::map<Tag, ConstCharWrapper> TagToValue; //StringMap;
00070   //typedef TagToStringMap TagToValue;
00071   typedef TagToValue::value_type TagToValueValueType;
00072
00074   void AddTag( Tag const & t );
00075   void ClearTags();
00076
00077   // Work in progress do not use:
00078   void AddPrivateTag( PrivateTag const & t );
00079
00081   void AddSkipTag( Tag const & t );
00082   void ClearSkipTags();
00083
00085   bool Scan( Directory::FilenamesType const & filenames );
00086
00087   Directory::FilenamesType const &GetFilenames() const { return Filenames; }
00088
00090   void Print( std::ostream & os ) const override;
00091
00092   void PrintTable( std::ostream & os ) const;
00093
00097   bool IsKey( const char * filename ) const;
00098
00101   Directory::FilenamesType GetKeys() const;
00102
00103   // struct to store all the values found:
00104   typedef std::set< std::string > ValuesType;
00105
00107   ValuesType const & GetValues() const { return Values; }
00108
00110   ValuesType GetValues(Tag const &t) const;
00111
00115   Directory::FilenamesType GetOrderedValues(Tag const &t) const;
00116
00117   /* ltstr is CRITICAL, otherwise pointers value are used to do the key comparison */
00118   struct ltstr
00119     {
00120     bool operator()(const char* s1, const char* s2) const
00121       {
00122       assert( s1 && s2 );
00123       return strcmp(s1, s2) < 0;
00124       }
00125     };
00126   typedef std::map<const char *,TagToValue, ltstr> MappingType;
00127   typedef MappingType::const_iterator ConstIterator;
00128   ConstIterator Begin() const { return Mappings.begin(); }
00129   ConstIterator End() const { return Mappings.end(); }
00130
00132   MappingType const & GetMappings() const { return Mappings; }
00133
00135   TagToValue const & GetMapping(const char *filename) const;
00136
00139   const char *GetFilenameFromTagToValue(Tag const &t, const char *valueref) const;
00140
00143   Directory::FilenamesType GetAllFilenamesFromTagToValue(Tag const &t, const char *valueref) const;
```

```
00144
00146   // by a call to GetMapping()
00147   TagToValue const & GetMappingFromTagToValue(Tag const &t, const char *value) const;
00148
00154   const char* GetValue(const char *filename, Tag const &t) const;
00155
00157   static SmartPointer<StrictScanner> New() { return new StrictScanner; }
00158
00159 protected:
00160   void ProcessPublicTag(StringFilter &sf, const char *filename);
00161 private:
00162   // struct to store all uniq tags in ascending order:
00163   typedef std::set< Tag > TagsType;
00164   typedef std::set< PrivateTag > PrivateTagsType;
00165   std::set< Tag > Tags;
00166   std::set< PrivateTag > PrivateTags;
00167   std::set< Tag > SkipTags;
00168   ValuesType Values;
00169   Directory::FilenamesType Filenames;
00170
00171   // Main struct that will hold all mapping:
00172   MappingType Mappings;
00173
00174   double Progress;
00175 };
00176 //-----------------------------------------------------------------------------
00177 inline std::ostream& operator<<(std::ostream &os, const StrictScanner &s)
00178 {
00179   s.Print( os );
00180   return os;
00181 }
00182
00183 } // end namespace gdcm
00184
00185 #endif //GDCMSTRICTSCANNER_H
```

13.429 gdcmStrictScanner2.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmPrivateTag.h"
#include "gdcmSmartPointer.h"
#include "gdcmSubject.h"
#include "gdcmTag.h"
#include <map>
#include <set>
#include <string>
#include <string.h>
```

Include dependency graph for gdcmStrictScanner2.h:



Classes

- struct gdcm::StrictScanner2::ltstr
- class gdcm::StrictScanner2

  StrictScanner2.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const StrictScanner2 &s)

13.430 gdcmStrictScanner2.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSTRICTSCANNER2_H
00015 #define GDCMSTRICTSCANNER2_H
00016
```

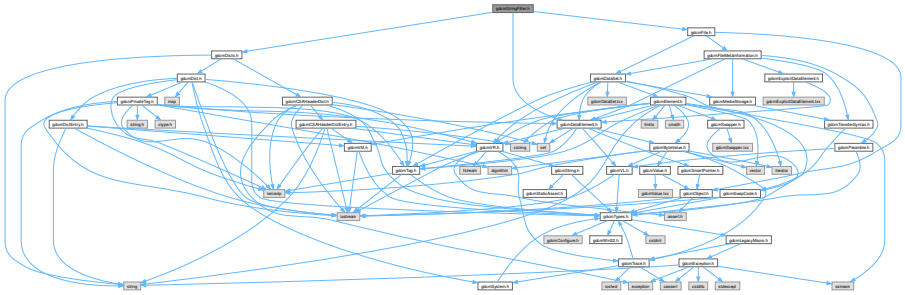
```
00017 #include "gdcmDirectory.h"
00018 #include "gdcmPrivateTag.h"
00019 #include "gdcmSmartPointer.h"
00020 #include "gdcmSubject.h"
00021 #include "gdcmTag.h"
00022
00023 #include <map>
00024 #include <set>
00025 #include <string>
00026
00027 #include <string.h>  // strcmp
00028
00029 namespace gdcm {
00030 class StringFilter;
00031
00052 class GDCM_EXPORT StrictScanner2 : public Subject {
00053   friend std::ostream &operator<<(std::ostream &_os, const StrictScanner2 &s);
00054
00055  public:
00056   StrictScanner2() : Values(), Filenames(), PublicMappings(), PrivateMappings(), Progress(0.0) {}
00057   ~StrictScanner2() override;
00058
00065   typedef std::map<Tag, const char *> PublicTagToValue;
00066   typedef PublicTagToValue::value_type PublicTagToValueValueType;
00067
00068   typedef std::map<PrivateTag, const char *> PrivateTagToValue;
00069   typedef PrivateTagToValue::value_type PrivateTagToValueValueType;
00070
00072   bool AddPublicTag(Tag const &t);
00073   void ClearPublicTags();
00074
00075   // Work in progress do not use:
00076   bool AddPrivateTag(PrivateTag const &pt);
00077   void ClearPrivateTags();
00078
00080   bool AddSkipTag(Tag const &t);
00081   void ClearSkipTags();
00082
00084   bool Scan(Directory::FilenamesType const &filenames);
00085
00087   Directory::FilenamesType const &GetFilenames() const { return Filenames; }
00088
00090   void Print(std::ostream &os) const override;
00091
00093   void PrintTable(std::ostream &os, bool header = false) const;
00094
00098   bool IsKey(const char *filename) const;
00099
00102   Directory::FilenamesType GetKeys() const;
00103
00104   // struct to store all the values found:
00105   typedef std::set<std::string> ValuesType;
00106
00108   ValuesType const &GetValues() const { return Values; }
00109
00111   ValuesType GetPublicValues(Tag const &t) const;
00112
00115   ValuesType GetPrivateValues(PrivateTag const &pt) const;
00116
00120   Directory::FilenamesType GetPublicOrderedValues(Tag const &t) const;
00121
00122   Directory::FilenamesType GetPrivateOrderedValues(PrivateTag const &pt) const;
00123
00124   /* ltstr is CRITICAL, otherwise pointers value are used to do the key
00125    * comparison */
00126   struct ltstr {
00127     bool operator()(const char *s1, const char *s2) const {
00128       assert(s1 && s2);
00129       return strcmp(s1, s2) < 0;
00130     }
00131   };
00132   typedef std::map<const char *, PublicTagToValue, ltstr> PublicMappingType;
00133   typedef PublicMappingType::const_iterator PublicConstIterator;
00134   PublicConstIterator Begin() const { return PublicMappings.begin(); }
00135   PublicConstIterator End() const { return PublicMappings.end(); }
00136
00137   typedef std::map<const char *, PrivateTagToValue, ltstr> PrivateMappingType;
00138   typedef PrivateMappingType::const_iterator PrivateConstIterator;
00139   PrivateConstIterator PrivateBegin() const { return PrivateMappings.begin(); }
00140   PrivateConstIterator PrivateEnd() const { return PrivateMappings.end(); }
00141
```

```
00144   PublicMappingType const &GetPublicMappings() const { return PublicMappings; }
00145   PrivateMappingType const &GetPrivateMappings() const {
00146     return PrivateMappings;
00147   }
00148
00150   PublicTagToValue const &GetPublicMapping(const char *filename) const;
00151   PrivateTagToValue const &GetPrivateMapping(const char *filename) const;
00152
00155   const char *GetFilenameFromPublicTagToValue(Tag const &t,
00156                                               const char *valueref) const;
00157   const char *GetFilenameFromPrivateTagToValue(PrivateTag const &pt,
00158                                                const char *valueref) const;
00159
00162   Directory::FilenamesType GetAllFilenamesFromPublicTagToValue(
00163       Tag const &t, const char *valueref) const;
00164   Directory::FilenamesType GetAllFilenamesFromPrivateTagToValue(
00165       PrivateTag const &pt, const char *valueref) const;
00166
00169   // by a call to GetMapping()
00170   PublicTagToValue const &GetMappingFromPublicTagToValue(
00171       Tag const &t, const char *value) const;
00172   PrivateTagToValue const &GetMappingFromPrivateTagToValue(
00173       PrivateTag const &pt, const char *value) const;
00174
00180   const char *GetPublicValue(const char *filename, Tag const &t) const;
00181   const char *GetPrivateValue(const char *filename, PrivateTag const &t) const;
00182
00184   static SmartPointer<StrictScanner2> New() { return new StrictScanner2; }
00185
00186  protected:
00187   void ProcessPublicTag(StringFilter &sf, const char *filename);
00188   void ProcessPrivateTag(StringFilter &sf, const char *filename);
00189
00190  private:
00191   // struct to store all uniq tags in ascending order:
00192   typedef std::set<Tag> PublicTagsType;
00193   typedef std::set<PrivateTag> PrivateTagsType;
00194   std::set<Tag> PublicTags;          // Public and Private Creator
00195   std::set<PrivateTag> PrivateTags;  // Only Private (no Private Creator)
00196   std::set<Tag> SkipTags;
00197   ValuesType Values;
00198   Directory::FilenamesType Filenames;
00199
00200   // Main struct that will hold all public mapping:
00201   PublicMappingType PublicMappings;
00202   // Main struct that will hold all private mapping:
00203   PrivateMappingType PrivateMappings;
00204
00205   double Progress;
00206 };
00207 //-----------------------------------------------------------------------------
00208 inline std::ostream &operator<<(std::ostream &os, const StrictScanner2 &s) {
00209   s.Print(os);
00210   return os;
00211 }
00212
00213 }  // end namespace gdcm
00214
00215 #endif  // GDCMSTRICTSCANNER2_H
```

13.431 gdcmStringFilter.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmDicts.h"
#include "gdcmFile.h"
```

Include dependency graph for gdcmStringFilter.h:



Classes

- class gdcm::StringFilter

  StringFilter.

Namespaces

- namespace gdcm

13.432 gdcmStringFilter.h

Go to the documentation of this file.

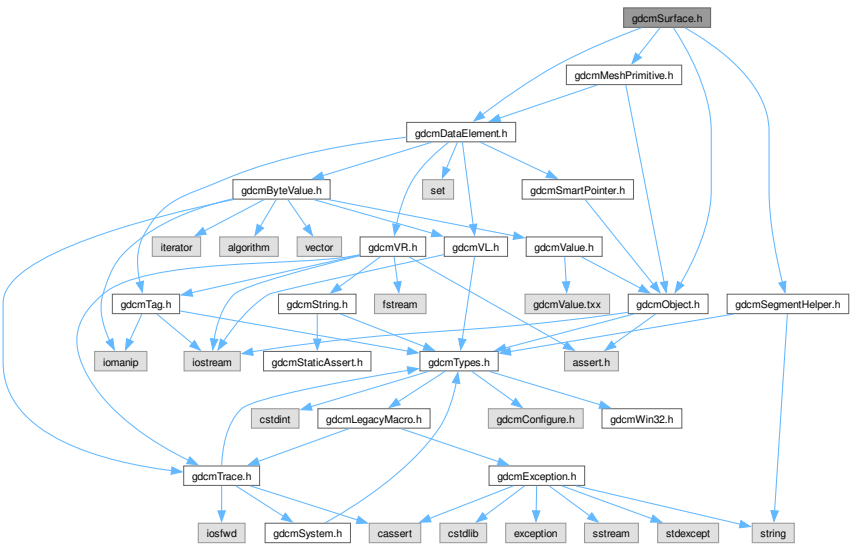
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSTRINGFILTER_H
00015 #define GDCMSTRINGFILTER_H
00016
00017 #include "gdcmDataElement.h"
00018 #include "gdcmDicts.h"
00019 #include "gdcmFile.h"
00020
00021 namespace gdcm
00022 {
00023
00029 class GDCM_EXPORT StringFilter
00030 {
00031 public:
00032   StringFilter();
00033   ~StringFilter();
00034
00036   void UseDictAlways(bool) {}
00037
00039   void SetDicts(const Dicts &dicts);
00040
00044   std::string ToString(const DataElement& de) const;
```

```
00045
00047   std::string ToString(const Tag& t) const;
00048
00049   std::string ToString(const PrivateTag& t) const;
00050
00055   std::pair<std::string, std::string> ToStringPair(const DataElement& de) const;
00057   std::pair<std::string, std::string> ToStringPair(const Tag& t) const;
00058
00060   std::string FromString(const Tag&t, const char * value, size_t len);
00061
00063   void SetFile(const File& f) { F = f; }
00064   File &GetFile() { return *F; }
00065   const File &GetFile() const { return *F; }
00066
00070   bool ExecuteQuery(std::string const &query, std::string & value) const;
00071
00072 protected:
00073   std::pair<std::string, std::string> ToStringPair(const Tag& t, DataSet const &ds) const;
00074   bool ExecuteQuery(std::string const &query, DataSet const &ds, std::string & value) const;
00075
00076 private:
00077   std::pair<std::string, std::string> ToStringPairInternal(const DataElement& de, DataSet const &ds)
      const;
00078   SmartPointer<File> F;
00079 };
00080
00081 } // end namespace gdcm
00082
00083 #endif //GDCMSTRINGFILTER_H
```

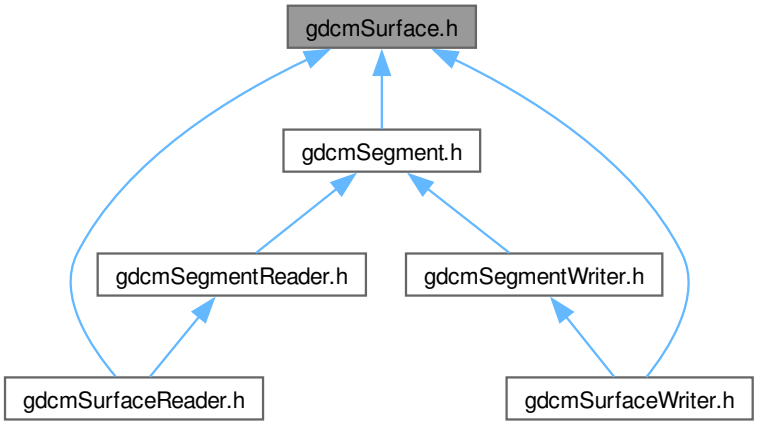
13.433 gdcmSurface.h File Reference

```
#include <gdcmObject.h>
#include <gdcmDataElement.h>
#include <gdcmMeshPrimitive.h>
#include "gdcmSegmentHelper.h"
```

Include dependency graph for gdcmSurface.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Surface

  This class defines a SURFACE IE.

Namespaces

- namespace gdcm

13.434 gdcmSurface.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSURFACE_H
00015 #define GDCMSURFACE_H
00016
00017 #include <gdcmObject.h>
00018 #include <gdcmDataElement.h>
00019 #include <gdcmMeshPrimitive.h>
00020 #include "gdcmSegmentHelper.h"  // for BasicCodedEntry
00021
```

```
00022 namespace gdcm
00023 {
00024
00031 class GDCM_EXPORT Surface : public Object
00032 {
00033 public:
00034
00035   typedef enum {
00036     NO = 0,
00037     YES,
00038     UNKNOWN,
00039     STATES_END
00040   } STATES;
00041
00042   static const char * GetSTATESString(STATES state);
00043   static STATES GetSTATES(const char * state);
00044
00050   typedef enum {
00051     SURFACE = 0,
00052     WIREFRAME,
00053     POINTS,
00054     VIEWType_END
00055   } VIEWType;
00056
00057   static const char * GetVIEWTypeString(VIEWType type);
00058   static VIEWType GetVIEWType(const char * type);
00059
00060   Surface();
00061
00062   ~Surface() override;
00063
00064   //**    Common getters/setters      **//
00065   unsigned long GetSurfaceNumber() const;
00066   void SetSurfaceNumber(const unsigned long nb);
00067
00068   const char * GetSurfaceComments() const;
00069   void SetSurfaceComments(const char * comment);
00070
00071   bool GetSurfaceProcessing() const;
00072   void SetSurfaceProcessing(bool b);
00073
00074   float GetSurfaceProcessingRatio() const;
00075   void SetSurfaceProcessingRatio(const float ratio);
00076
00077   const char * GetSurfaceProcessingDescription() const;
00078   void SetSurfaceProcessingDescription(const char * description);
00079
00080   SegmentHelper::BasicCodedEntry const & GetProcessingAlgorithm() const;
00081   SegmentHelper::BasicCodedEntry & GetProcessingAlgorithm();
00082   void SetProcessingAlgorithm(SegmentHelper::BasicCodedEntry const & BSE);
00083
00084   unsigned short GetRecommendedDisplayGrayscaleValue() const;
00085   void SetRecommendedDisplayGrayscaleValue(const unsigned short vl);
00086
00087   const unsigned short * GetRecommendedDisplayCIELabValue() const;
00088   unsigned short GetRecommendedDisplayCIELabValue(const unsigned int idx) const;
00089   void SetRecommendedDisplayCIELabValue(const unsigned short vl[3]);
00090   void SetRecommendedDisplayCIELabValue(const unsigned short vl, const unsigned int idx = 0);
00091   void SetRecommendedDisplayCIELabValue(const std::vector< unsigned short > & vl);
00092
00093   float GetRecommendedPresentationOpacity() const;
00094   void SetRecommendedPresentationOpacity(const float opacity);
00095
00096   VIEWType GetRecommendedPresentationType() const;
00097   void SetRecommendedPresentationType(VIEWType type);
00098
00099   STATES GetFiniteVolume() const;
00100   void SetFiniteVolume(STATES state);
00101
00102   STATES GetManifold() const;
00103   void SetManifold(STATES state);
00104
00105   SegmentHelper::BasicCodedEntry const & GetAlgorithmFamily() const;
00106   SegmentHelper::BasicCodedEntry & GetAlgorithmFamily();
00107   void SetAlgorithmFamily(SegmentHelper::BasicCodedEntry const & BSE);
00108
00109   const char * GetAlgorithmVersion() const;
00110   void SetAlgorithmVersion(const char * str);
00111
00112   const char * GetAlgorithmName() const;
00113   void SetAlgorithmName(const char * str);
```

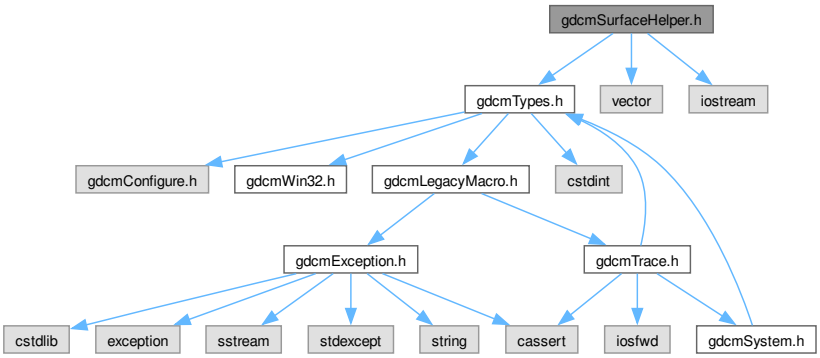
```
00114
00115   //**    Points getters/setters      **//
00116   unsigned long GetNumberOfSurfacePoints() const;
00117   void SetNumberOfSurfacePoints(const unsigned long nb);
00118
00119   const DataElement & GetPointCoordinatesData() const;
00120   DataElement & GetPointCoordinatesData();
00121
00122   void SetPointCoordinatesData(DataElement const & de);
00123
00127   const float * GetPointPositionAccuracy() const;
00128   void SetPointPositionAccuracy(const float * accuracies);
00129
00130   float GetMeanPointDistance() const;
00131   void SetMeanPointDistance(float average);
00132
00133   float GetMaximumPointDistance() const;
00134   void SetMaximumPointDistance(float maximum);
00135
00139   const float * GetPointsBoundingBoxCoordinates() const;
00140   void SetPointsBoundingBoxCoordinates(const float * coordinates);
00141
00145   const float * GetAxisOfRotation() const;
00146   void SetAxisOfRotation(const float * axis);
00147
00151   const float * GetCenterOfRotation() const;
00152   void SetCenterOfRotation(const float * center);
00153
00154   //**    Vectors getters/setters      **//
00155   unsigned long GetNumberOfVectors() const;
00156   void SetNumberOfVectors(const unsigned long nb);
00157
00158   unsigned short GetVectorDimensionality() const;
00159   void SetVectorDimensionality(const unsigned short dim);
00160
00161   const float * GetVectorAccuracy() const;
00162   void SetVectorAccuracy(const float * accuracy);
00163
00164   const DataElement & GetVectorCoordinateData() const;
00165   DataElement & GetVectorCoordinateData();
00166
00167   void SetVectorCoordinateData(DataElement const & de);
00168
00169   //**    Primitive getters/setters      **//
00170   MeshPrimitive const & GetMeshPrimitive() const;
00171   MeshPrimitive & GetMeshPrimitive();
00172
00173   void SetMeshPrimitive(MeshPrimitive & mp);
00174
00175 private:
00176
00177   //**        Common members      **//
00178
00179   //0066 0003 UL 1 Surface Number
00180   unsigned long SurfaceNumber;
00181   //0066 0004 LT 1 Surface Comments
00182   std::string   SurfaceComments;
00183
00184   //0066 0009 CS 1 Surface Processing
00185   bool          SurfaceProcessing;
00186   //0066 000a FL 1 Surface Processing Ratio
00187   float         SurfaceProcessingRatio;
00188   //0066 000b LO 1 Surface Processing Description
00189   std::string   SurfaceProcessingDescription;
00190   // Processing Algorithm Code
00191   SegmentHelper::BasicCodedEntry ProcessingAlgorithm;
00192
00193   //0062 000c US 1 Recommended Display Grayscale Value
00194   unsigned short  RecommendedDisplayGrayscaleValue;
00195   //0062 000d US 3 Recommended Display CIELab Value
00196   unsigned short  RecommendedDisplayCIELabValue[3];
00197
00198   // 0066 000c FL 1 Recommended Presentation Opacity
00199   float           RecommendedPresentationOpacity;
00200   // 0066 000d CS 1 Recommended Presentation Type
00201   VIEWType        RecommendedPresentationType;
00202
00203   //0066 000e CS 1 Finite Volume
00204   STATES        FiniteVolume;
00205   //0066 0010 CS 1 Manifold
00206   STATES        Manifold;
```

```
00207
00208   // Algorithm Family Code
00209   SegmentHelper::BasicCodedEntry AlgorithmFamily;
00210
00211   //0066 0031 LO 1 Algorithm Version
00212   std::string   AlgorithmVersion;
00213   //0066 0032 LT 1 Algorithm Parameters
00214   //0066 0036 LO 1 Algorithm Name
00215   std::string   AlgorithmName;
00216
00217
00218   //**        Point members      **//
00219
00220   //0066 0015 UL 1 Number of Surface Points
00221   unsigned long NumberOfSurfacePoints;
00222   //0066 0016 OF 1 Point Coordinates Data
00223   DataElement   PointCoordinatesData;
00224   //0066 0017 FL 3 Point Position Accuracy
00225   float *       PointPositionAccuracy;
00226   //0066 0018 FL 1 Mean Point Distance
00227   float         MeanPointDistance;
00228   //0066 0019 FL 1 Maximum Point Distance
00229   float         MaximumPointDistance;
00230   //0066 001a FL 6 Points Bounding Box Coordinates
00231   float *       PointsBoundingBoxCoordinates;
00232   //0066 001b FL 3 Axis of Rotation
00233   float *       AxisOfRotation;
00234   //0066 001c FL 3 Center of Rotation
00235   float *       CenterOfRotation;
00236
00237
00238   //**        Normal members      **//
00239
00240   //0066 001e UL 1 Number of Vectors
00241   unsigned long NumberOfVectors;
00242   //0066 001f US 1 Vector Dimensionality
00243   unsigned short VectorDimensionality;
00244   //0066 0020 FL 1-n Vector Accuracy
00245   float *       VectorAccuracy;
00246   //0066 0021 OF 1 Vector Coordinate Data
00247   DataElement   VectorCoordinateData;
00248
00249
00250   //**        Primitive members      **//
00251   SmartPointer< MeshPrimitive > Primitive;
00252 };
00253
00254 }
00255
00256 #endif // GDCMSURFACE_H
```

13.435 gdcmSurfaceHelper.h File Reference

```
#include "gdcmTypes.h"
#include <vector>
#include <iostream>
```

Include dependency graph for gdcmSurfaceHelper.h:



Classes

- class gdcm::SurfaceHelper

  SurfaceHelper.

Namespaces

- namespace gdcm

13.436 gdcmSurfaceHelper.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2017 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSURFACEHELPER_H
00015 #define GDCMSURFACEHELPER_H
00016
00017 #include "gdcmTypes.h"  // for GDCM_EXPORT
00018
00019 #include <vector>
00020 #include <iostream>
00021
00022 namespace gdcm
00023 {
00024
00029 class GDCM_EXPORT SurfaceHelper
00030 {
00031 public:
```

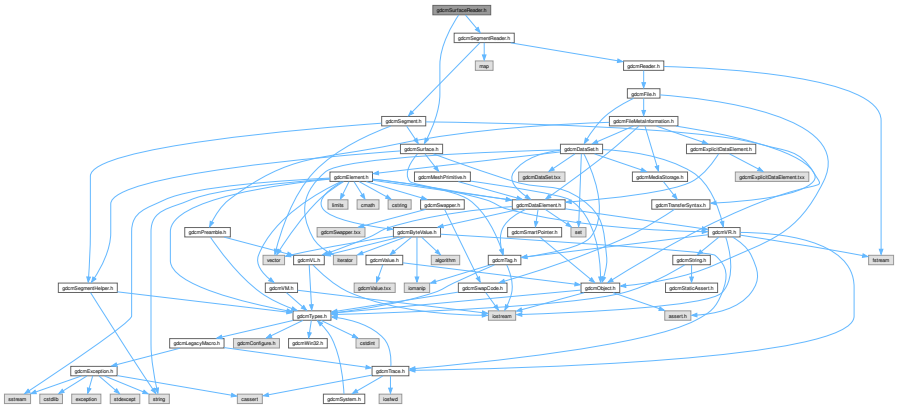
```
00032
00033   typedef std::vector< unsigned short > ColorArray;
00034
00046   template <typename T, typename U>
00047   static unsigned short RGBToRecommendedDisplayGrayscale(const std::vector<T> & RGB,
00048                                                          const U rangeMax = 255);
00060   template <typename T, typename U>
00061   static ColorArray RGBToRecommendedDisplayCIELab(const std::vector<T> & RGB,
00062                                                   const U rangeMax = 255);
00074   template <typename T, typename U>
00075   static std::vector<T> RecommendedDisplayCIELabToRGB(const ColorArray & CIELab,
00076                                                       const U rangeMax = 255);
00087   template <typename U>
00088   static std::vector<float> RecommendedDisplayCIELabToRGB(const ColorArray & CIELab,
00089                                                       const U rangeMax = 255);
00090
00091 private:
00092
00093   static std::vector< float > RGBToXYZ(const std::vector<float> & RGB);
00094
00095   static std::vector< float > XYZToRGB(const std::vector<float> & XYZ);
00096
00097   static std::vector< float > XYZToCIELab(const std::vector<float> & XYZ);
00098
00099   static std::vector< float > CIELabToXYZ(const std::vector<float> & CIELab);
00100 };
00101
00102 template <typename T, typename U>
00103 unsigned short SurfaceHelper::RGBToRecommendedDisplayGrayscale(const std::vector<T> & RGB,
00104                                                                const U rangeMax/* = 255*/)
00105 {
00106   assert(RGB.size() > 2);
00107
00108   unsigned short Grayscale = 0;
00109
00110   const float inverseRangeMax = 1.0f / (float) rangeMax;
00111
00112   // 0xFFFF "=" 255 "=" white
00113   Grayscale = (unsigned short) ((0.2989 * RGB[0] + 0.5870 * RGB[1] + 0.1140 * RGB[2])
00114                                 * inverseRangeMax // Convert to range 0-1
00115                                 * 0xFFFF);        // Convert to range 0x0000-0xFFFF
00116
00117   return Grayscale;
00118 }
00119
00120 template <typename T, typename U>
00121 SurfaceHelper::ColorArray SurfaceHelper::RGBToRecommendedDisplayCIELab(const std::vector<T> & RGB,
00122                                                                        const U rangeMax/* = 255*/)
00123 {
00124   assert(RGB.size() > 2);
00125
00126   ColorArray CIELab(3);
00127   std::vector<float> tmp(3);
00128
00129   // Convert to range 0-1
00130   const float inverseRangeMax = 1.0f / (float) rangeMax;
00131   tmp[0] = (float) (RGB[0] * inverseRangeMax);
00132   tmp[1] = (float) (RGB[1] * inverseRangeMax);
00133   tmp[2] = (float) (RGB[2] * inverseRangeMax);
00134
00135   tmp = SurfaceHelper::XYZToCIELab( SurfaceHelper::RGBToXYZ( tmp ) );
00136
00137   // Convert to range 0x0000-0xFFFF
00138   // 0xFFFF "=" 127, 0x8080 "=" 0, 0x0000 "=" -128
00139   CIELab[0] = (unsigned short) (          0xFFFF           * (tmp[0]*0.01f));
00140   if(tmp[1] >= -128 && tmp[1] <= 0)
00141   {
00142       CIELab[1] = (unsigned short)(((float)(0x8080)/128.0f)*tmp[1] + ((float)0x8080));
00143   }
00144   else if(tmp[1] <= 127 && tmp[1] > 0)
00145   {
00146       CIELab[1] = (unsigned short)(((float)(0xFFFF - 0x8080)/127.0f)*tmp[1] + (float)(0x8080));
00147   }
00148   if(tmp[2] >= -128 && tmp[2] <= 0)
00149   {
00150       CIELab[2] = (unsigned short)(((float)0x8080/128.0f)*tmp[2] + ((float)0x8080));
00151   }
00152   else if(tmp[2] <= 127 && tmp[2] > 0)
00153   {
00154       CIELab[2] = (unsigned short)(((float)(0xFFFF - 0x8080)/127.0f)*tmp[2] + (float)(0x8080));
00155   }
```

```
00156
00157   return CIELab;
00158 }
00159
00160 template <typename T, typename U>
00161 std::vector<T> SurfaceHelper::RecommendedDisplayCIELabToRGB(const ColorArray & CIELab,
00162                                                             const U rangeMax/* = 255*/)
00163 {
00164   assert(CIELab.size() > 2);
00165
00166   std::vector<T> RGB(3);
00167   std::vector<float> tmp(3);
00168
00169   // Convert to range 0-1
00170
00171   tmp[0] = 100.0f*CIELab[0] /(float)(0xFFFF);
00172   if(CIELab[1] <= 0x8080)
00173   {
00174       tmp[1] = (float)(((CIELab[1] - 0x8080) * 128.0f)/(float)0x8080);
00175   }
00176   else
00177   {
00178       tmp[1] = (float)((CIELab[1]-0x8080)*127.0f / (float)(0xFFFF - 0x8080));
00179   }
00180   if(CIELab[2] <= 0x8080)
00181   {
00182       tmp[2] = (float)(((CIELab[2] - 0x8080) * 128.0f)/(float)0x8080);
00183   }
00184   else
00185   {
00186       tmp[2] = (float)((CIELab[2]-0x8080)*127.0f / (float)(0XFFFF - 0x8080));
00187   }
00188
00189   tmp = SurfaceHelper::XYZToRGB( SurfaceHelper::CIELabToXYZ( tmp ) );
00190
00191   // Convert to range 0-rangeMax
00192   RGB[0] = (T) (tmp[0] * rangeMax);
00193   RGB[1] = (T) (tmp[1] * rangeMax);
00194   RGB[2] = (T) (tmp[2] * rangeMax);
00195
00196   return RGB;
00197 }
00198
00199 template <typename U>
00200 std::vector<float> SurfaceHelper::RecommendedDisplayCIELabToRGB(const ColorArray & CIELab,
00201                                                                 const U rangeMax/* = 255*/)
00202 {
00203   return RecommendedDisplayCIELabToRGB<float>(CIELab, rangeMax);
00204 }
00205
00206 } // end namespace gdcm
00207
00208 #endif // GDCMSURFACEHELPER_H
```

13.437 gdcmSurfaceReader.h File Reference

```
#include <gdcmSegmentReader.h>
#include <gdcmSurface.h>
```

Include dependency graph for gdcmSurfaceReader.h:



Classes

- class gdcm::SurfaceReader

  This class defines a SURFACE IE reader.

Namespaces

- namespace gdcm

13.438 gdcmSurfaceReader.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSURFACEREADER_H
00015 #define GDCMSURFACEREADER_H
00016
00017 #include <gdcmSegmentReader.h>
00018 #include <gdcmSurface.h>
00019
00020 namespace gdcm
00021 {
00022
00029 class GDCM_EXPORT SurfaceReader : public SegmentReader
00030 {
00031 public:
00032     SurfaceReader();
00033
00034     ~SurfaceReader() override;
```
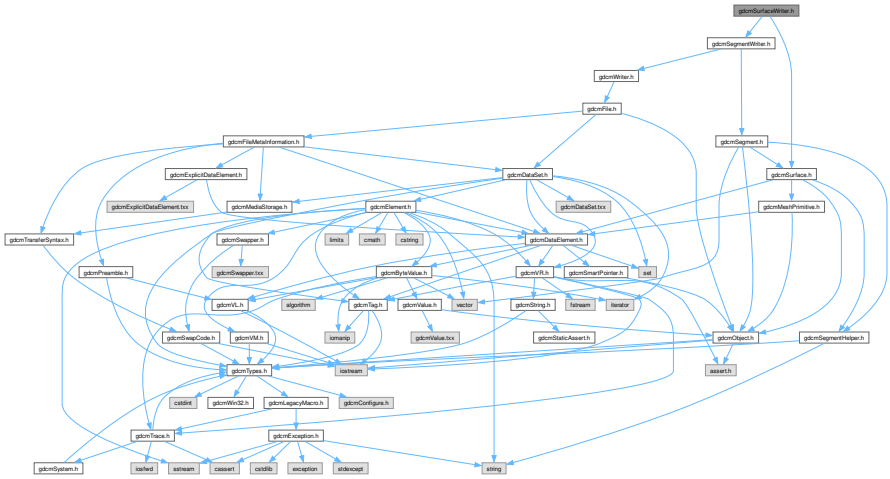

```
00035
00037     bool Read() override;
00038
00039     unsigned long GetNumberOfSurfaces() const;
00040
00041   protected:
00042
00043     bool ReadSurfaces();
00044
00045     bool ReadSurface(const Item & surfaceItem, const unsigned long idx);
00046
00047     bool ReadPointMacro(SmartPointer< Surface > surface, const DataSet & surfaceDS);
00048 };
00049
00050 }
00051
00052 #endif // GDCMSURFACEREADER_H
```

13.439 gdcmSurfaceWriter.h File Reference

```
#include <gdcmSegmentWriter.h>
#include <gdcmSurface.h>
```

Include dependency graph for gdcmSurfaceWriter.h:



Classes

- class gdcm::SurfaceWriter

  This class defines a SURFACE IE writer.

Namespaces

- namespace gdcm

13.440 gdcmSurfaceWriter.h

Go to the documentation of this file.

```
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSURFACEWRITER_H
00015 #define GDCMSURFACEWRITER_H
00016
00017 #include <gdcmSegmentWriter.h>
00018 #include <gdcmSurface.h>
00019
00020 namespace gdcm
00021 {
00022
00029 class GDCM_EXPORT SurfaceWriter : public SegmentWriter
00030 {
00031 public:
00032     SurfaceWriter();
00033
00034     ~SurfaceWriter() override;
00035
00036 //    const Surface & GetSurface() const { return *SurfaceData; }
00037 //    Surface & GetSurface() { return *SurfaceData; }
00038 //    void SetSurface(Surface const & segment);
00039
00041     bool Write() override; // Execute()
00042
00043     unsigned long GetNumberOfSurfaces();
00044     void SetNumberOfSurfaces(const unsigned long nb);
00045
00046 protected:
00047
00048     bool PrepareWrite();
00049
00050     void ComputeNumberOfSurfaces();
00051
00052     bool PrepareWritePointMacro(SmartPointer< Surface > surface,
00053                                 DataSet & surfaceDS,
00054                                 const TransferSyntax & ts);
00055
00056     //0066 0001 UL 1 Number of Surfaces
00057     unsigned long NumberOfSurfaces;
00058 };
00059
00060 }
00061
00062 #endif // GDCMSURFACEWRITER_H
```
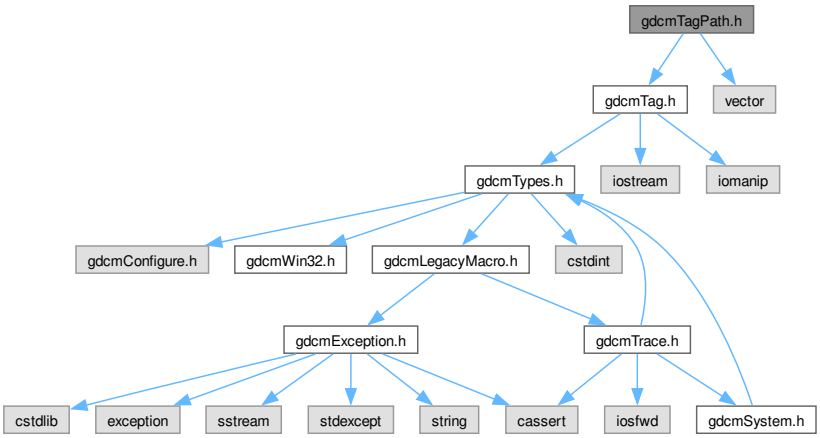

13.441 gdcmTagPath.h File Reference

```
#include "gdcmTag.h"
#include <vector>
```

Include dependency graph for gdcmTagPath.h:



Classes

- class gdcm::TagPath

  class to handle a path of tag.

Namespaces

- namespace gdcm

13.442 gdcmTagPath.h

Go to the documentation of this file.

```
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00012
00013 =========================================================================*/
00014 #ifndef GDCMTAGPATH_H
00015 #define GDCMTAGPATH_H
00016
00017 #include "gdcmTag.h"
00018
00019 #include <vector>
00020
00021 namespace gdcm
00022 {
00023
```
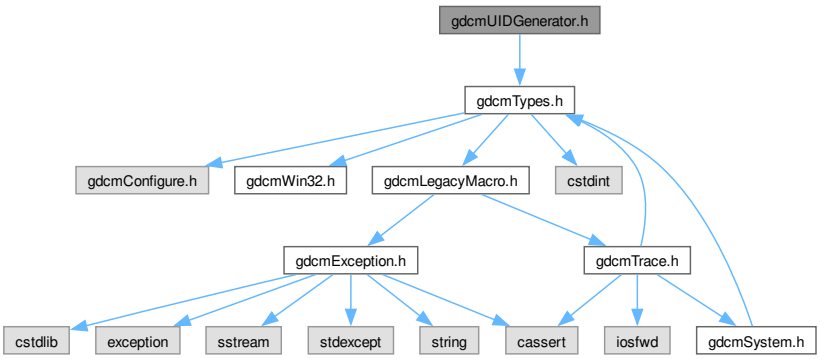

```
00030 class GDCM_EXPORT TagPath
00031 {
00032 public:
00033   TagPath();
00034   ~TagPath();
00035   void Print(std::ostream &) const;
00036
00041   bool ConstructFromString(const char *path);
00042
00044   static bool IsValid(const char *path);
00045
00047   bool ConstructFromTagList(Tag const *l, unsigned int n);
00048
00049   bool Push(Tag const & t);
00050   bool Push(unsigned int itemnum);
00051
00052 private:
00053   std::vector<Tag> Path;
00054 };
00055
00056 } // end namespace gdcm
00057
00058 #endif //GDCMTAGPATH_H
```

13.443 gdcmUIDGenerator.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmUIDGenerator.h:



Classes

- class gdcm::UIDGenerator

  Class for generating unique UID.

Namespaces

- namespace gdcm

13.444 gdcmUIDGenerator.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMUIDGENERATOR_H
00015 #define GDCMUIDGENERATOR_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00027 class GDCM_EXPORT UIDGenerator
00028 {
00029 public:
00031   UIDGenerator():Unique() {}
00032
00033   // Function to override the GDCM root with a user one:
00034   // WARNING: This need to be a valid root, otherwise call will fail
00035   // Implementation note. According to DICOM standard PS 3.5, Section 9 :
00036   // Unique Identifiers (UIDs), we have:
00037   /*
00038   ...
00039   The <org root> portion of the UID uniquely identifies an organization, (i.e., manufacturer, research
00040   organization, NEMA, etc.), and is composed of a number of numeric components as defined by ISO 8824.
00041   The <suffix> portion of the UID is also composed of a number of numeric components, and shall be
00042   unique within the scope of the <org root>. This implies that the organization identified in the <org
      root> is
00043   responsible for guaranteeing <suffix> uniqueness by providing registration policies. These policies
      shall
00044   guarantee <suffix> uniqueness for all UID's created by that organization. Unlike the <org root>, which
      may
00045   be common for UID's in an organization, the <suffix> shall take different unique values between
      different
00046   UID's that identify different objects.
00047   ...
00048    */
00054   static void SetRoot(const char * root);
00055   static const char *GetRoot();
00056
00063   const char* Generate();
00064
00067   static bool IsValid(const char *uid);
00068
00070   static const char *GetGDCMUID(); // who would want that in the public API ??
00071
00072 protected:
00073   static bool GenerateUUID(unsigned char *uuid_data);
00074
00075 private:
00076   static const char GDCM_UID[];
00077   static std::string Root;
00078   static std::string EncodedHardwareAddress;
00079   std::string Unique; // Buffer
00080 };
00081
00082
00083 } // end namespace gdcm
00084
00085 #endif //GDCMUIDGENERATOR_H
```
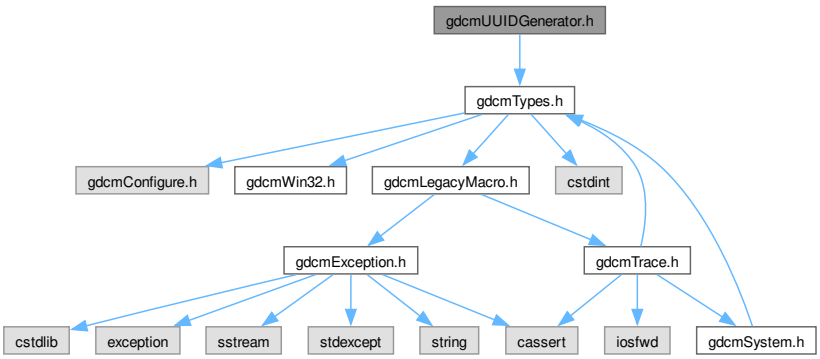

13.445 gdcmUUIDGenerator.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmUUIDGenerator.h:



Classes

- class gdcm::UUIDGenerator

  Class for generating unique UUID.

Namespaces

- namespace gdcm

13.446 gdcmUUIDGenerator.h

Go to the documentation of this file.

```
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00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMUUIDGENERATOR_H
00015 #define GDCMUUIDGENERATOR_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
```
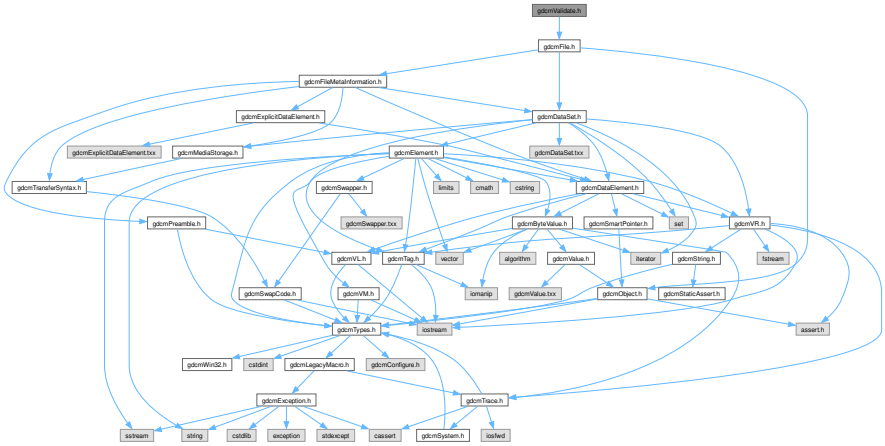

```
00026 class GDCM_EXPORT UUIDGenerator
00027 {
00028 public:
00031   const char* Generate();
00032
00034   static bool IsValid(const char *uid);
00035
00036 private:
00037   std::string Unique; // Buffer
00038 };
00039
00040 } // end namespace gdcm
00041
00042 #endif //GDCMUUIDGENERATOR_H
```

13.447 gdcmValidate.h File Reference

`#include "gdcmFile.h"`
Include dependency graph for gdcmValidate.h:



Classes

- class gdcm::Validate

  Validate class.

Namespaces

- namespace gdcm

13.448 gdcmValidate.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMVALIDATE_H
00015 #define GDCMVALIDATE_H
00016
00017 #include "gdcmFile.h"
00018
00019 namespace gdcm
00020 {
00021
00025 class GDCM_EXPORT Validate
00026 {
00027 public:
00028   Validate();
00029   ~Validate();
00030
00031   void SetFile(File const &f) { F = &f; }
00032   const File& GetValidatedFile() { return V; }
00033
00034   void Validation();
00035
00036 protected:
00037   const File *F;
00038   File V; // Validated file
00039 };
00040
00041 } // end namespace gdcm
00042
00043 #endif //GDCMVALIDATE_H
```
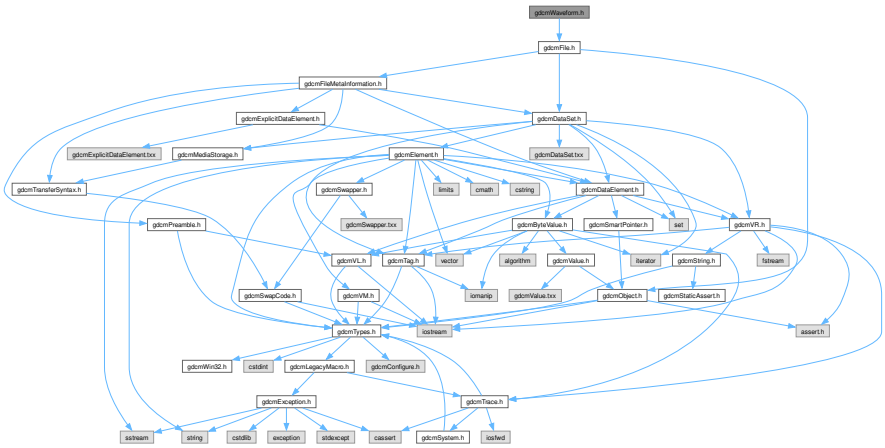

13.449 gdcmWaveform.h File Reference

`#include "gdcmFile.h"`

Include dependency graph for gdcmWaveform.h:



Classes

- class gdcm::Waveform

  Waveform class.

Namespaces

- namespace gdcm

13.450 gdcmWaveform.h

Go to the documentation of this file.

```
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMWAVEFORM_H
00015 #define GDCMWAVEFORM_H
00016
00017 #include "gdcmFile.h"
00018
00019 namespace gdcm
00020 {
00024 class GDCM_EXPORT Waveform
00025 {
00026 public:
00027   Waveform() = default;
00028
00029 private:
00030 };
00031
00032 } // end namespace gdcm
00033
00034 #endif //GDCMWAVEFORM_H
```
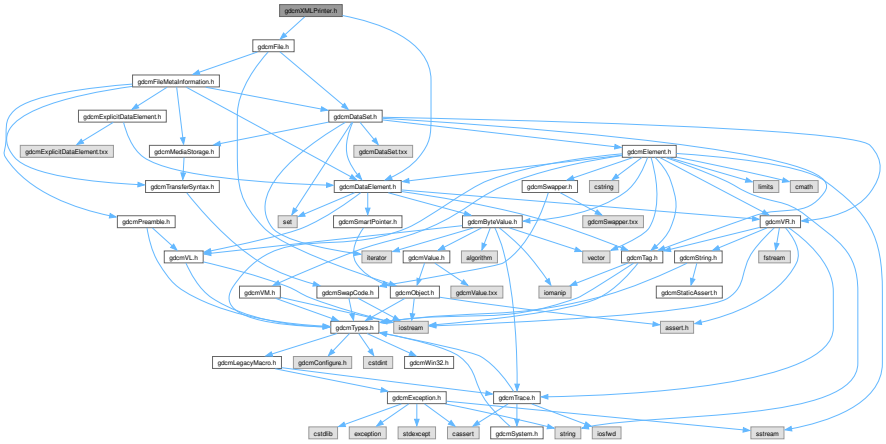

13.451 gdcmXMLPrinter.h File Reference

```
#include "gdcmFile.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmXMLPrinter.h:



Classes

- class gdcm::XMLPrinter

Namespaces

- namespace gdcm

13.452 gdcmXMLPrinter.h

Go to the documentation of this file.

```
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMXMLPRINTER_H
00015 #define GDCMXMLPRINTER_H
00016
00017 /*
00018
00019 The Normative version of the XML Schema for the Native DICOM Model follows:
00020
00021
00022
00023 start = element NativeDicomModel { DicomDataSet }
00024
00025 # A DICOM Data Set is as defined in PS3.5. It does not appear
00026 # as an XML Element, since it does not appear in the binary encoded
00027 # DICOM objects. It exists here merely as a documentation aid.
00028
```

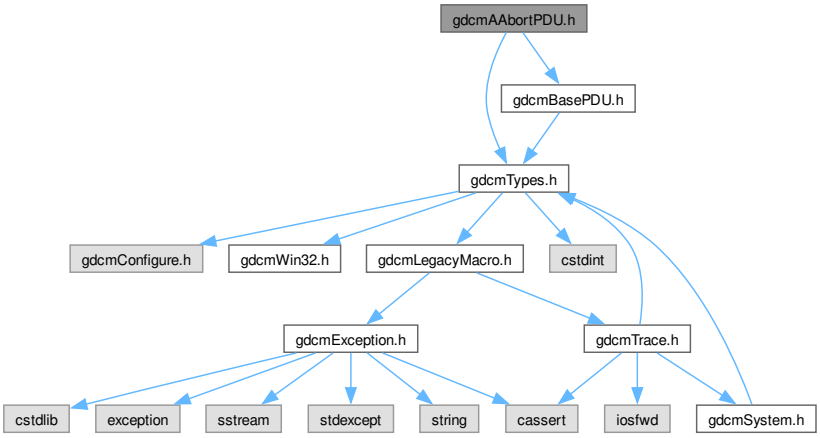
```
00029 DicomDataSet = DicomAttribute*
00030 DicomAttribute = element DicomAttribute {
00031 Tag, VR, Keyword?, PrivateCreator?,
00032 ( BulkData | Value+ | Item+ | PersonName+ )?
00033 }
00034
00035 BulkData = element BulkData{ UUID }
00036 Value = element Value { Number, xsd:string }
00037 Item = element Item { Number, DicomDataSet }
00038 PersonName = element PersonName {
00039 Number,
00040 element SingleByte { NameComponents }?,
00041 element Ideographic { NameComponents }?,
00042 element Phonetic
00043 { NameComponents }?
00044 }
00045
00046 NameComponents =
00047 element FamilyName {xsd:string}?,
00048 element GivenName {xsd:string}?,
00049 element MiddleName {xsd:string}?,
00050 element NamePrefix {xsd:string}?,
00051 element NameSuffix {xsd:string}?
00052
00053 # keyword is the attribute tag from PS3.6
00054 # (derived from the DICOM Attribute's name)
00055 Keyword = attribute keyword { xsd:token }
00056 # canonical XML definition of Hex, with lowercase letters disallowed
00057 Tag = attribute tag { xsd:string{ minLength="8" maxLength="8" pattern="[0-9A-F]{8}" } }
00058 VR = attribute vr { "AE" | "AS" | "AT"| "CS" | "DA" | "DS" | "DT" | "FL" | "FD"
00059 | "IS" | "LO" | "LT" | "OB" | "OF" | "OW" | "PN" | "SH" | "SL"
00060 | "SQ" | "SS" | "ST" | "TM" | "UI" | "UL" | "UN" | "US" | "UT" }
00061 PrivateCreator = attribute privateCreator{ xsd:string }
00062 UUID = attribute uuid { xsd:string }
00063 Number = attribute number { xsd:positiveInteger }
00064
00065
00066 */
00067
00068 #include "gdcmFile.h"
00069 #include "gdcmDataElement.h"
00070
00071 namespace gdcm
00072 {
00073
00074 class DataSet;
00075 class DictEntry;
00076 class Dicts;
00077
00078 class GDCM_EXPORT XMLPrinter
00079 {
00080 public:
00081   XMLPrinter();
00082   virtual ~XMLPrinter();
00083
00084   // Set file
00085   void SetFile(File const &f) { F = &f; }
00086
00087
00088
00089   typedef enum {
00090
00091     OnlyUUID = 0 ,
00092     LOADBULKDATA = 1
00093
00094   } PrintStyles;
00095
00096   // Set PrintStyle value
00097   void SetStyle(PrintStyles ps)
00098   {
00099     PrintStyle = ps;
00100   }
00101
00102   // Get PrintStyle value
00103   PrintStyles GetPrintStyle() const
00104   {
00105     return PrintStyle;
00106   }
00107
00108   // Print
00109   void Print(std::ostream& os);
```

```
00110
00111   // Print an individual dataset
00112   void PrintDataSet(const DataSet &ds, const TransferSyntax & ts, std::ostream& os);
00113
00114   //void PrintUID(std::ostream &os);
00115
00119   virtual void HandleBulkData(const char *uuid, const TransferSyntax &ts,
00120     const char *bulkdata, size_t bulklen);
00121
00122 protected:
00123
00124   VR PrintDataElement(std::ostream &os, const Dicts &dicts, const DataSet & ds, const DataElement &de,
      const TransferSyntax & ts);
00125
00126   void PrintSQ(const SequenceOfItems *sqi, const TransferSyntax & ts, std::ostream &os);
00127
00128   PrintStyles PrintStyle;
00129
00130   const File *F;
00131
00132 };
00133
00134 } // end namespace gdcm
00135
00136 #endif //GDCMXMLPRINTER_H
```

13.453 gdcmAAbortPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmBasePDU.h"
```

Include dependency graph for gdcmAAbortPDU.h:



Classes

- class gdcm::network::AAbortPDU

  AAbortPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.454 gdcmAAbortPDU.h

Go to the documentation of this file.

```
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00012
00013 =========================================================================*/
00014 #ifndef GDCMAABORTPDU_H
00015 #define GDCMAABORTPDU_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmBasePDU.h"
00019
00020 namespace gdcm
00021 {
00022
00023 namespace network
00024 {
00025
00030 class GDCM_EXPORT AAbortPDU : public BasePDU
00031 {
00032 public:
00033   AAbortPDU();
00034   std::istream &Read(std::istream &is) override;
00035   const std::ostream &Write(std::ostream &os) const override;
00036
00038   size_t Size() const override;
00039   void Print(std::ostream &os) const override;
00040
00041   bool IsLastFragment() const override { return true; }
00042
00043   void SetSource(const uint8_t s);
00044   void SetReason(const uint8_t r);
00045
00046 private:
00047   static const uint8_t ItemType; // PDUType ?
00048   static const uint8_t Reserved2;
00049   uint32_t ItemLength; // PDU Length
00050   static const uint8_t Reserved7;
00051   static const uint8_t Reserved8;
00052   uint8_t Source;
00053   uint8_t Reason; // diag
00054 };
00055
00056 } // end namespace network
00057
00058 } // end namespace gdcm
00059
00060 #endif //GDCMAABORTPDU_H
```
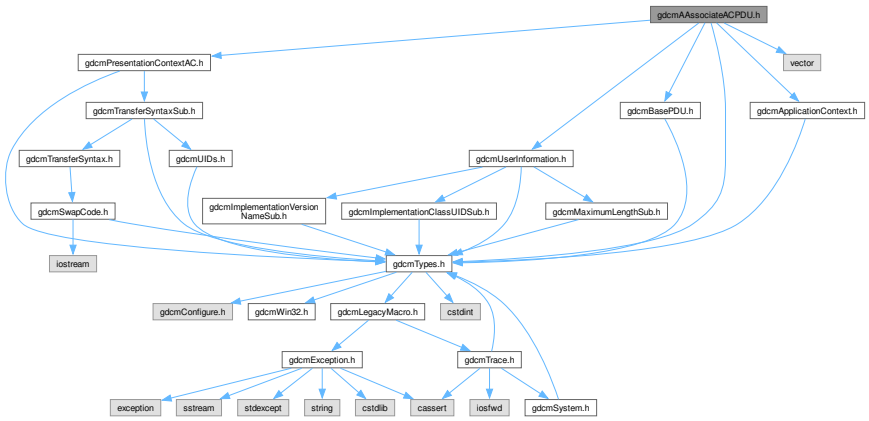

13.455 gdcmAAssociateACPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmApplicationContext.h"
```

```
#include "gdcmPresentationContextAC.h"
#include "gdcmUserInformation.h"
#include "gdcmBasePDU.h"
#include <vector>
```

Include dependency graph for gdcmAAssociateACPDU.h:



Classes

- class gdcm::network::AAssociateACPDU

  AAssociateACPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.456 gdcmAAssociateACPDU.h

Go to the documentation of this file.

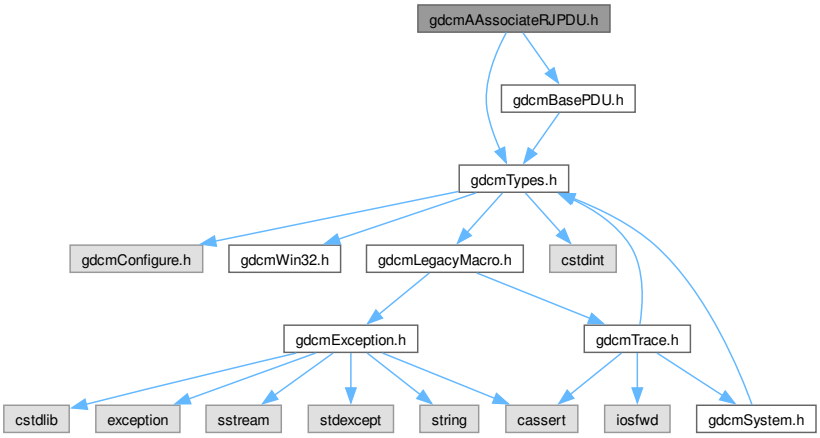
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMAASSOCIATEACPDU_H
00015 #define GDCMAASSOCIATEACPDU_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmApplicationContext.h"
00019 #include "gdcmPresentationContextAC.h"
```

```
00020 #include "gdcmUserInformation.h"
00021 #include "gdcmBasePDU.h"
00022
00023 #include <vector>
00024
00025 namespace gdcm
00026 {
00027
00028 namespace network
00029 {
00030 class AAssociateRQPDU;
00031
00037 class AAssociateACPDU : public BasePDU
00038 {
00039 public:
00040   AAssociateACPDU();
00041   std::istream &Read(std::istream &is) override;
00042   const std::ostream &Write(std::ostream &os) const override;
00043
00044   void AddPresentationContextAC( PresentationContextAC const &pcac );
00045
00046   typedef std::vector<PresentationContextAC>::size_type SizeType;
00047   const PresentationContextAC &GetPresentationContextAC( SizeType i ) {
00048     assert( !PresContextAC.empty() && i < PresContextAC.size() );
00049     return PresContextAC[i];
00050   }
00051   SizeType GetNumberOfPresentationContextAC() const {
00052     return PresContextAC.size();
00053   }
00054   const UserInformation &GetUserInformation() const { return UserInfo; }
00055
00056   SizeType Size() const override;
00057
00058   void Print(std::ostream &os) const override;
00059   bool IsLastFragment() const override { return true; }
00060
00061   void InitFromRQ( AAssociateRQPDU const & rqpdu );
00062 protected:
00063   friend class AAssociateRQPDU;
00064   void SetCalledAETitle(const char calledaetitle[16]);
00065   void SetCallingAETitle(const char callingaetitle[16]);
00066
00067 private:
00068   void InitSimple( AAssociateRQPDU const & rqpdu );
00069
00070 private:
00071   static const uint8_t ItemType; // PDUType ?
00072   static const uint8_t Reserved2;
00073   uint32_t PDULength; // len of
00074   static const uint16_t ProtocolVersion;
00075   static const uint16_t Reserved9_10;
00076
00077   // This reserved field shall be sent with a value identical to the value
00078   // received in the same field of the A-ASSOCIATE-RQ PDU, but its value
00079   // shall not be tested when received.
00080   char Reserved11_26[16];
00081   // This reserved field shall be sent with a value identical to the value
00082   // received in the same field of the A-ASSOCIATE-RQ PDU, but its value
00083   // shall not be tested when received.
00084   char Reserved27_42[16];
00085   // This reserved field shall be sent with a value identical to the value
00086   // received in the same field of the A-ASSOCIATE-RQ PDU, but its value
00087   // shall not be tested when received.
00088   char Reserved43_74[32];
00089   /*
00090   75-xxx Variable items This variable field shall contain the following items: one Application
00091   Context Item, one or more Presentation Context Item(s) and one User
00092   Information Item. For a complete description of these items see Sections
00093   7.1.1.2, 7.1.1.14, and 7.1.1.6.
00094    */
00095   ApplicationContext AppContext;
00096   std::vector<PresentationContextAC>  PresContextAC;
00097   UserInformation UserInfo;
00098 };
00099
00100 } // end namespace network
00101
00102 } // end namespace gdcm
00103
00104 #endif //GDCMAASSOCIATEACPDU_H
```

13.457 gdcmAAssociateRJPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmBasePDU.h"
```

Include dependency graph for gdcmAAssociateRJPDU.h:



Classes

- class gdcm::network::AAssociateRJPDU
  AAssociateRJPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.458 gdcmAAssociateRJPDU.h

Go to the documentation of this file.

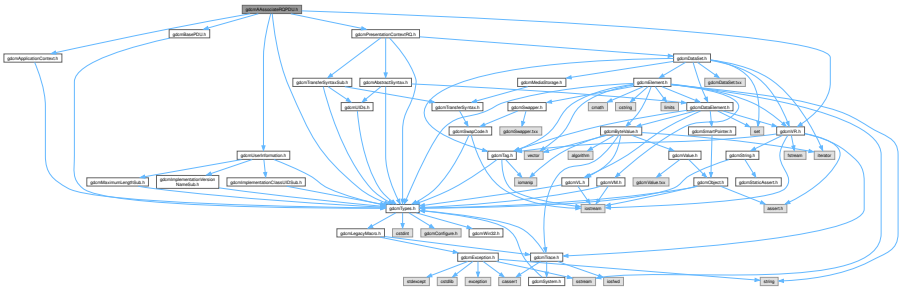
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMAASSOCIATERJPDU_H
```

```
00015 #define GDCMAASSOCIATERJPDU_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmBasePDU.h"
00019
00020 namespace gdcm
00021 {
00022
00023 namespace network
00024 {
00025
00031 class AAssociateRJPDU : public BasePDU
00032 {
00033 public:
00034   AAssociateRJPDU();
00035   std::istream &Read(std::istream &is) override;
00036   const std::ostream &Write(std::ostream &os) const override;
00037   void Print(std::ostream &os) const override;
00038   size_t Size() const override;
00039   bool IsLastFragment() const override { return true; }
00040 private:
00041   static const uint8_t ItemType; // PDUType ?
00042   static const uint8_t Reserved2;
00043   uint32_t ItemLength; // PDU Length ?
00044   static const uint8_t Reserved8;
00045   uint8_t Result;
00046   uint8_t Source;
00047   uint8_t Reason; // diag ?
00048 };
00049
00050 } // end namespace network
00051
00052 } // end namespace gdcm
00053
00054 #endif //GDCMAASSOCIATERJPDU_H
```

13.459 gdcmAAssociateRQPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVR.h"
#include "gdcmApplicationContext.h"
#include "gdcmPresentationContextRQ.h"
#include "gdcmUserInformation.h"
#include "gdcmBasePDU.h"
```

Include dependency graph for gdcmAAssociateRQPDU.h:



Classes

- class gdcm::network::AAssociateRQPDU

  AAssociateRQPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.460 gdcmAAssociateRQPDU.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMAASSOCIATERQPDU_H
00015 #define GDCMAASSOCIATERQPDU_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmVR.h" // AEComp
00019 #include "gdcmApplicationContext.h"
00020 #include "gdcmPresentationContextRQ.h"
00021 #include "gdcmUserInformation.h"
00022 #include "gdcmBasePDU.h"
00023
00024 namespace gdcm
00025 {
00026
00027 namespace network
00028 {
00029
00030 class AAssociateACPDU;
00035 class AAssociateRQPDU : public BasePDU
00036 {
00037 public:
00038   AAssociateRQPDU();
00039   std::istream &Read(std::istream &is) override;
00040   const std::ostream &Write(std::ostream &os) const override;
00041   size_t Size() const override;
00042   void AddPresentationContext( PresentationContextRQ const &pc );
00043
00045   void SetCalledAETitle(const char calledaetitle[16]);
00046   std::string GetCalledAETitle() const { return std::string(CalledAETitle,16); }
00047
00049   void SetCallingAETitle(const char callingaetitle[16]);
00050   std::string GetCallingAETitle() const { return std::string(CallingAETitle,16); }
00051
00053   static bool IsAETitleValid(const char title[16]);
00054
00057   //void InitFromRQ( AAssociateACPDU & acpdu );
00058
00059   void Print(std::ostream &os) const override;
00060
00061   AAssociateRQPDU(const AAssociateRQPDU &pdu):BasePDU(pdu)
00062     {
00063     assert( 0 );
00064     }
00065   //this function fails to compile on windows.
00066 //  AAssociateRQPDU &operator=(const AAssociateRQPDU &_val)
00067 //    {
00068 //    assert( 0 );
00069 //    }
00070
00071   typedef std::vector<PresentationContextRQ>::size_type SizeType;
00072   SizeType GetNumberOfPresentationContext() const {
00073     return PresContext.size();
00074   }
```
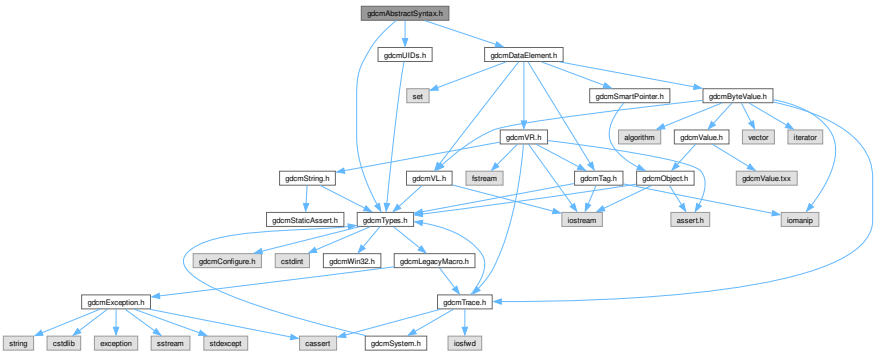

```
00075   PresentationContextRQ const &GetPresentationContext(SizeType i) const {
00076     assert( !PresContext.empty() && i < PresContext.size() );
00077     return PresContext[i];
00078   }
00079   typedef std::vector<PresentationContextRQ> PresentationContextArrayType;
00080   PresentationContextArrayType const &GetPresentationContexts() { return PresContext; }
00081
00082   const PresentationContextRQ *GetPresentationContextByID(uint8_t i) const;
00083   const PresentationContextRQ *GetPresentationContextByAbstractSyntax(AbstractSyntax const & absyn )
      const;
00084   bool IsLastFragment() const override { return true; }
00085
00086   const UserInformation & GetUserInformation() const { return UserInfo; }
00087   void SetUserInformation( UserInformation const & ui );
00088
00089 protected:
00090   friend class AAssociateACPDU;
00091   std::string GetReserved43_74() const;
00092
00093 private:
00094   // 1 PDU-type 01H
00095   static const uint8_t ItemType; // PDUType ?
00096   // 2 Reserved This reserved field shall be sent with a value 00H but not tested to this value when
      received.
00097   static const uint8_t Reserved2;
00098   /* 3-6 PDU-length This PDU-length shall be the number of bytes from the first byte of the
00099      following field to the last byte of the variable field. It shall be encoded as
00100     an unsigned binary number
00101    */
00102   uint32_t ItemLength; // PDU Length
00103   /*
00104   7-8 Protocol-version This two byte field shall use one bit to identify each version of the
00105   DICOM UL protocol supported by the calling end-system. This is
00106   Version 1 and shall be identified with bit 0 set. A receiver of this PDU
00107   implementing only this version of the DICOM UL protocol shall only test
00108   that bit 0 is set.
00109    */
00110   static const uint16_t ProtocolVersion;
00111   /*
00112   9-10 Reserved This reserved field shall be sent with a value 0000H but not tested to
00113   this value when received.
00114    */
00115   static const uint16_t Reserved9_10;
00116   /*
00117   11-26 Called-AE-title Destination DICOM Application Name. It shall be encoded as 16
00118   characters as defined by the ISO 646:1990-Basic G0 Set with leading
00119   and trailing spaces (20H) being non-significant. The value made of 16
00120   spaces (20H) meaning "no Application Name specified" shall not be
00121   used. For a complete description of the use of this field, see Section
00122   7.1.1.4.
00123    */
00124   char CalledAETitle[16];
00125   /*
00126   27-42 Calling-AE-title Source DICOM Application Name. It shall be encoded as 16
00127   characters as defined by the ISO 646:1990-Basic G0 Set with leading
00128   and trailing spaces (20H) being non-significant. The value made of 16
00129   spaces (20H) meaning "no Application Name specified" shall not be
00130   used. For a complete description of the use of this field, see Section
00131   7.1.1.3.
00132    */
00133   char CallingAETitle[16];
00134   /*
00135   43-74 Reserved This reserved field shall be sent with a value 00H for all bytes but not
00136   tested to this value when received
00137    */
00138   char Reserved43_74[32]; // { 0 }
00139   /*
00140   75-xxx Variable items This variable field shall contain the following items: one Application
00141   Context Item, one or more Presentation Context Items and one User
00142   Information Item. For a complete description of the use of these items
00143   see Sections 7.1.1.2, 7.1.1.13, and 7.1.1.6.
00144    */
00145   ApplicationContext AppContext;
00146   std::vector<PresentationContextRQ> PresContext;
00147   UserInformation UserInfo;
00148 };
00149
00150 } // end namespace network
00151 } // end namespace gdcm
00152
00153 #endif //GDCMAASSOCIATERQPDU_H
```

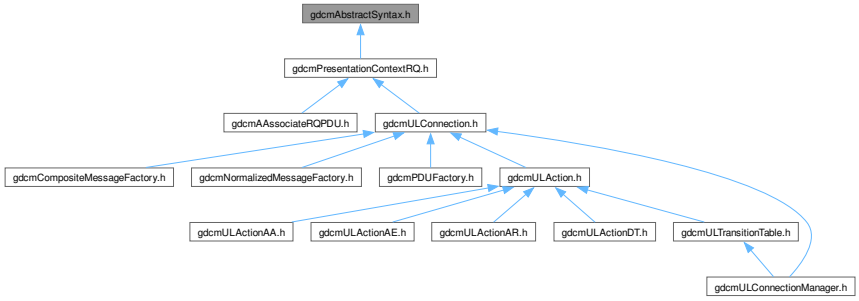
13.461 gdcmAbstractSyntax.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmUIDs.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmAbstractSyntax.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::AbstractSyntax

  AbstractSyntax.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.462 gdcmAbstractSyntax.h

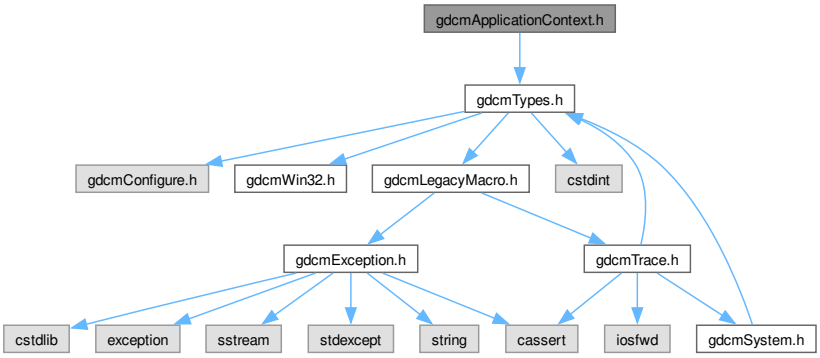
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMABSTRACTSYNTAX_H
00015 #define GDCMABSTRACTSYNTAX_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmUIDs.h"
00019 #include "gdcmDataElement.h"
00020
00021 namespace gdcm
00022 {
00023
00024 namespace network
00025 {
00026
00032 class AbstractSyntax
00033 {
00034 public:
00035   AbstractSyntax();
00036   std::istream &Read(std::istream &is);
00037   const std::ostream &Write(std::ostream &os) const;
00038
00039   void SetName( const char *name ) { UpdateName( name ); }
00040   const char *GetName() const { return Name.c_str(); }
00041
00042   // accept a UIDs::TSType also...
00043   void SetNameFromUID( UIDs::TSName tsname );
00044   //now that the PresentationContext messes around with UIDs and returns a string
00045   //use that string as well.
00046   //void SetNameFromUIDString( const std::string& inUIDName );
00047
00048   size_t Size() const;
00049
00050   void Print(std::ostream &os) const;
00051
00052   bool operator==(const AbstractSyntax & as) const
00053     {
00054     return Name == as.Name;
00055     }
00056
00057   DataElement GetAsDataElement() const;
00058
00059 private:
00060   void UpdateName( const char *name );
00061   static const uint8_t ItemType;
00062   static const uint8_t Reserved2;
00063   uint16_t ItemLength; // len of
00064   std::string /*AbstractSyntax*/ Name; // UID
00065 };
00066
00067 } // end namespace network
00068 } // end namespace gdcm
00069
00070 #endif //GDCMABSTRACTSYNTAX_H
```

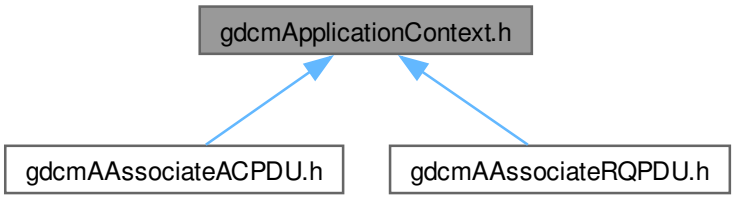
13.463 gdcmApplicationContext.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmApplicationContext.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ApplicationContext

  ApplicationContext.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.464 gdcmApplicationContext.h

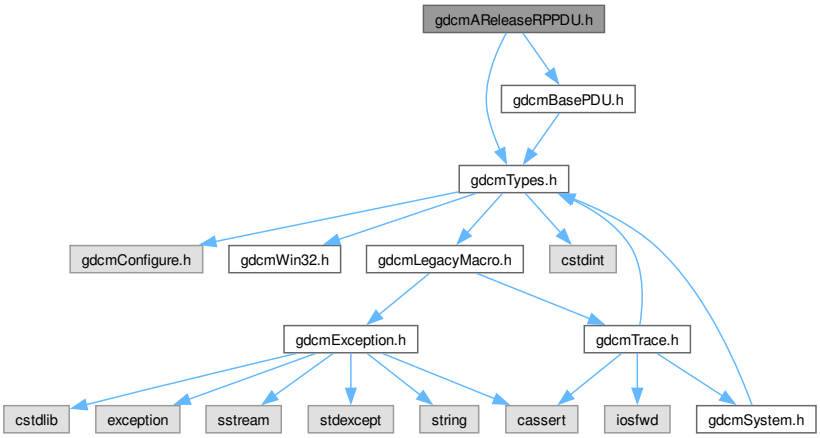
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMAPPLICATIONCONTEXT_H
00015 #define GDCMAPPLICATIONCONTEXT_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00022 namespace network
00023 {
00024
00032 class ApplicationContext
00033 {
00034 public:
00035   ApplicationContext();
00036   std::istream &Read(std::istream &is);
00037   const std::ostream &Write(std::ostream &os) const;
00038
00039   void SetName( const char *name ) { UpdateName( name ); }
00040   const char *GetName() const { return Name.c_str(); }
00041   size_t Size() const;
00042
00043   //static const uint8_t GetItemType() { return ItemType; }
00044   void Print(std::ostream &os) const;
00045
00046 private:
00047   void UpdateName( const char *name );
00048   static const uint8_t ItemType;
00049   static const uint8_t Reserved2;
00050   uint16_t ItemLength; // len of application context name
00051   std::string /*ApplicationContext*/ Name; // UID
00052 };
00053
00054 } // end namespace network
00055
00056 } // end namespace gdcm
00057
00058 #endif //GDCMAPPLICATIONCONTEXT_H
```

13.465 gdcmAReleaseRPPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmBasePDU.h"
```

Include dependency graph for gdcmAReleaseRPPDU.h:



Classes

- class gdcm::network::AReleaseRPPDU
  AReleaseRPPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.466 gdcmAReleaseRPPDU.h

Go to the documentation of this file.

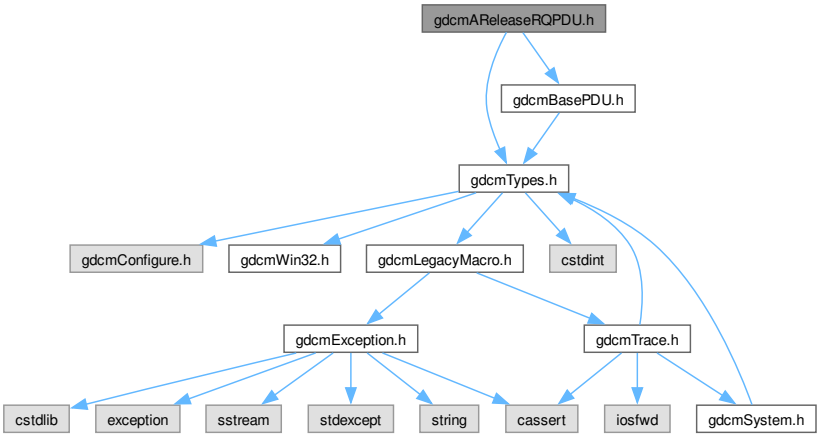
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMARELEASERPPDU_H
00015 #define GDCMARELEASERPPDU_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmBasePDU.h"
00019
00020 namespace gdcm
00021 {
00022
```

```
00023 namespace network
00024 {
00025
00031 class AReleaseRPPDU : public BasePDU
00032 {
00033 public:
00034   AReleaseRPPDU();
00035   std::istream &Read(std::istream &is) override;
00036   const std::ostream &Write(std::ostream &os) const override;
00037   size_t Size() const override;
00038   void Print(std::ostream &os) const override;
00039   bool IsLastFragment() const override { return true; }
00040 private:
00041   static const uint8_t ItemType; // PDUType ?
00042   static const uint8_t Reserved2;
00043   uint32_t ItemLength; // PDU Length
00044   static const uint32_t Reserved7_10;
00045 };
00046
00047 } // end namespace network
00048
00049 } // end namespace gdcm
00050
00051 #endif //GDCMARELEASERPPDU_H
```

13.467 gdcmAReleaseRQPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmBasePDU.h"
```

Include dependency graph for gdcmAReleaseRQPDU.h:



Classes

- class gdcm::network::AReleaseRQPDU

  AReleaseRQPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

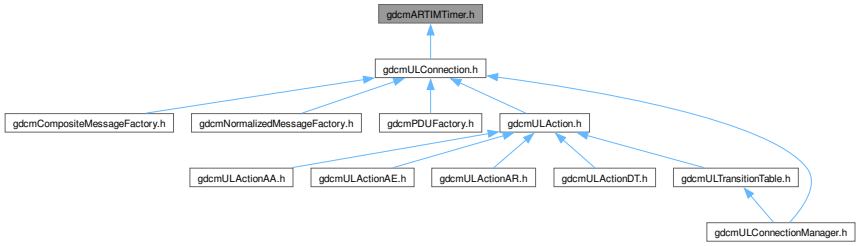
13.468 gdcmAReleaseRQPDU.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMARELEASERQPDU_H
00015 #define GDCMARELEASERQPDU_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmBasePDU.h"
00019
00020 namespace gdcm
00021 {
00022
00023 namespace network
00024 {
00025
00031 class AReleaseRQPDU : public BasePDU
00032 {
00033 public:
00034   AReleaseRQPDU();
00035   std::istream &Read(std::istream &is) override;
00036   const std::ostream &Write(std::ostream &os) const override;
00037   size_t Size() const override;
00038   void Print(std::ostream &os) const override;
00039   bool IsLastFragment() const override { return true; }
00040 private:
00041   static const uint8_t ItemType; // PDUType ?
00042   static const uint8_t Reserved2;
00043   uint32_t ItemLength; // PDU Length
00044   static const uint32_t Reserved7_10;
00045 };
00046
00047 } // end namespace network
00048
00049 } // end namespace gdcm
00050
00051 #endif //GDCMARELEASERQPDU_H
```

13.469 gdcmARTIMTimer.h File Reference

This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ARTIMTimer

  ARTIMTimer.

Namespaces

- namespace gdcm
- namespace gdcm::network

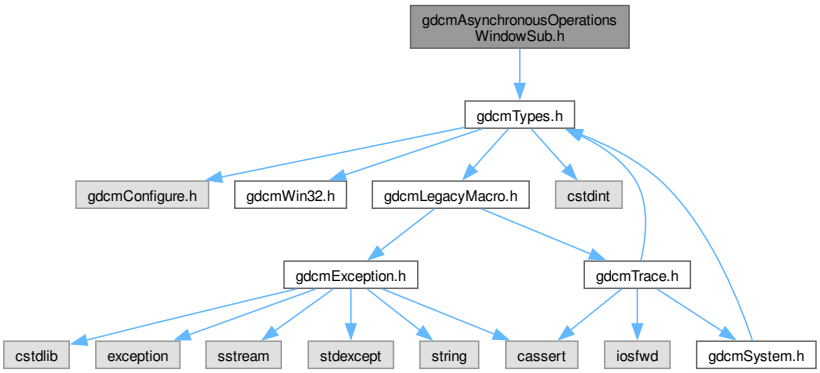
13.470 gdcmARTIMTimer.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMARTIMTIMER_H
00019 #define GDCMARTIMTIMER_H
00020
00021 namespace gdcm {
00022   namespace network{
00038 class ARTIMTimer
00039 {
00040     private:
00041       double mStartTime; //ms timing should be good enough, but there are also
00042       //high-resolution timing options.  Those return doubles.  For now,
00043       //go with integer timing solutions based on milliseconds (DWORD on windows),
00044       //but leave as doubles to ease transitions to other timing methods.
00045
00046       double mTimeOut;
00047       //once GetCurrentTime() -mStartTime > mTimeout, GetHasExpired returns true.
00048
00049       double GetCurrentTime() const;//a platform-specific implementation of getting the
00050       //current time.
00051
00052     public:
00053       ARTIMTimer(); //initiates the start and timeout at -1;
00054       void Start(); //'start' the timer by getting the current wall time
00055       void Stop();//'stop' the timer by resetting the 'start' to -1;
00056       void SetTimeout(double inTimeout);
00057       double GetTimeout() const;
00058
00059       double GetElapsedTime() const;
00060
00061       bool GetHasExpired() const;
00062
00063     };
00064   }
00065 }
00066
00067 #endif //GDCMARTIMTIMER_H
```

13.471 gdcmAsynchronousOperationsWindowSub.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmAsynchronousOperationsWindowSub.h:



Classes

- class gdcm::network::AsynchronousOperationsWindowSub
  AsynchronousOperationsWindowSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.472 gdcmAsynchronousOperationsWindowSub.h

Go to the documentation of this file.

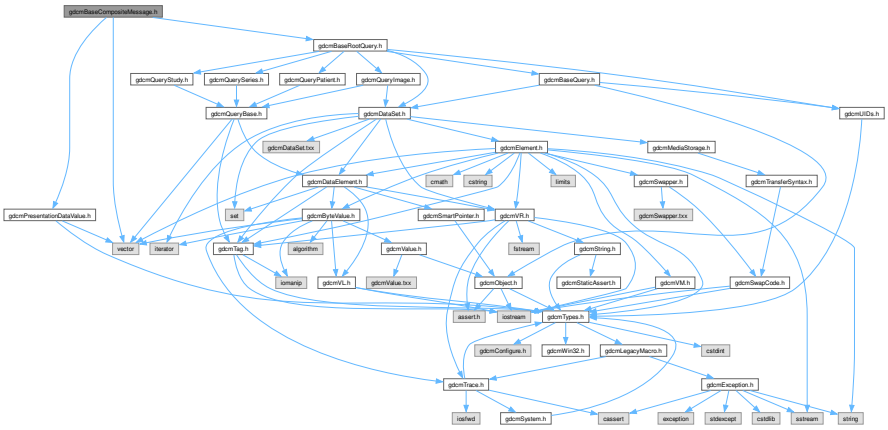
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMASYNCHRONOUSOPERATIONSWINDOWSUB_H
00015 #define GDCMASYNCHRONOUSOPERATIONSWINDOWSUB_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
```

```
00020 {
00021
00022 namespace network
00023 {
00024
00032 class AsynchronousOperationsWindowSub
00033 {
00034 public:
00035   AsynchronousOperationsWindowSub();
00036   std::istream &Read(std::istream &is);
00037   const std::ostream &Write(std::ostream &os) const;
00038
00039   size_t Size() const;
00040   void Print(std::ostream &os) const;
00041
00042 private:
00043   static const uint8_t ItemType;
00044   static const uint8_t Reserved2;
00045   uint16_t ItemLength;
00046   uint16_t MaximumNumberOperationsInvoked;
00047   uint16_t MaximumNumberOperationsPerformed;
00048 };
00049
00050 } // end namespace network
00051
00052 } // end namespace gdcm
00053
00054 #endif // GDCMASYNCHRONOUSOPERATIONSWINDOWSUB_H
```

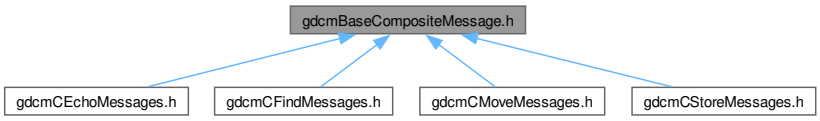
13.473 gdcmBaseCompositeMessage.h File Reference

```
#include "gdcmPresentationDataValue.h"
#include "gdcmBaseRootQuery.h"
#include <vector>
```

Include dependency graph for gdcmBaseCompositeMessage.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::BaseCompositeMessage

  BaseCompositeMessage.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.474 gdcmBaseCompositeMessage.h

Go to the documentation of this file.

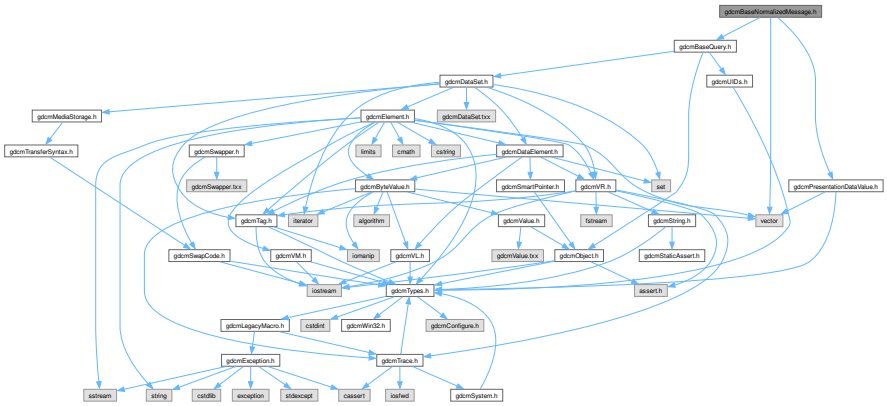
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMBASECOMPOSITEMESSSAGE_H
00019 #define GDCMBASECOMPOSITEMESSSAGE_H
00020
00021 #include "gdcmPresentationDataValue.h"
00022 #include "gdcmBaseRootQuery.h"
00023
00024 #include <vector>
00025
00026 namespace gdcm
00027 {
00028   namespace network
00029     {
00030 class ULConnection;
00052 class BaseCompositeMessage
00053 {
00054     public:
00055       virtual ~BaseCompositeMessage() = default;
00056       //construct the appropriate pdv and dataset for this message
00057       //for instance, setting tag 0x0,0x100 to the appropriate value
00058       //the pdv, as described in Annex E of 3.8-2009, is the first byte
```

```
00059       //of the message (the MessageHeader), and then the subsequent dataset
00060       //that describes the operation.
00061       virtual std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00062         const BaseRootQuery * inRootQuery) = 0;
00063     };
00064   }
00065 }
00066 #endif //BASECOMPOSITEMESSSAGE_H
```

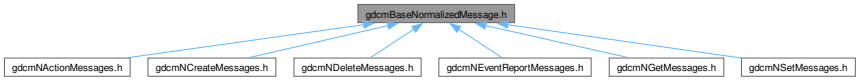
13.475 gdcmBaseNormalizedMessage.h File Reference

```
#include "gdcmPresentationDataValue.h"
#include "gdcmBaseQuery.h"
#include <vector>
```

Include dependency graph for gdcmBaseNormalizedMessage.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::BaseNormalizedMessage

  BaseNormalizedMessage.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.476 gdcmBaseNormalizedMessage.h

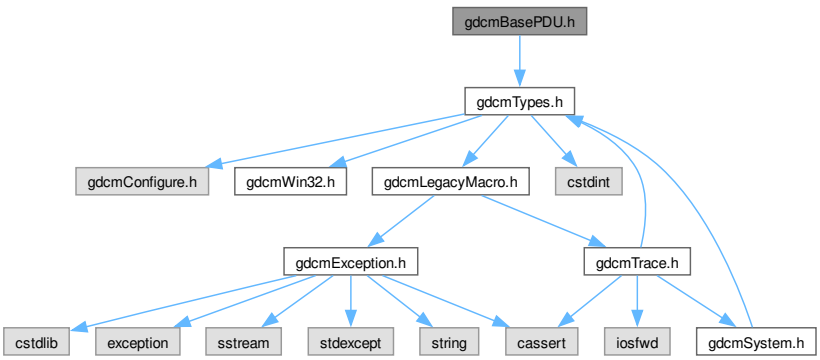
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2014 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBASENORMALIZEDMESSSAGE_H
00015 #define GDCMBASENORMALIZEDMESSSAGE_H
00016
00017 #include "gdcmPresentationDataValue.h"
00018 #include "gdcmBaseQuery.h"
00019
00020 #include <vector>
00021
00022 namespace gdcm
00023 {
00024   namespace network
00025     {
00026 class ULConnection;
00049 class BaseNormalizedMessage
00050 {
00051     public:
00052       virtual ~BaseNormalizedMessage() = default;
00053       //construct the appropriate pdv and dataset for this message
00054       //for instance, setting tag 0x0,0x100 to the appropriate value
00055       //the pdv, as described in Annex E of 3.8-2009, is the first byte
00056       //of the message (the MessageHeader), and then the subsequent dataset
00057       //that describes the operation.
00058       virtual std::vector<PresentationDataValue> ConstructPDV(  const ULConnection &inConnection,
00059                                 const BaseQuery * inQuery) = 0;
00060     };
00061   }
00062 }
00063 #endif //GDCMBASENORMALIZEDMESSSAGE_H
```

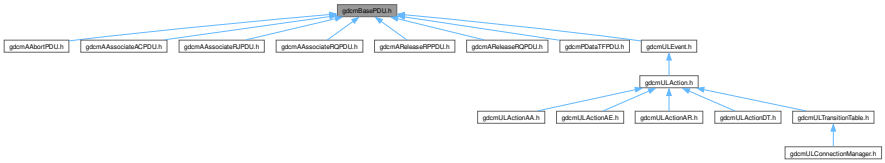
13.477 gdcmBasePDU.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmBasePDU.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::BasePDU

  BasePDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.478 gdcmBasePDU.h

Go to the documentation of this file.

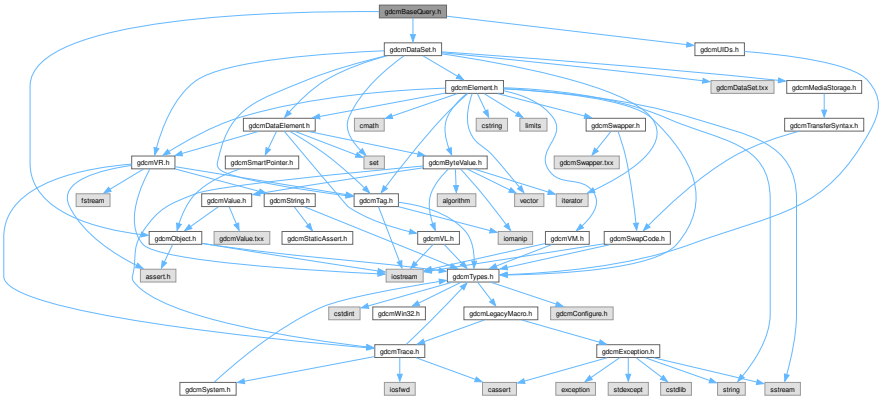
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMBASEPDU_H
00019 #define GDCMBASEPDU_H
00020
00021 #include "gdcmTypes.h"
00022
00023 namespace gdcm
00024 {
00025 namespace network
00026 {
00027
00050 class BasePDU
00051 {
00052 public:
00053   virtual ~BasePDU() = default;
00054
00055   virtual std::istream &Read(std::istream &is) = 0;
00056   virtual const std::ostream &Write(std::ostream &os) const = 0;
00057
00058   virtual size_t Size() const = 0;
00059   virtual void Print(std::ostream &os) const = 0;
00060
```

```
00061   virtual bool IsLastFragment() const = 0;
00062 };
00063
00064 } // end namespace network
00065 } // end namespace gdcm
00066
00067 #endif // GDCMBASEPDU_H
```

13.479 gdcmBaseQuery.h File Reference

```
#include "gdcmDataSet.h"
#include "gdcmUIDs.h"
#include "gdcmObject.h"
```

Include dependency graph for gdcmBaseQuery.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::BaseQuery

  BaseQuery.

Namespaces

- namespace gdcm

Enumerations

- enum gdcm::ENQueryType {
  gdcm::eCreateMMPS = 0 ,
  gdcm::eSetMMPS }

13.480 gdcmBaseQuery.h

Go to the documentation of this file.

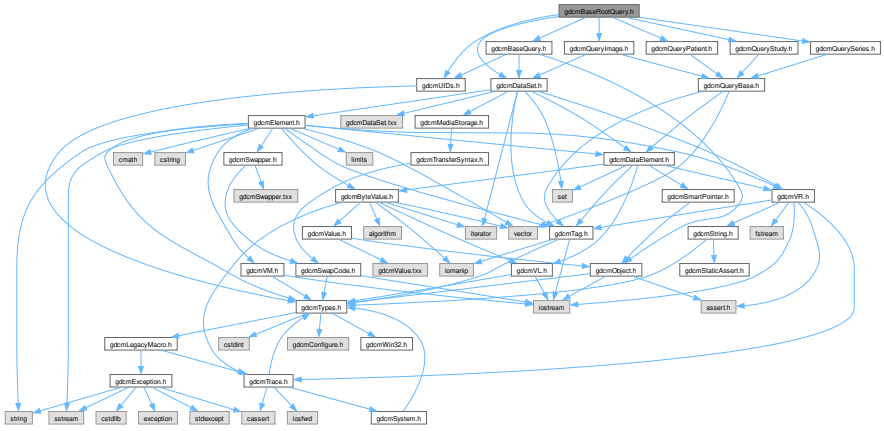
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMBASEQUERY_H
00019 #define GDCMBASEQUERY_H
00020
00021 #include "gdcmDataSet.h"
00022 #include "gdcmUIDs.h"
00023 #include "gdcmObject.h"
00024
00025 namespace gdcm
00026 {
00027   class QueryFactory;
00028   class DictEntry;
00029
00030   enum ENQueryType
00031     {
00032     eCreateMMPS = 0,
00033     eSetMMPS
00034     };
00041 class GDCM_EXPORT BaseQuery : public Object
00042 {
00043   //these four classes contain the required, unique, and optional tags from the standard.
00044   //used both to list the tags as well as to validate a dataset, if ever we were to do so.
00045 protected:
00046
00047   DataSet mDataSet;
00048   friend class QueryFactory;
00049   BaseQuery();
00050
00051   std::string mSopInstanceUID;
00052
00053   void SetSearchParameter(const Tag& inTag, const DictEntry& inDictEntry, const std::string& inValue);
00054
00055   bool ValidDataSet( const DataSet & dataSetToValid, const DataSet & dataSetReference  ) const ;
00056 public:
00057   ~BaseQuery() override;
00058
00059   void SetSearchParameter(const Tag& inTag, const std::string& inValue);
00060   void SetSearchParameter(const std::string& inKeyword, const std::string& inValue);
00061
00062   const std::ostream &WriteHelpFile(std::ostream &os);
00063
00064   //this function allows writing of the query to disk for storing for future use
00065   //virtual in case it needs to be overridden
00066   //returns false if the operation failed
00067   bool WriteQuery(const std::string& inFileName);
00068
00070   DataSet const & GetQueryDataSet() const;
```

```
00071   DataSet & GetQueryDataSet();
00072   void AddQueryDataSet(const DataSet & ds);
00073
00074   virtual bool ValidateQuery( bool inStrict = true ) const = 0;
00075
00076   virtual UIDs::TSName GetAbstractSyntaxUID() const = 0;
00077   std::string GetSOPInstanceUID() const { return mSopInstanceUID ; }
00078   void SetSOPInstanceUID( const std::string & iSopInstanceUID ) { mSopInstanceUID = iSopInstanceUID ; }
00079
00080
00081
00082   void Print(std::ostream &os) const override;
00083 };
00084
00085 } // end namespace gdcm
00086
00087 #endif //GDCMBASEROOTQUERY_H
```

13.481 gdcmBaseRootQuery.h File Reference

```
#include "gdcmDataSet.h"
#include "gdcmUIDs.h"
#include "gdcmBaseQuery.h"
#include "gdcmQueryPatient.h"
#include "gdcmQueryStudy.h"
#include "gdcmQuerySeries.h"
#include "gdcmQueryImage.h"
```

Include dependency graph for gdcmBaseRootQuery.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::BaseRootQuery

  BaseRootQuery.

Namespaces

- namespace gdcm

Enumerations

- enum gdcm::EQueryLevel {
  gdcm::ePatient = 0 ,
  gdcm::eStudy = 1 ,
  gdcm::eSeries = 2 ,
  gdcm::eImage = 3 }
- enum gdcm::EQueryType {
  gdcm::eFind = 0 ,
  gdcm::eMove ,
  gdcm::eWLMFind }

13.482 gdcmBaseRootQuery.h

Go to the documentation of this file.

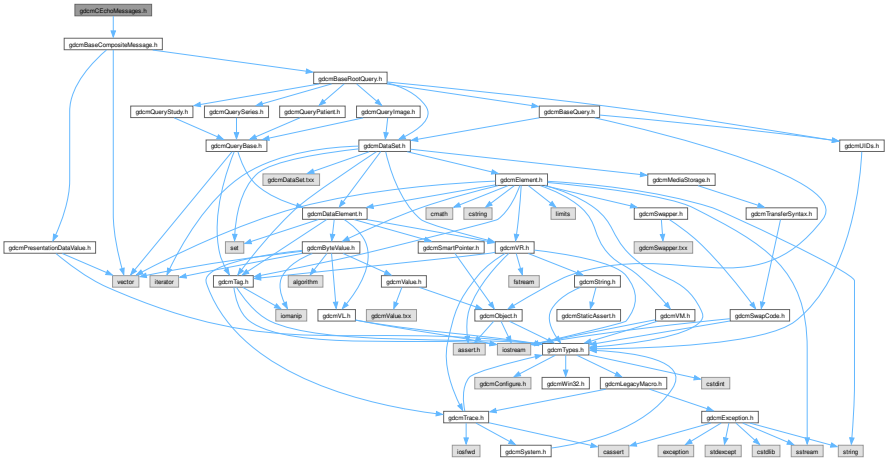
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMBASEROOTQUERY_H
00019 #define GDCMBASEROOTQUERY_H
00020
00021 #include "gdcmDataSet.h"
00022 #include "gdcmUIDs.h"
00023 #include "gdcmBaseQuery.h"
00024 #include "gdcmQueryPatient.h"
00025 #include "gdcmQueryStudy.h"
00026 #include "gdcmQuerySeries.h"
00027 #include "gdcmQueryImage.h"
00028
00029 namespace gdcm
00030 {
00031   class QueryFactory;
00032   class DictEntry;
00033
00034   enum EQueryLevel
00035     {
00036     // -1 is reserved do not use
00037     ePatient = 0,
```

```
00038     eStudy   = 1,
00039     eSeries  = 2,
00040     eImage   = 3
00041     };
00042   enum EQueryType
00043     {
00044     eFind= 0,
00045     eMove,
00046     eWLMFind
00047     };
00048
00066 class GDCM_EXPORT BaseRootQuery : public BaseQuery
00067 {
00068   //these four classes contain the required, unique, and optional tags from the standard.
00069   //used both to list the tags as well as to validate a dataset, if ever we were to do so.
00070 protected:
00071   QueryPatient mPatient;
00072   QueryStudy mStudy;
00073   QuerySeries mSeries;
00074   QueryImage mImage;
00075
00076   friend class QueryFactory;
00077   BaseRootQuery();
00078
00079   ERootType mRootType; //set in construction, and it's something else in the study root type
00080   std::string mHelpDescription; //used when generating the help output
00081
00082 public:
00083   ~BaseRootQuery() override = default;
00084
00088   virtual std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) = 0;
00089
00093   virtual void InitializeDataSet(const EQueryLevel& inQueryLevel) = 0;
00094
00108   bool ValidateQuery( bool inStrict = true ) const override = 0;
00109
00110   static const char *GetQueryLevelString( EQueryLevel ql );
00111   static int GetQueryLevelFromString( const char * str );
00112
00113   static QueryBase * Construct(ERootType inRootType, EQueryLevel qlevel);
00114   EQueryLevel GetQueryLevelFromQueryRoot( ERootType roottype );
00115 };
00116
00117 } // end namespace gdcm
00118
00119 #endif //GDCMBASEROOTQUERY_H
```

13.483 gdcmCEchoMessages.h File Reference

```
#include "gdcmBaseCompositeMessage.h"
```

Include dependency graph for gdcmCEchoMessages.h:



Classes

- class gdcm::network::CEchoRQ

  CEchoRQ.
- class gdcm::network::CEchoRSP

  CEchoRSP this file defines the messages for the cecho action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.484 gdcmCEchoMessages.h

Go to the documentation of this file.

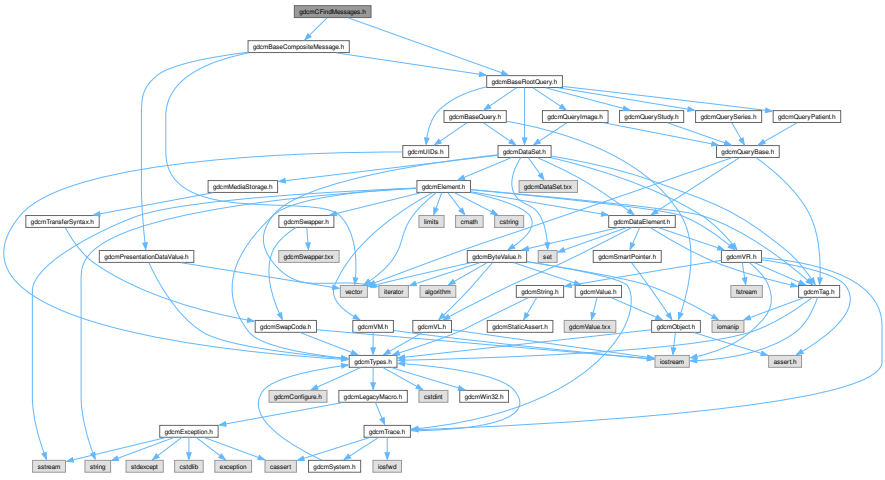
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
```

```
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMCECHOMESSAGES_H
00019 #define GDCMCECHOMESSAGES_H
00020
00021 #include "gdcmBaseCompositeMessage.h"
00022
00023 namespace gdcm{
00024   namespace network{
00025
00026 class ULConnection;
00027
00032 class CEchoRQ : public BaseCompositeMessage {
00033     public:
00034       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00035         const BaseRootQuery* inRootQuery) override;
00036     };
00037
00042     class CEchoRSP : public BaseCompositeMessage {
00043     public:
00044       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00045     };
00046   }
00047 }
00048 #endif // GDCMCECHOMESSAGES_H
```

13.485 gdcmCFindMessages.h File Reference

```
#include "gdcmBaseCompositeMessage.h"
#include "gdcmBaseRootQuery.h"
```

Include dependency graph for gdcmCFindMessages.h:



Classes

- class gdcm::network::CFindCancelRQ

  CFindCancelRQ this file defines the messages for the cfind action.
- class gdcm::network::CFindRQ

  CFindRQ.
- class gdcm::network::CFindRSP

  CFindRSP this file defines the messages for the cfind action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.486 gdcmCFindMessages.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
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00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMCFINDMESSAGES_H
00019 #define GDCMCFINDMESSAGES_H
00020
00021 #include "gdcmBaseCompositeMessage.h"
00022 #include "gdcmBaseRootQuery.h"
00023
00024 namespace gdcm
00025 {
00026 namespace network
00027 {
00028
00033 class CFindRQ : public BaseCompositeMessage
00034 {
00035 public:
00036   std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00037     const BaseRootQuery* inRootQuery) override;
00038 };
00039
00044 class CFindRSP : public BaseCompositeMessage {
00045 public:
00046   std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00047 };
00048
00053   class CFindCancelRQ : public BaseCompositeMessage {
00054   public:
00055     std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00056   };
00057 }
00058 }
00059 #endif
```
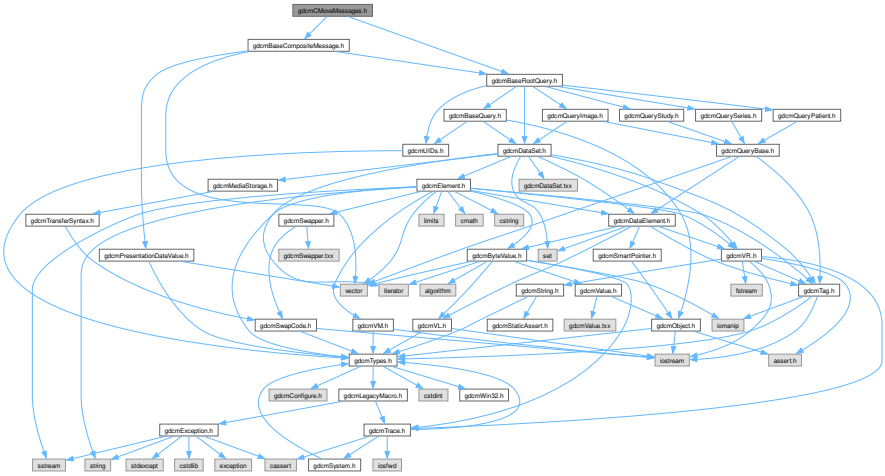

13.487 gdcmCMoveMessages.h File Reference

```
#include "gdcmBaseCompositeMessage.h"
#include "gdcmBaseRootQuery.h"
```

Include dependency graph for gdcmCMoveMessages.h:



Classes

- class gdcm::network::CMoveCancelRq
- class gdcm::network::CMoveRQ

  CMoveRQ.
- class gdcm::network::CMoveRSP

  CMoveRSP this file defines the messages for the cmove action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.488 gdcmCMoveMessages.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
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00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMCMOVEMESSAGES_H
```
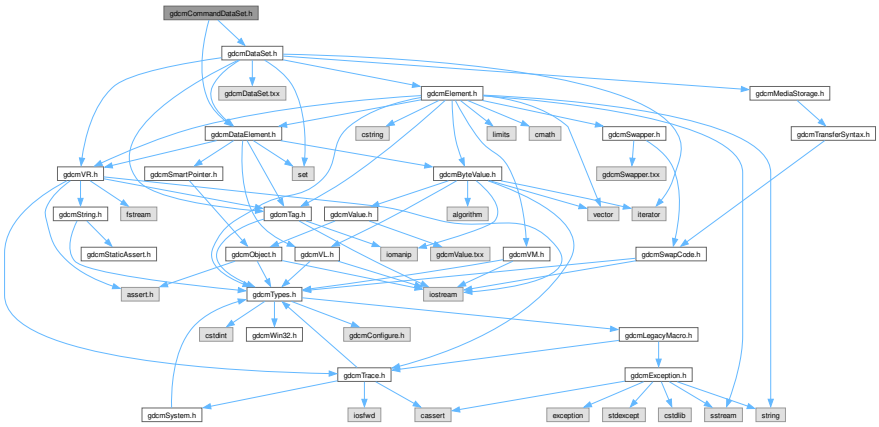

```
00019 #define GDCMCMOVEMESSAGES_H
00020
00021 #include "gdcmBaseCompositeMessage.h"
00022 #include "gdcmBaseRootQuery.h"
00023
00024 namespace gdcm{
00025   namespace network{
00026   class ULConnection;
00031 class CMoveRQ : public BaseCompositeMessage {
00032       //this class will fulfill the inheritance,
00033       //but additional information is needed by cmovd
00034       //namely, the root type or the calling AE-TITLE
00035       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00036     public:
00037       std::vector<PresentationDataValue> ConstructPDV(
00038         const ULConnection &inConnection,
00039         const BaseRootQuery* inRootQuery) override;
00040     };
00041
00046 class CMoveRSP : public BaseCompositeMessage {
00047     public:
00048       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00049     };
00050
00051     class CMoveCancelRq : public BaseCompositeMessage {
00052     public:
00053       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00054     };
00055   }
00056 }
00057 #endif
```

13.489 gdcmCommandDataSet.h File Reference

```
#include "gdcmDataSet.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmCommandDataSet.h:



Classes

- class gdcm::CommandDataSet

  Class to represent a Command DataSet.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const CommandDataSet &val)

13.490 gdcmCommandDataSet.h

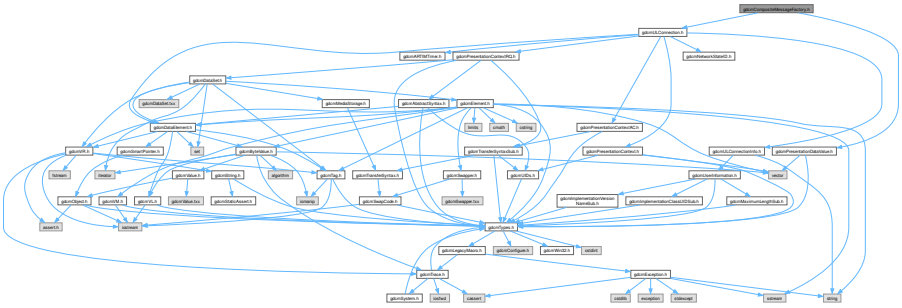
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCOMMANDDATASET_H
00015 #define GDCMCOMMANDDATASET_H
00016
00017 #include "gdcmDataSet.h"
00018 #include "gdcmDataElement.h"
00019
00020 namespace gdcm
00021 {
00027 class GDCM_EXPORT CommandDataSet : public DataSet
00028 {
00029 public:
00030   CommandDataSet() = default;
00031  ~CommandDataSet() = default;
00032
00033   friend std::ostream &operator«(std::ostream &_os, const CommandDataSet &_val);
00034
00035   // FIXME: no virtual function means: duplicate code...
00036   void Insert(const DataElement& de) {
00037     if( de.GetTag().GetGroup() == 0x0000 )
00038       {
00039       InsertDataElement( de );
00040       }
00041     else
00042       {
00043       gdcmErrorMacro( "Cannot add element with group != 0x0000 in the command dataset : " « de );
00044       }
00045   }
00046   void Replace(const DataElement& de) {
00047     Remove(de.GetTag());
00048     Insert(de);
00049   }
00050
00052   std::istream &Read(std::istream &is);
00053
00055   std::ostream &Write(std::ostream &os) const;
00056
00057 protected:
00058 };
00059 //-----------------------------------------------------------------------------
00060 inline std::ostream& operator«(std::ostream &os, const CommandDataSet &val)
00061 {
00062   val.Print( os );
00063   return os;
00064 }
00065
00066 } // end namespace gdcm
00067
00068 #endif //GDCMFILEMETAINFORMATION_H
```

13.491 gdcmCompositeMessageFactory.h File Reference

```
#include "gdcmPresentationDataValue.h"
#include "gdcmULConnection.h"
```

Include dependency graph for gdcmCompositeMessageFactory.h:



Classes

- class gdcm::network::CompositeMessageFactory

  CompositeMessageFactory.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.492 gdcmCompositeMessageFactory.h

Go to the documentation of this file.

```
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00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMCOMPOSITEMESSAGEFACTORY_H
00019 #define GDCMCOMPOSITEMESSAGEFACTORY_H
00020
00021 #include "gdcmPresentationDataValue.h"
00022 #include "gdcmULConnection.h"
00023
00024 namespace gdcm {
```
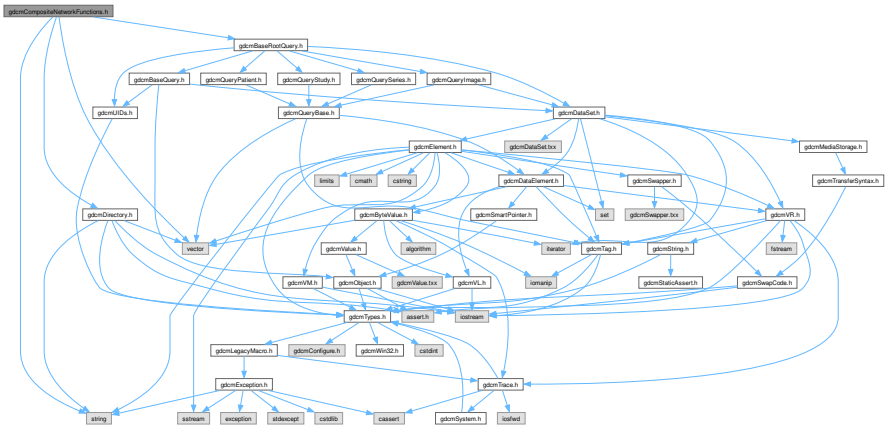

```
00025   class BaseRootQuery;
00026   class File;
00027   namespace network {
00028     class BasePDU;
00037 class CompositeMessageFactory
00038 {
00039     public:
00040       //the echo request only needs a properly constructed PDV.
00041       //find, move, etc, may need something more robust, but since those are
00042       //easily placed into the appropriate pdatapdu in the pdufactory,
00043       //this approach without a base class (but done internally) is useful.
00044       static std::vector<PresentationDataValue> ConstructCEchoRQ(const ULConnection& inConnection);
00045
00046       static std::vector<PresentationDataValue> ConstructCStoreRQ(const ULConnection& inConnection,const
      File &file, bool writeDataSet = true );
00047       static std::vector<PresentationDataValue> ConstructCStoreRSP(const DataSet *inDataSet, const
      BasePDU* inPC);
00048
00049       static  std::vector<PresentationDataValue> ConstructCFindRQ(const ULConnection& inConnection, const
      BaseRootQuery* inRootQuery);
00050
00051       static  std::vector<PresentationDataValue> ConstructCMoveRQ(const ULConnection& inConnection, const
      BaseRootQuery* inRootQuery);
00052
00053
00054     };
00055   }
00056 }
00057
00058 #endif // GDCMCOMPOSITEMESSAGEFACTORY_H
```

13.493 gdcmCompositeNetworkFunctions.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmBaseRootQuery.h"
#include <vector>
#include <string>
```

Include dependency graph for gdcmCompositeNetworkFunctions.h:



Classes

- class gdcm::CompositeNetworkFunctions

  Composite Network Functions.

Namespaces

- namespace gdcm

13.494 gdcmCompositeNetworkFunctions.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
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00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMCOMPOSITENETWORKFUNCTIONS_H
00019 #define GDCMCOMPOSITENETWORKFUNCTIONS_H
00020
00021 #include "gdcmDirectory.h"
00022 #include "gdcmBaseRootQuery.h" // EQueryLevel / EQueryType
00023
00024 #include <vector>
00025 #include <string>
00026
00027 namespace gdcm
00028 {
00048 class GDCM_EXPORT CompositeNetworkFunctions
00049 {
00050 public:
00057   static bool CEcho( const char *remote, uint16_t portno, const char *aetitle = nullptr,
00058     const char *call = nullptr );
00059
00060   typedef std::pair<Tag, std::string> KeyValuePairType;
00061   typedef std::vector< KeyValuePairType  > KeyValuePairArrayType;
00062
00069   static BaseRootQuery* ConstructQuery(ERootType inRootType, EQueryLevel inQueryLevel,
00070     const DataSet& queryds, EQueryType queryType = eFind );
00071
00073   static BaseRootQuery* ConstructQuery(ERootType inRootType, EQueryLevel inQueryLevel,
00074     const KeyValuePairArrayType& keys, EQueryType queryType = eFind );
00075
00091   static bool CMove( const char *remote, uint16_t portno, const BaseRootQuery* query,
00092     uint16_t portscp, const char *aetitle = nullptr,
00093     const char *call = nullptr, const char *outputdir = nullptr);
00094
00104   static bool CFind( const char *remote, uint16_t portno,
00105     const BaseRootQuery* query,
00106     std::vector<DataSet> &retDataSets,
00107     const char *aetitle = nullptr,
00108     const char *call = nullptr );
00109
00117   static bool CStore( const char *remote, uint16_t portno,
00118     const Directory::FilenamesType & filenames,
00119     const char *aetitle = nullptr, const char *call = nullptr);
00120 };
00121
00122 } // end namespace gdcm
00123
00124 #endif // GDCMCOMPOSITENETWORKFUNCTIONS_H
```
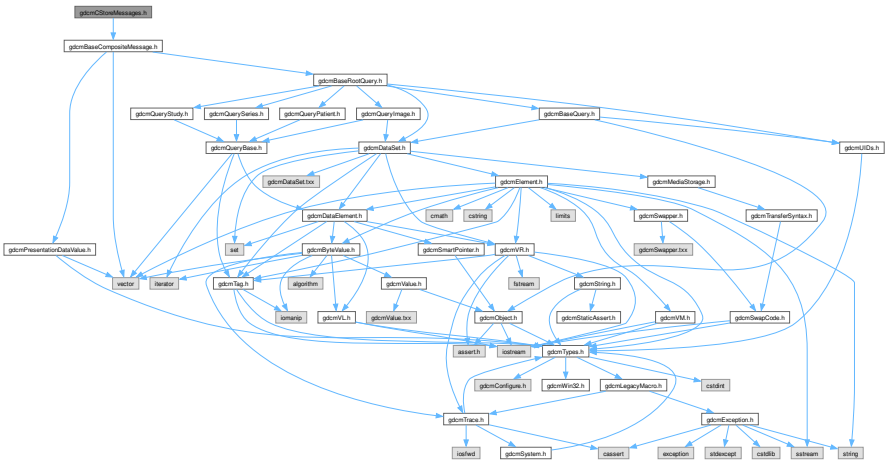

13.495 gdcmCStoreMessages.h File Reference

```
#include "gdcmBaseCompositeMessage.h"
```

Include dependency graph for gdcmCStoreMessages.h:



Classes

- class gdcm::network::CStoreRQ

  CStoreRQ.
- class gdcm::network::CStoreRSP

  CStoreRSP this file defines the messages for the cecho action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.496 gdcmCStoreMessages.h

Go to the documentation of this file.

```
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00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
```
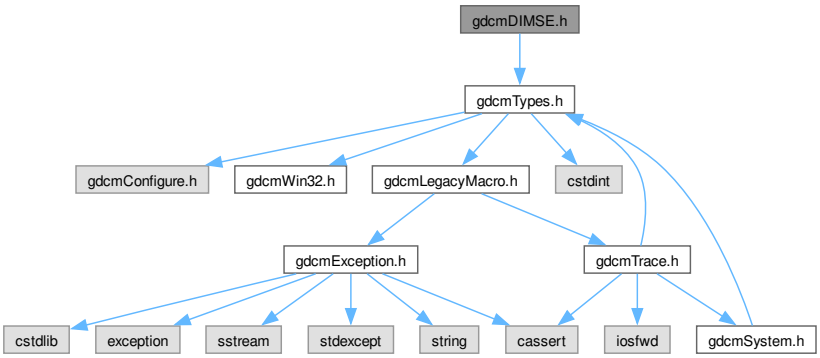

```
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMCSTOREMESSAGES_H
00019 #define GDCMCSTOREMESSAGES_H
00020
00021 #include "gdcmBaseCompositeMessage.h"
00022
00023 namespace gdcm{
00024 class File;
00025   namespace network{
00026     class BasePDU;
00031 class CStoreRQ : public BaseCompositeMessage {
00032       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection, const
      BaseRootQuery* inRootQuery) override;//to fulfill the virtual contract
00033     public:
00034       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00035         const File& file,  bool writeDataSet = true );
00036     };
00037
00042     class CStoreRSP : public BaseCompositeMessage {
00043       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection, const
      BaseRootQuery* inRootQuery) override;//to fulfill the virtual contract
00044     public:
00045       std::vector<PresentationDataValue> ConstructPDV(const DataSet* inDataSet, const BasePDU* inPC);
00046     };
00047   }
00048 }
00049 #endif // GDCMCSTOREMESSAGES_H
```

13.497 gdcmDIMSE.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmDIMSE.h:



Classes

- class gdcm::network::CEchoRQ

  CEchoRQ.
- class gdcm::network::CEchoRSP

  CEchoRSP this file defines the messages for the cecho action.
- class gdcm::network::CFind
- class gdcm::network::DIMSE

  DIMSE.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.498 gdcmDIMSE.h

Go to the documentation of this file.

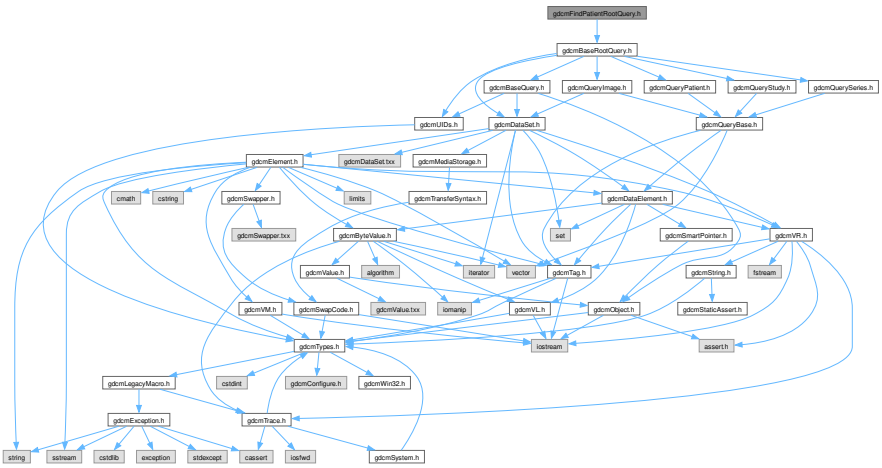
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDIMSE_H
00015 #define GDCMDIMSE_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00022 namespace network
00023 {
00024
00033 class DIMSE {
00034 public:
00035   typedef enum {
00036 C_STORE_RQ          = 0x0001,
00037 C_STORE_RSP         = 0x8001,
00038 C_GET_RQ            = 0x0010,
00039 C_GET_RSP           = 0x8010,
00040 C_FIND_RQ           = 0x0020,
00041 C_FIND_RSP          = 0x8020,
00042 C_MOVE_RQ           = 0x0021,
00043 C_MOVE_RSP          = 0x8021,
00044 C_ECHO_RQ           = 0x0030,
00045 C_ECHO_RSP          = 0x8030,
00046 N_EVENT_REPORT_RQ   = 0x0100,
00047 N_EVENT_REPORT_RSP  = 0x8100,
00048 N_GET_RQ            = 0x0110,
00049 N_GET_RSP           = 0x8110,
00050 N_SET_RQ            = 0x0120,
00051 N_SET_RSP           = 0x8120,
00052 N_ACTION_RQ         = 0x0130,
00053 N_ACTION_RSP        = 0x8130,
00054 N_CREATE_RQ         = 0x0140,
00055 N_CREATE_RSP        = 0x8140,
00056 N_DELETE_RQ         = 0x0150,
00057 N_DELETE_RSP        = 0x8150,
00058 C_CANCEL_RQ         = 0x0FFF
00059   } CommandTypes;
00060 };
00061
00062 /*
00063 9.1.5.1 C-ECHO parameters
00064 Table 9.1-5
00065 C-ECHO PARAMETERS
00066 */
00067 class CEchoRQ
00068 {
00069 public:
00070   uint16_t          MessageID;                          /* M */
00071   UIComp            AffectedSOPClassUID;                /* M */
00072 };
00073
```

```
00074 class CEchoRSP
00075 {
00076 public:
00077 /*
00078 Message ID M U
00079 Message ID Being Responded To M
00080 Affected SOP Class UID M U(=)
00081 Status M
00082 */
00083 };
00084
00089 class CFind
00090 {
00091 /*
00092 Failure Refused: Out of Resources A700 (0000,0902)
00093 Identifier does not match SOP Class A900 (0000,0901)
00094 (0000,0902)
00095 Unable to process Cxxx (0000,0901)
00096 (0000,0902)
00097 Cancel Matching terminated due to Cancel
00098 request
00099 FE00 None
00100 Success Matching is complete - No final Identifier
00101 is supplied.
00102 0000 None
00103 Pending Matches are continuing - Current Match
00104 is supplied and any Optional Keys were
00105 supported in the same manner as
00106 Required Keys.
00107 FF00 Identifier
00108 Matches are continuing - Warning that
00109 one or more Optional Keys were not
00110 supported for existence and/or matching
00111 for this Identifier.
00112 FF01 Identifier
00113 */
00114 };
00115
00116
00117 } // end namespace network
00118
00119 } // end namespace gdcm
00120
00121 #endif //GDCMDIMSE_H
```

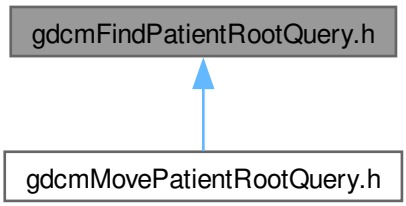
13.499 gdcmFindPatientRootQuery.h File Reference

`#include "gdcmBaseRootQuery.h"`

Include dependency graph for gdcmFindPatientRootQuery.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::FindPatientRootQuery

  PatientRootQuery.

Namespaces

- namespace gdcm

13.500 gdcmFindPatientRootQuery.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
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00008
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFINDPATIENTROOTQUERY_H
00015 #define GDCMFINDPATIENTROOTQUERY_H
00016
00017 #include "gdcmBaseRootQuery.h"
00018
00019 namespace gdcm
00020 {
00025 class GDCM_EXPORT FindPatientRootQuery : public BaseRootQuery
00026 {
00027   friend class QueryFactory;
00028 public:
00029   FindPatientRootQuery();
00030
00031   void InitializeDataSet(const EQueryLevel& inQueryLevel) override;
00032
00033   std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) override;
00034   bool ValidateQuery(bool inStrict = true) const override;
```
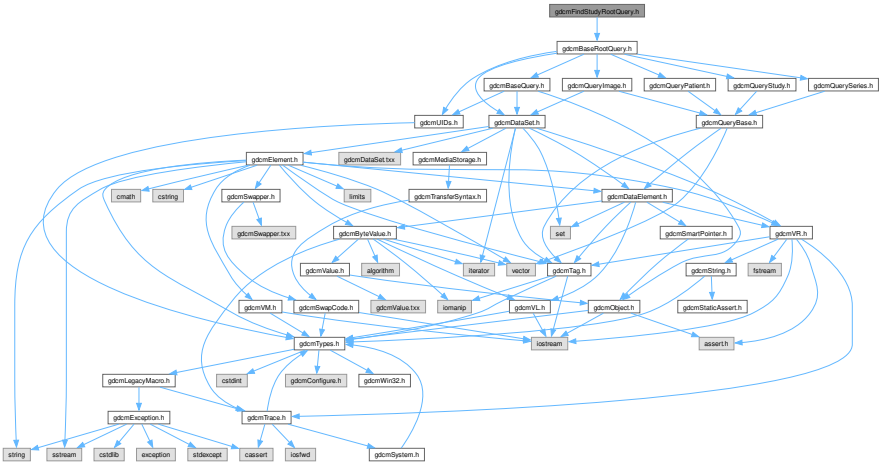

```
00035
00036   UIDs::TSName GetAbstractSyntaxUID() const override;
00037 };
00038
00039 } // end namespace gdcm
00040
00041 #endif // GDCMFINDPATIENTROOTQUERY_H
```

13.501 gdcmFindStudyRootQuery.h File Reference

`#include "gdcmBaseRootQuery.h"`
Include dependency graph for gdcmFindStudyRootQuery.h:



Classes

- class gdcm::FindStudyRootQuery

  FindStudyRootQuery.

Namespaces

- namespace gdcm

13.502 gdcmFindStudyRootQuery.h

Go to the documentation of this file.

```
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```

```
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00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFINDSTUDYROOTQUERY_H
00015 #define GDCMFINDSTUDYROOTQUERY_H
00016
00017 #include "gdcmBaseRootQuery.h"
00018
00019 namespace gdcm
00020 {
00025 class GDCM_EXPORT FindStudyRootQuery : public BaseRootQuery
00026 {
00027   friend class QueryFactory;
00028 public:
00029   FindStudyRootQuery();
00030
00031   void InitializeDataSet(const EQueryLevel& inQueryLevel) override;
00032
00033   std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) override;
00034
00038   bool ValidateQuery(bool inStrict = true) const override;
00039
00040   UIDs::TSName GetAbstractSyntaxUID() const override;
00041 };
00042
00043 } // end namespace gdcm
00044
00045 #endif // GDCMFINDSTUDYROOTQUERY_H
```
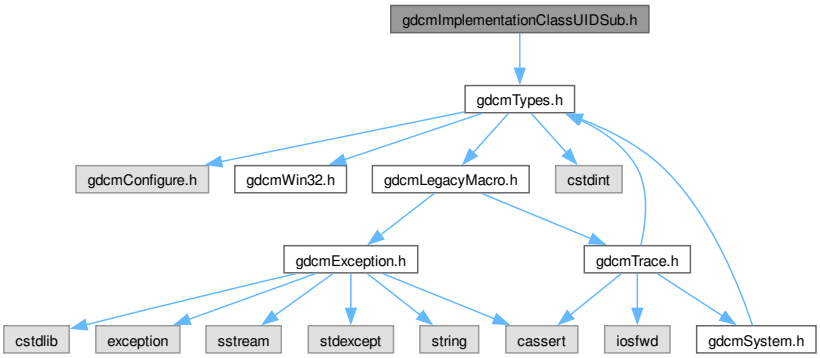
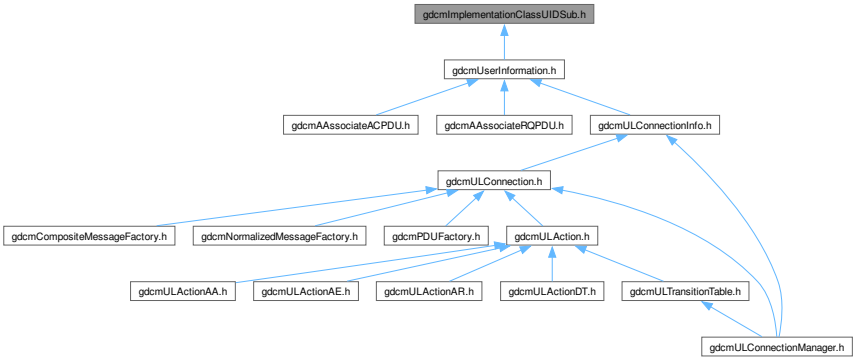

13.503 gdcmImplementationClassUIDSub.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmImplementationClassUIDSub.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ImplementationClassUIDSub

  ImplementationClassUIDSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.504 gdcmImplementationClassUIDSub.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMPLEMENTATIONCLASSUIDSUB_H
00015 #define GDCMIMPLEMENTATIONCLASSUIDSUB_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00022 namespace network
00023 {
00024
00031 class ImplementationClassUIDSub
00032 {
00033 public:
```
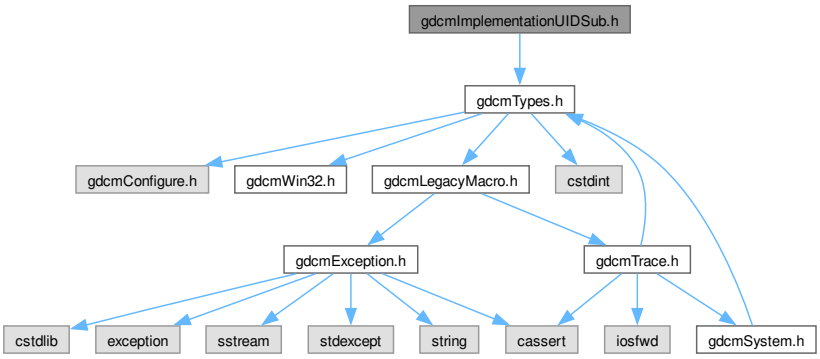

```
00034   ImplementationClassUIDSub();
00035   std::istream &Read(std::istream &is);
00036   const std::ostream &Write(std::ostream &os) const;
00037
00038   size_t Size() const;
00039
00040   void Print(std::ostream &os) const;
00041
00042 private:
00043   static const uint8_t ItemType;
00044   static const uint8_t Reserved2;
00045   uint16_t ItemLength;
00046   std::string ImplementationClassUID;
00047 };
00048
00049 } // end namespace network
00050
00051 } // end namespace gdcm
00052
00053 #endif //GDCMMAXIMUMLENGTHSUB_H
```

13.505 gdcmImplementationUIDSub.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmImplementationUIDSub.h:



Classes

- class gdcm::network::ImplementationUIDSub
  ImplementationUIDSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.506 gdcmImplementationUIDSub.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMPLEMENTATIONUIDSUB_H
00015 #define GDCMIMPLEMENTATIONUIDSUB_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00022 namespace network
00023 {
00024
00030 class GDCM_EXPORT ImplementationUIDSub
00031 {
00032 public:
00033   ImplementationUIDSub();
00034   const std::ostream &Write(std::ostream &os) const;
00035 private:
00036   static const uint8_t ItemType;
00037   static const uint8_t Reserved2;
00038   uint16_t ItemLength;
00039   std::string ImplementationClassUID;
00040 };
00041
00042 } // end namespace network
00043
00044 } // end namespace gdcm
00045
00046 #endif //GDCMMAXIMUMLENGTHSUB_H
```
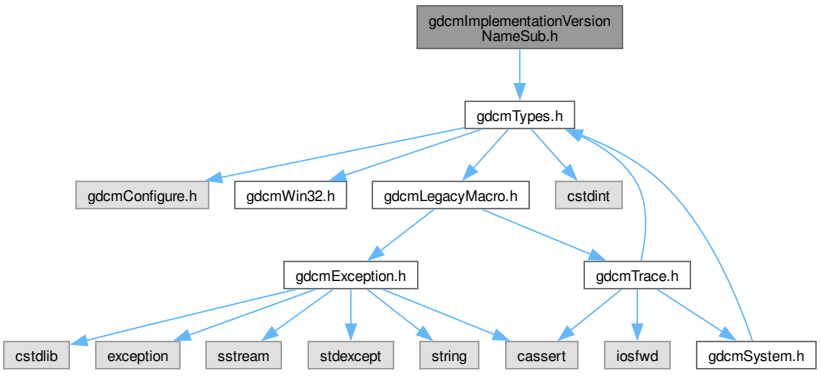
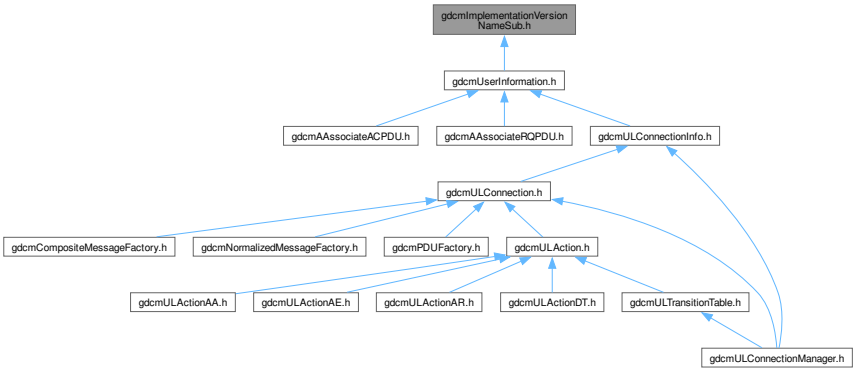

13.507 gdcmImplementationVersionNameSub.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmImplementationVersionNameSub.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ImplementationVersionNameSub

  ImplementationVersionNameSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.508 gdcmImplementationVersionNameSub.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMPLEMENTATIONVERSIONNAMESUB_H
00015 #define GDCMIMPLEMENTATIONVERSIONNAMESUB_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00022 namespace network
00023 {
00024
00030 class ImplementationVersionNameSub
00031 {
```
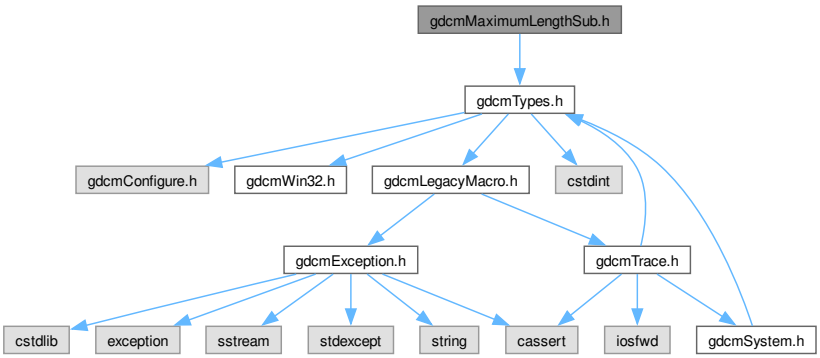
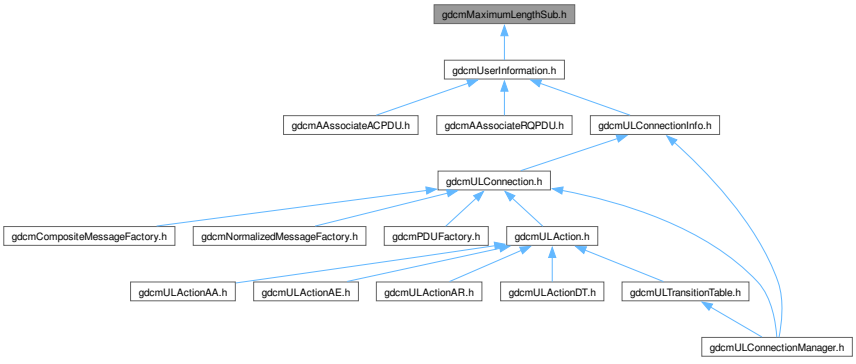

```
00032 public:
00033   ImplementationVersionNameSub();
00034   std::istream &Read(std::istream &is);
00035   const std::ostream &Write(std::ostream &os) const;
00036
00037   size_t Size() const;
00038   void Print(std::ostream &os) const;
00039
00040 private:
00041   static const uint8_t ItemType;
00042   static const uint8_t Reserved2;
00043   uint16_t ItemLength;
00044   std::string ImplementationVersionName;
00045 };
00046
00047 } // end namespace network
00048
00049 } // end namespace gdcm
00050
00051 #endif //GDCMMAXIMUMLENGTHSUB_H
```

13.509 gdcmMaximumLengthSub.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmMaximumLengthSub.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::MaximumLengthSub

  MaximumLengthSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.510 gdcmMaximumLengthSub.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMAXIMUMLENGTHSUB_H
00015 #define GDCMMAXIMUMLENGTHSUB_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00022 namespace network
00023 {
00024
00036 class MaximumLengthSub
00037 {
00038 public:
00039   MaximumLengthSub();
00040   std::istream &Read(std::istream &is);
00041   const std::ostream &Write(std::ostream &os) const;
00042
00043   size_t Size() const;
00044
00045   uint32_t GetMaximumLength() const { return MaximumLength; }
00046   void SetMaximumLength(uint32_t maximumlength);
00047
00048   void Print(std::ostream &os) const;
00049
00050 private:
00051   static const uint8_t ItemType;
00052   static const uint8_t Reserved2;
00053   uint16_t ItemLength;
00054   uint32_t MaximumLength;
00055 };
00056
00057 } // end namespace network
00058
00059 } // end namespace gdcm
00060
00061 #endif //GDCMMAXIMUMLENGTHSUB_H
```
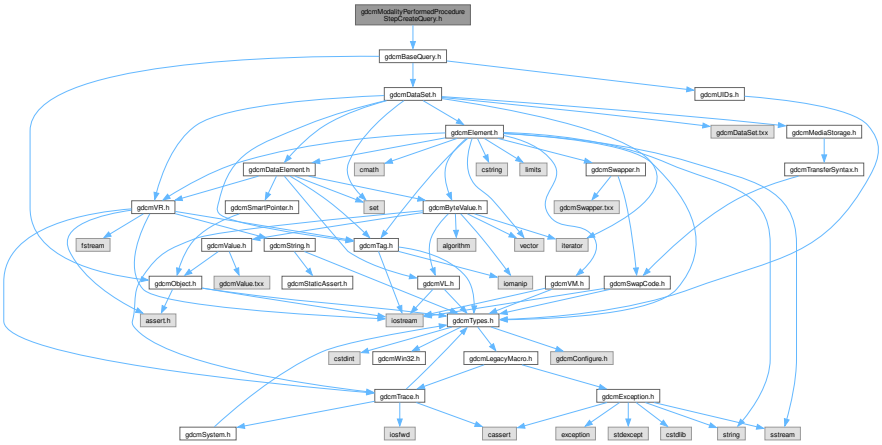

13.511 gdcmModalityPerformedProcedureStepCreateQuery.h File Reference

`#include "gdcmBaseQuery.h"`
Include dependency graph for gdcmModalityPerformedProcedureStepCreateQuery.h:



Classes

- class gdcm::ModalityPerformedProcedureStepCreateQuery
  ModalityPerformedProcedureStepCreateQuery.

Namespaces

- namespace gdcm

13.512 gdcmModalityPerformedProcedureStepCreateQuery.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMODALITYPERFORMEDPROCEDURESTEPCREATEQUERY_H
00015 #define GDCMMODALITYPERFORMEDPROCEDURESTEPCREATEQUERY_H
00016
00017 #include "gdcmBaseQuery.h"
00018
```
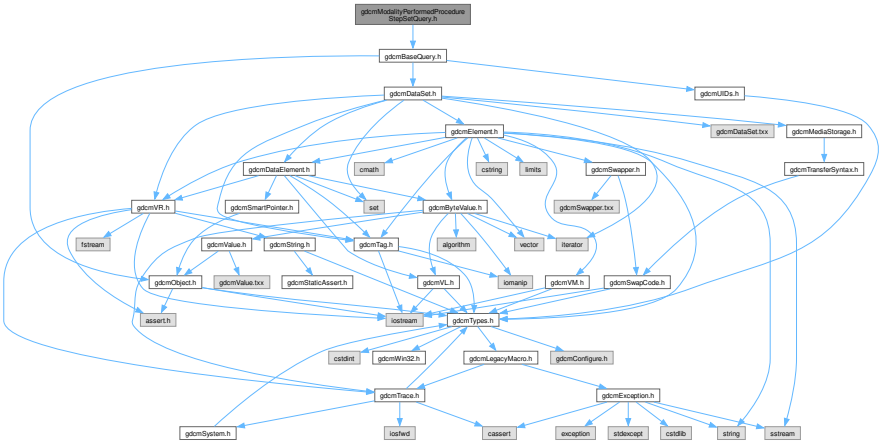

```
00019 namespace gdcm
00020 {
00025 class GDCM_EXPORT ModalityPerformedProcedureStepCreateQuery : public BaseQuery{
00026   friend class QueryFactory;
00027 public:
00028   ModalityPerformedProcedureStepCreateQuery( const std::string & iSopInstanceUID );
00029
00030   gdcm::DataSet GetRequiredDataSet() const;
00031   bool ValidateQuery(bool inStrict = true) const override;
00032   UIDs::TSName GetAbstractSyntaxUID() const override;
00033 };
00034
00035 } // end namespace gdcm
00036
00037 #endif // GDCMMODALITYPERFORMEDPROCEDURESTEPCREATEQUERY_H
```

13.513 gdcmModalityPerformedProcedureStepSetQuery.h File Reference

`#include "gdcmBaseQuery.h"`

Include dependency graph for gdcmModalityPerformedProcedureStepSetQuery.h:



Classes

- class gdcm::ModalityPerformedProcedureStepSetQuery

  ModalityPerformedProcedureStepSetQuery.

Namespaces

- namespace gdcm

13.514 gdcmModalityPerformedProcedureStepSetQuery.h

Go to the documentation of this file.

```
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00012
00013 =========================================================================*/
00014 #ifndef GDCMMODALITYPERFORMEDPROCEDURESTEPSETQUERY_H
00015 #define GDCMMODALITYPERFORMEDPROCEDURESTEPSETQUERY_H
00016
00017 #include "gdcmBaseQuery.h"
00018
00019 namespace gdcm
00020 {
00025 class GDCM_EXPORT ModalityPerformedProcedureStepSetQuery : public BaseQuery{
00026   friend class QueryFactory;
00027 public:
00028   ModalityPerformedProcedureStepSetQuery( const std::string & iSopInstanceUID );
00029
00030   gdcm::DataSet GetRequiredDataSet() const;
00031   bool ValidateQuery(bool inStrict = true) const override;
00032   UIDs::TSName GetAbstractSyntaxUID() const override;
00033 };
00034
00035 } // end namespace gdcm
00036
00037 #endif // GDCMMODALITYPERFORMEDPROCEDURESTEPSETQUERY_H
```
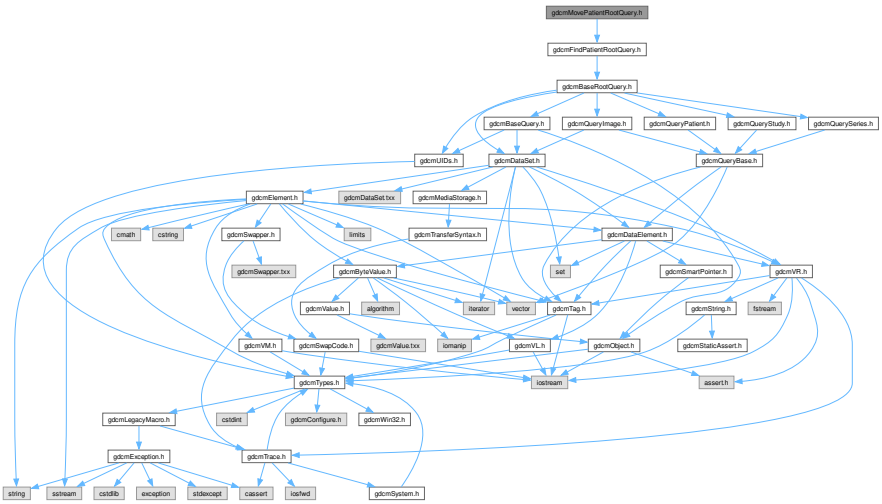

13.515 gdcmMovePatientRootQuery.h File Reference

`#include "gdcmFindPatientRootQuery.h"`

Include dependency graph for gdcmMovePatientRootQuery.h:



Classes

- class gdcm::MovePatientRootQuery

  MovePatientRootQuery.

Namespaces

- namespace gdcm

13.516 gdcmMovePatientRootQuery.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMOVEPATIENTROOTQUERY_H
00015 #define GDCMMOVEPATIENTROOTQUERY_H
00016
00017 #include "gdcmFindPatientRootQuery.h"
00018
00019 namespace gdcm
00020 {
00025 class GDCM_EXPORT MovePatientRootQuery : public BaseRootQuery
00026 {
00027   friend class QueryFactory;
00028 public:
00029   MovePatientRootQuery();
00030
00031   void InitializeDataSet(const EQueryLevel& inQueryLevel) override;
00032
00033   std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) override;
00034
00035   bool ValidateQuery(bool inStrict = true) const override;
00036
00037   UIDs::TSName GetAbstractSyntaxUID() const override;
00038 };
00039
00040 } // end namespace gdcm
00041
00042 #endif // GDCMMOVEPATIENTROOTQUERY_H
```
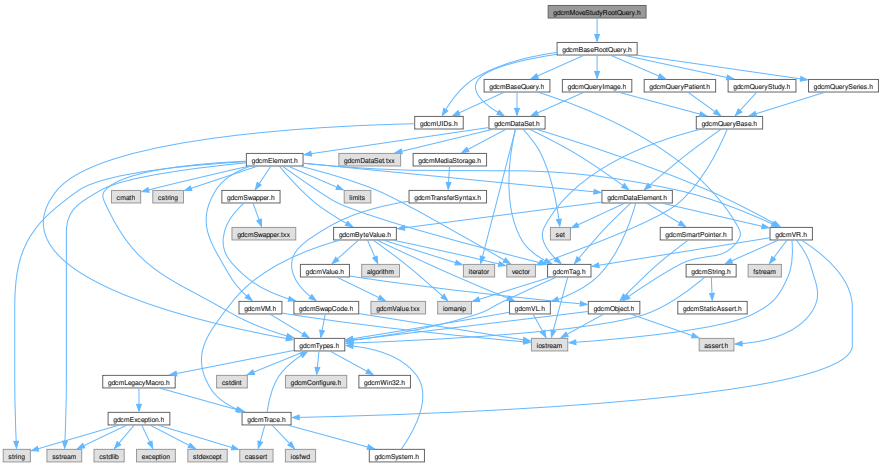

13.517 gdcmMoveStudyRootQuery.h File Reference

`#include "gdcmBaseRootQuery.h"`
Include dependency graph for gdcmMoveStudyRootQuery.h:



Classes

- class gdcm::MoveStudyRootQuery

  MoveStudyRootQuery.

Namespaces

- namespace gdcm

13.518 gdcmMoveStudyRootQuery.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMOVESTUDYROOTQUERY_H
00015 #define GDCMMOVESTUDYROOTQUERY_H
00016
00017 #include "gdcmBaseRootQuery.h"
00018
00019 namespace gdcm
```
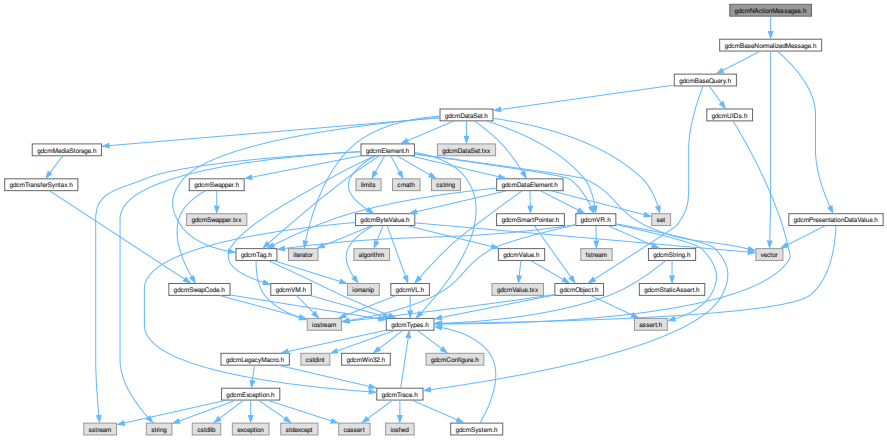

```
00020 {
00025 class GDCM_EXPORT MoveStudyRootQuery : public BaseRootQuery
00026 {
00027   friend class QueryFactory;
00028 public:
00029   MoveStudyRootQuery();
00030
00031   void InitializeDataSet(const EQueryLevel& inQueryLevel) override;
00032
00033   std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) override;
00034
00035   bool ValidateQuery(bool inStrict = true) const override;
00036
00037   UIDs::TSName GetAbstractSyntaxUID() const override;
00038 };
00039
00040 } // end namespace gdcm
00041
00042 #endif // GDCMMOVESTUDYROOTQUERY_H
```

13.519 gdcmNActionMessages.h File Reference

`#include "gdcmBaseNormalizedMessage.h"`
Include dependency graph for gdcmNActionMessages.h:



Classes

- class gdcm::network::NActionRQ

  NActionRQ.
- class gdcm::network::NActionRSP

  NActionRSP this file defines the messages for the NAction action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.520 gdcmNActionMessages.h

Go to the documentation of this file.

```
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCNACTIONMESSAGES_H
00015 #define GDCMCNACTIONMESSAGES_H
00016
00017 #include "gdcmBaseNormalizedMessage.h"
00018
00019 namespace gdcm{
00020   namespace network{
00021
00022 class ULConnection;
00023
00028 class NActionRQ : public BaseNormalizedMessage {
00029     public:
00030       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00031         const BaseQuery* inQuery) override;
00032     };
00033
00038     class NActionRSP : public BaseNormalizedMessage {
00039     public:
00040       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00041     };
00042   }
00043 }
00044 #endif // GDCMCNACTIONMESSAGES_H
```
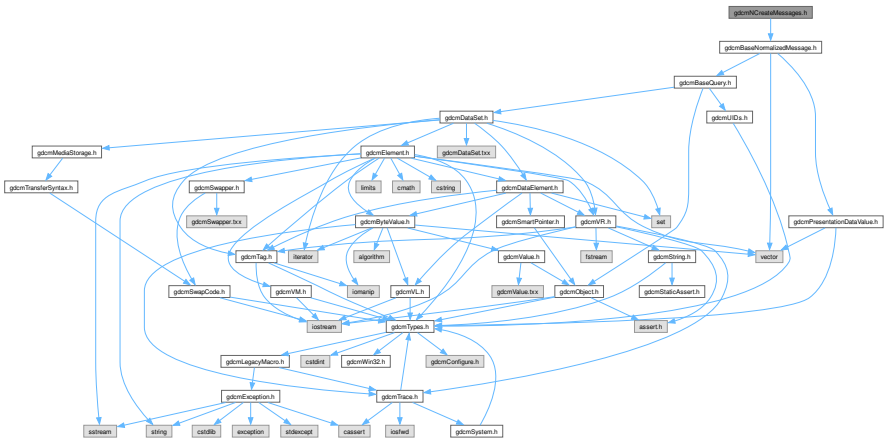

13.521 gdcmNCreateMessages.h File Reference

`#include "gdcmBaseNormalizedMessage.h"`

Include dependency graph for gdcmNCreateMessages.h:



Classes

- class gdcm::network::NCreateRQ

  NCreateRQ.
- class gdcm::network::NCreateRSP

  NCreateRSP this file defines the messages for the ncreate action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.522 gdcmNCreateMessages.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCNCREATEMESSAGES_H
00015 #define GDCMCNCREATEMESSAGES_H
00016
00017 #include "gdcmBaseNormalizedMessage.h"
00018
00019 namespace gdcm{
00020   namespace network{
00021
00022 class ULConnection;
00023
00028 class NCreateRQ : public BaseNormalizedMessage {
00029     public:
00030       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00031         const BaseQuery* inQuery) override;
00032     };
00033
00038     class NCreateRSP : public BaseNormalizedMessage {
00039     public:
00040       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00041     };
00042   }
00043 }
00044 #endif // GDCMCNCREATEMESSAGES_H
```
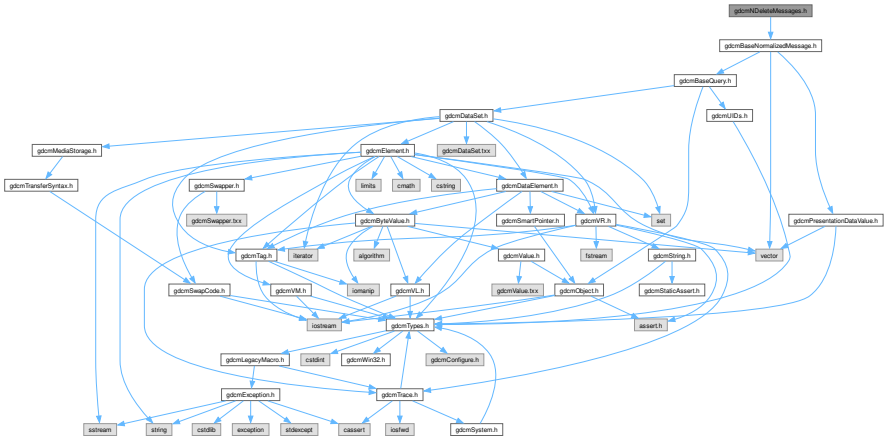

13.523 gdcmNDeleteMessages.h File Reference

`#include "gdcmBaseNormalizedMessage.h"`
Include dependency graph for gdcmNDeleteMessages.h:



Classes

- class gdcm::network::NDeleteRQ

  NDeleteRQ.
- class gdcm::network::NDeleteRSP

  NDeleteRSP this file defines the messages for the ndelete action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.524 gdcmNDeleteMessages.h

Go to the documentation of this file.

```
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCNDELETEMESSAGES_H
00015 #define GDCMCNDELETEMESSAGES_H
```
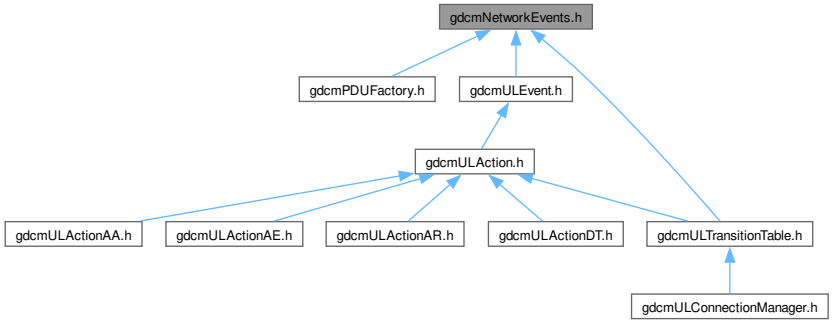

```
00016
00017 #include "gdcmBaseNormalizedMessage.h"
00018
00019 namespace gdcm{
00020   namespace network{
00021
00022 class ULConnection;
00023
00028 class NDeleteRQ : public BaseNormalizedMessage {
00029     public:
00030       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00031         const BaseQuery* inQuery) override;
00032     };
00033
00038     class NDeleteRSP : public BaseNormalizedMessage {
00039     public:
00040       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00041     };
00042   }
00043 }
00044 #endif // GDCMCNDELETEMESSAGES_H
```

13.525 gdcmNetworkEvents.h File Reference

This graph shows which files directly or indirectly include this file:



Namespaces

- namespace gdcm
- namespace gdcm::network

Enumerations

- enum gdcm::network::EEventID {
  gdcm::network::eAASSOCIATERequestLocalUser = 0 ,
  gdcm::network::eTransportConnConfirmLocal ,
  gdcm::network::eASSOCIATE_ACPDUreceived ,
  gdcm::network::eASSOCIATE_RJPDUreceived ,
  gdcm::network::eTransportConnIndicLocal ,
  gdcm::network::eAASSOCIATE_RQPDUreceived ,

gdcm::network::eAASSOCIATEresponseAccept ,
gdcm::network::eAASSOCIATEresponseReject ,
gdcm::network::ePDATArequest ,
gdcm::network::ePDATATFPDU ,
gdcm::network::eARELEASERequest ,
gdcm::network::eARELEASE_RQPDUReceivedOpen ,
gdcm::network::eARELEASE_RPPDUReceived ,
gdcm::network::eARELEASEResponse ,
gdcm::network::eAABORTRequest ,
gdcm::network::eAABORTPDUReceivedOpen ,
gdcm::network::eTransportConnectionClosed ,
gdcm::network::eARTIMTimerExpired ,
gdcm::network::eUnrecognizedPDUReceived ,
gdcm::network::eEventDoesNotExist }

Variables

- const int gdcm::network::cMaxEventID = eEventDoesNotExist

13.526 gdcmNetworkEvents.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 /*
00019 The NetworkEvents enumeration defines the inputs into the state of the network connection.
00020
00021 These inputs can come either from user input or input from other things on the socket,
00022 ie, responses from the peer or ARTIM timeouts.
00023
00024 Note that this enumeration is not 'power of two', like the states, because you can't have
00025 multiple simultaneous events.  Multiple state outputs in transition tables, however, is possible.
00026
00027 */
00028 #ifndef GDCMNETWORKEVENTS_H
00029 #define GDCMNETWORKEVENTS_H
00030
00031 namespace gdcm {
00032   namespace network{
00033     typedef enum {
00034       eAASSOCIATERequestLocalUser = 0,
00035       eTransportConnConfirmLocal,
00036       eASSOCIATE_ACPDUreceived,
00037       eASSOCIATE_RJPDUreceived,
00038       eTransportConnIndicLocal,
00039       eAASSOCIATE_RQPDUreceived,
00040       eAASSOCIATEresponseAccept,
00041       eAASSOCIATEresponseReject,
00042       ePDATArequest,
```
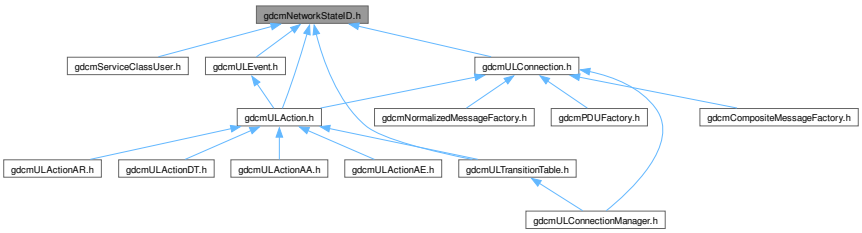

```
00043       ePDATATFPDU,
00044       eARELEASERequest,
00045       eARELEASE_RQPDUReceivedOpen,
00046       eARELEASE_RPPDUReceived,
00047       eARELEASEResponse,
00048       eAABORTRequest,
00049       eAABORTPDUReceivedOpen,
00050       eTransportConnectionClosed,
00051       eARTIMTimerExpired,
00052       eUnrecognizedPDUReceived,
00053       eEventDoesNotExist
00054     } EEventID;
00055
00056     const int cMaxEventID = eEventDoesNotExist;
00057   }
00058 }
00059
00060 #endif //NETWORKEVENTS_H
```

13.527 gdcmNetworkStateID.h File Reference

This graph shows which files directly or indirectly include this file:



Namespaces

- namespace gdcm
- namespace gdcm::network

Enumerations

- enum gdcm::network::EStateID {
  gdcm::network::eStaDoesNotExist = 0 ,
  gdcm::network::eSta1Idle = 1 ,
  gdcm::network::eSta2Open = 2 ,
  gdcm::network::eSta3WaitLocalAssoc = 4 ,
  gdcm::network::eSta4LocalAssocDone = 8 ,
  gdcm::network::eSta5WaitRemoteAssoc = 16 ,
  gdcm::network::eSta6TransferReady = 32 ,
  gdcm::network::eSta7WaitRelease = 64 ,
  gdcm::network::eSta8WaitLocalRelease = 128 ,
  gdcm::network::eSta9ReleaseCollisionRqLocal = 256 ,
  gdcm::network::eSta10ReleaseCollisionAc = 512 ,
  gdcm::network::eSta11ReleaseCollisionRq = 1024 ,
  gdcm::network::eSta12ReleaseCollisionAcLocal = 2048 ,
  gdcm::network::eSta13AwaitingClose = 4096 }

Functions

- int gdcm::network::GetStateIndex (EStateID inState)

Variables

- const int gdcm::network::cMaxStateID = 13

13.528 gdcmNetworkStateID.h

Go to the documentation of this file.

```
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00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
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00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMNETWORKSTATEID_H
00019 #define GDCMNETWORKSTATEID_H
00020
00021 namespace gdcm {
00022   namespace network {
00023
00032     enum EStateID {
00033       eStaDoesNotExist = 0,
00034       eSta1Idle = 1,
00035       eSta2Open = 2,
00036       eSta3WaitLocalAssoc = 4,
00037       eSta4LocalAssocDone = 8,
00038       eSta5WaitRemoteAssoc = 16,
00039       eSta6TransferReady = 32,
00040       eSta7WaitRelease = 64,
00041       eSta8WaitLocalRelease = 128,
00042       eSta9ReleaseCollisionRqLocal = 256,
00043       eSta10ReleaseCollisionAc = 512,
00044       eSta11ReleaseCollisionRq = 1024,
00045       eSta12ReleaseCollisionAcLocal = 2048,
00046       eSta13AwaitingClose = 4096
00047     };
00048
00049     const int cMaxStateID = 13;
00050
00051     //the transition table is built on state indices
00052     //this function will produce the index from the power-of-two EStateID
00053     inline int GetStateIndex(EStateID inState){
00054       switch (inState){
00055         case eStaDoesNotExist:
00056         default:
00057           return -1;
00058         case eSta1Idle:
00059           return 0;
00060         case eSta2Open:
00061           return 1;
00062         case eSta3WaitLocalAssoc:
00063           return 2;
00064         case eSta4LocalAssocDone:
00065           return 3;
00066         case eSta5WaitRemoteAssoc:
00067           return 4;
```
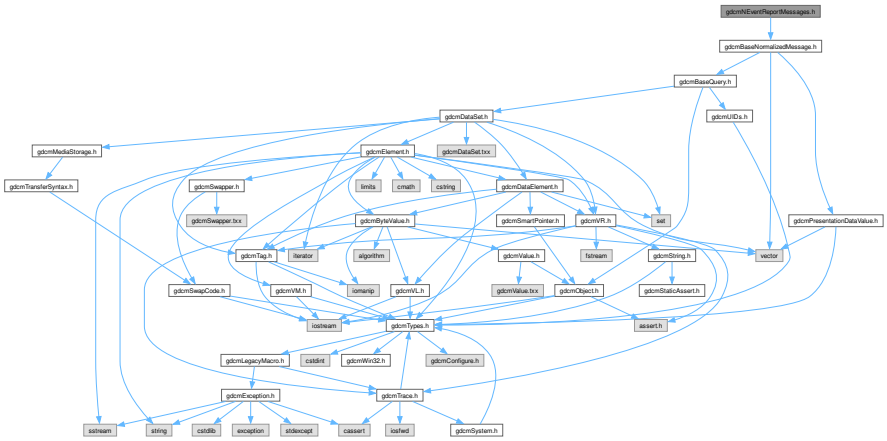

```
00068         case eSta6TransferReady:
00069           return 5;
00070         case eSta7WaitRelease:
00071           return 6;
00072         case eSta8WaitLocalRelease:
00073           return 7;
00074         case eSta9ReleaseCollisionRqLocal:
00075           return 8;
00076         case eSta10ReleaseCollisionAc:
00077           return 9;
00078         case eSta11ReleaseCollisionRq:
00079           return 10;
00080         case eSta12ReleaseCollisionAcLocal:
00081           return 11;
00082         case eSta13AwaitingClose:
00083           return 12;
00084       }
00085     }
00086   }
00087 }
00088
00089 #endif //GDCMNETWORKSTATEID_H
```

13.529 gdcmNEventReportMessages.h File Reference

`#include "gdcmBaseNormalizedMessage.h"`
Include dependency graph for gdcmNEventReportMessages.h:



Classes

- class gdcm::network::NEventReportRQ

  NEventReportRQ.
- class gdcm::network::NEventReportRSP

  NEventReportRSP this file defines the messages for the neventreport action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.530 gdcmNEventReportMessages.h

Go to the documentation of this file.

```
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCNEVENTREPORTMESSAGES_H
00015 #define GDCMCNEVENTREPORTMESSAGES_H
00016
00017 #include "gdcmBaseNormalizedMessage.h"
00018
00019 namespace gdcm{
00020   namespace network{
00021
00022 class ULConnection;
00023
00028 class NEventReportRQ : public BaseNormalizedMessage {
00029     public:
00030       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00031         const BaseQuery* inQuery) override;
00032     };
00033
00038     class NEventReportRSP : public BaseNormalizedMessage {
00039     public:
00040       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00041     };
00042   }
00043 }
00044 #endif // GDCMCNEVENTREPORTMESSAGES_H
```
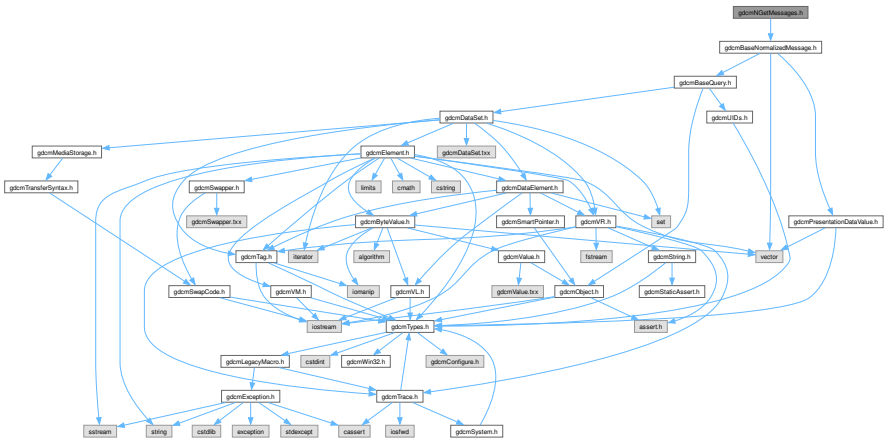

13.531 gdcmNGetMessages.h File Reference

`#include "gdcmBaseNormalizedMessage.h"`

Include dependency graph for gdcmNGetMessages.h:



Classes

- class gdcm::network::NGetRQ

  NGetRQ.
- class gdcm::network::NGetRSP

  NGetRSP this file defines the messages for the nget action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.532 gdcmNGetMessages.h

Go to the documentation of this file.

```
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCNGETMESSAGES_H
00015 #define GDCMCNGETMESSAGES_H
00016
00017 #include "gdcmBaseNormalizedMessage.h"
00018
00019 namespace gdcm{
00020   namespace network{
00021
00022 class ULConnection;
00023
00028 class NGetRQ : public BaseNormalizedMessage {
00029     public:
00030       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00031         const BaseQuery* inQuery) override;
00032     };
00033
00038     class NGetRSP : public BaseNormalizedMessage {
00039     public:
00040       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00041     };
00042   }
00043 }
00044 #endif // GDCMCNGETMESSAGES_H
```
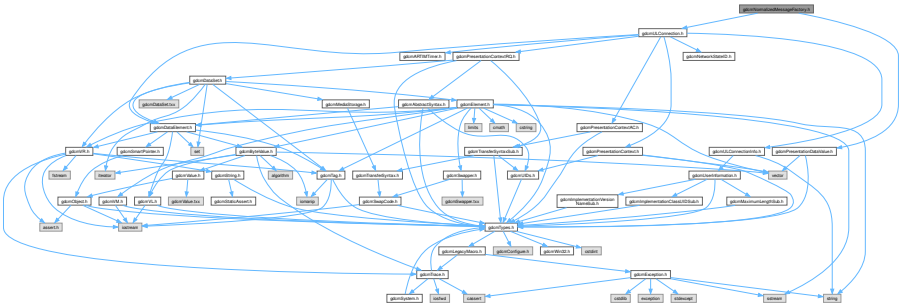

13.533 gdcmNormalizedMessageFactory.h File Reference

```
#include "gdcmPresentationDataValue.h"
#include "gdcmULConnection.h"
```

Include dependency graph for gdcmNormalizedMessageFactory.h:



Classes

- class gdcm::network::NormalizedMessageFactory

Namespaces

- namespace gdcm
- namespace gdcm::network

13.534 gdcmNormalizedMessageFactory.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMNORMALIZEDMESSAGEFACTORY_H
00015 #define GDCMNORMALIZEDMESSAGEFACTORY_H
00016
00017 #include "gdcmPresentationDataValue.h"
00018 #include "gdcmULConnection.h"
00019
00020 namespace gdcm {
00021   class BaseQuery;
00022   class File;
00023   namespace network {
00024     class BasePDU;
00025
00026 class NormalizedMessageFactory
00027 {
00028     public:
00029       static  std::vector<PresentationDataValue> ConstructNEventReport  (const ULConnection& inConnection,
      const BaseQuery* inQuery);
00030       static  std::vector<PresentationDataValue> ConstructNGet      (const ULConnection& inConnection,
      const BaseQuery* inQuery);
00031       static  std::vector<PresentationDataValue> ConstructNSet      (const ULConnection& inConnection,
      const BaseQuery* inQuery);
```
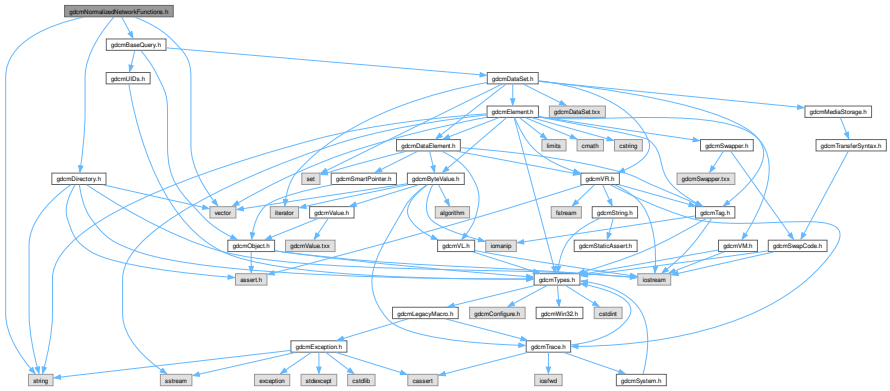

```
00032       static  std::vector<PresentationDataValue> ConstructNAction   (const ULConnection& inConnection,
    const BaseQuery* inQuery);
00033       static  std::vector<PresentationDataValue> ConstructNCreate   (const ULConnection& inConnection,
    const BaseQuery* inQuery);
00034       static  std::vector<PresentationDataValue> ConstructNDelete   (const ULConnection& inConnection,
    const BaseQuery* inQuery);
00035
00036
00037     };
00038   }
00039 }
00040
00041 #endif // GDCMNORMALIZEDMESSAGEFACTORY_H
```

13.535 gdcmNormalizedNetworkFunctions.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmBaseQuery.h"
#include <vector>
#include <string>
```

Include dependency graph for gdcmNormalizedNetworkFunctions.h:



Classes

- class gdcm::NormalizedNetworkFunctions

  Normalized Network Functions.

Namespaces

- namespace gdcm

13.536 gdcmNormalizedNetworkFunctions.h

Go to the documentation of this file.

```
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMNORMALIZEDNETWORKFUNCTIONS_H
00015 #define GDCMNORMALIZEDNETWORKFUNCTIONS_H
00016
00017 #include "gdcmDirectory.h"
00018 #include "gdcmBaseQuery.h" // EQueryLevel / EQueryType
00019
00020 #include <vector>
00021 #include <string>
00022
00023 namespace gdcm
00024 {
00046 class GDCM_EXPORT NormalizedNetworkFunctions
00047 {
00048 public:
00049   static BaseQuery* ConstructQuery( const std::string & sopInstanceUID,
00050                     const DataSet& queryds, ENQueryType queryType = eCreateMMPS );
00051   static bool NEventReport( const char *remote, uint16_t portno,
00052                 const BaseQuery* query, std::vector<DataSet> &retDataSets,
00053                 const char *aetitle, const char *call );
00054   static bool NGet( const char *remote, uint16_t portno,
00055                     const BaseQuery* query, std::vector<DataSet> &retDataSets,
00056                     const char *aetitle, const char *call );
00057   static bool NSet( const char *remote, uint16_t portno,
00058                     const BaseQuery* query, std::vector<DataSet> &retDataSets,
00059                     const char *aetitle, const char *call );
00060   static bool NAction( const char *remote, uint16_t portno,
00061                     const BaseQuery* query, std::vector<DataSet> &retDataSets,
00062                     const char *aetitle, const char *call );
00063   static bool NCreate( const char *remote, uint16_t portno,
00064                     BaseQuery* query, std::vector<DataSet> &retDataSets,
00065                     const char *aetitle, const char *call );
00066   static bool NDelete( const char *remote, uint16_t portno,
00067                     const BaseQuery* query, std::vector<DataSet> &retDataSets,
00068                     const char *aetitle, const char *call );
00069 };
00070
00071 } // end namespace gdcm
00072
00073 #endif // GDCMCOMPOSITENETWORKFUNCTIONS_H
```
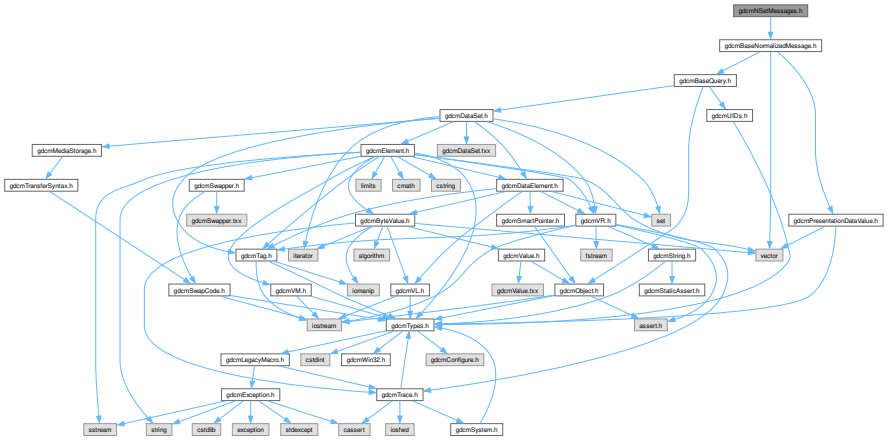

13.537 gdcmNSetMessages.h File Reference

`#include "gdcmBaseNormalizedMessage.h"`
Include dependency graph for gdcmNSetMessages.h:



Classes

- class gdcm::network::NSetRQ

  NSetRQ.
- class gdcm::network::NSetRSP

  NSetRSP this file defines the messages for the nset action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.538 gdcmNSetMessages.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCNSETMESSAGES_H
00015 #define GDCMCNSETMESSAGES_H
```
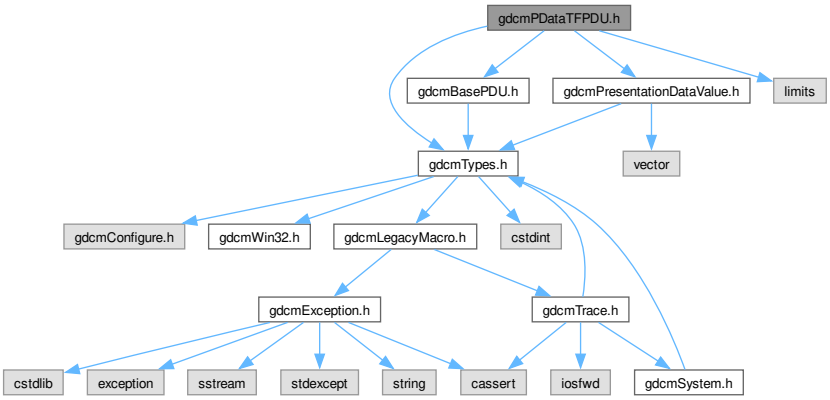

```
00016
00017 #include "gdcmBaseNormalizedMessage.h"
00018
00019 namespace gdcm{
00020   namespace network{
00021
00022 class ULConnection;
00023
00028 class NSetRQ : public BaseNormalizedMessage {
00029     public:
00030       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00031         const BaseQuery* inQuery) override;
00032     };
00033
00038     class NSetRSP : public BaseNormalizedMessage {
00039     public:
00040       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00041     };
00042   }
00043 }
00044 #endif // GDCMCNSETMESSAGES_H
```

13.539 gdcmPDataTFPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmPresentationDataValue.h"
#include "gdcmBasePDU.h"
#include <limits>
```

Include dependency graph for gdcmPDataTFPDU.h:



Classes

- class gdcm::network::PDataTFPDU
  PDataTFPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.540 gdcmPDataTFPDU.h

Go to the documentation of this file.

```
00001 /*=========================================================================
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00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00008
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPDATATFPDU_H
00015 #define GDCMPDATATFPDU_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmPresentationDataValue.h"
00019 #include "gdcmBasePDU.h"
00020 #include <limits>
00021
00022 namespace gdcm
00023 {
00024
00025 namespace network
00026 {
00027
00033 class GDCM_EXPORT PDataTFPDU : public BasePDU
00034 {
00035 public:
00036   PDataTFPDU();
00037   std::istream &Read(std::istream &is) override;
00038   const std::ostream &Write(std::ostream &os) const override;
00039
00041   size_t Size() const override;
00042
00043   void AddPresentationDataValue( PresentationDataValue const &pdv ) {
00044     V.push_back( pdv );
00045     assert(Size() < std::numeric_limits<uint32_t>::max());
00046     ItemLength = (uint32_t)Size() - 6;
00047     }
00048
00049   typedef std::vector<PresentationDataValue>::size_type SizeType;
00050   PresentationDataValue const &GetPresentationDataValue(SizeType i) const {
00051     assert( !V.empty() && i < V.size() );
00052     return V[i];
00053   }
00054   SizeType GetNumberOfPresentationDataValues() const {
00055     return V.size();
00056     }
00057
00058   void Print(std::ostream &os) const override;
00059   bool IsLastFragment() const override;
00060
00061 protected:
00062   std::istream &ReadInto(std::istream &is, std::ostream &os);
00063 private:
00064   static const uint8_t ItemType; // PDUType ?
00065   static const uint8_t Reserved2;
00066   uint32_t ItemLength; // PDU Length ?
00067   std::vector<PresentationDataValue> V;
00068 };
00069
00070 } // end namespace network
00071
00072 } // end namespace gdcm
00073
00074 #endif //GDCMPDATATFPDU_H
```
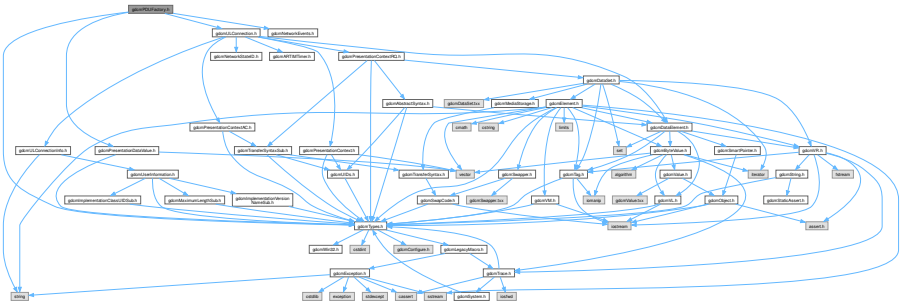

13.541 gdcmPDUFactory.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmNetworkEvents.h"
#include "gdcmULConnection.h"
#include "gdcmPresentationDataValue.h"
```

Include dependency graph for gdcmPDUFactory.h:



Classes

- class gdcm::network::PDUFactory

  PDUFactory basically, given an initial byte, construct the.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.542 gdcmPDUFactory.h

Go to the documentation of this file.

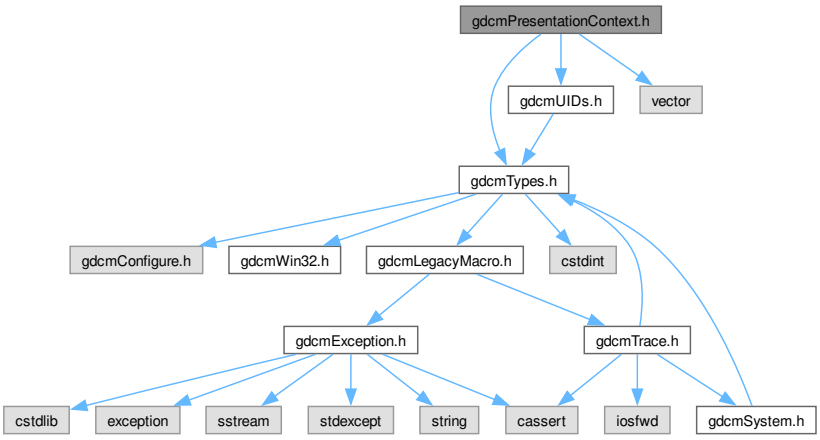
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMPDUFACTORY_H
00019 #define GDCMPDUFACTORY_H
00020
00021 #include "gdcmTypes.h"
00022 #include "gdcmNetworkEvents.h"
```

```
00023 #include "gdcmULConnection.h"
00024 #include "gdcmPresentationDataValue.h"
00025
00026 namespace gdcm{
00027   class BaseRootQuery;
00028   class BaseQuery;
00029   class File;
00030   namespace network{
00031     class BasePDU;
00032
00038   class PDUFactory {
00039       public:
00040       static BasePDU* ConstructPDU(uint8_t itemtype);//eventually needs to be smartpointer'd
00041       static EEventID DetermineEventByPDU(const BasePDU* inPDU);
00042       static BasePDU* ConstructReleasePDU();
00043       static BasePDU* ConstructAbortPDU();
00044
00045       //these are the composite PDU construction methods for the PDataPDUs.
00046       //basically, builds a pdatapdu, and then puts the appropriate information in
00047       //for the appropriate composite service (c-echo, c-find, c-store, c-get, c-move)
00048       //the connection is necessary to construct the stream of PDVs that will
00049       //be then placed into the vector of PDUs
00050       static std::vector<BasePDU*> CreateCEchoPDU(const ULConnection& inConnection);
00051       static std::vector<BasePDU*> CreateCStoreRQPDU(const ULConnection& inConnection, const File &file,
      bool writeDataSet = true );
00052       static std::vector<BasePDU*> CreateCStoreRSPPDU(const DataSet *inDataSet, const BasePDU* inPC);
00053       static std::vector<BasePDU*> CreateCFindPDU(const ULConnection& inConnection, const BaseRootQuery*
      inRootQuery);
00054       static std::vector<BasePDU*> CreateCMovePDU(const ULConnection& inConnection, const BaseRootQuery*
      inRootQuery);
00055
00056     static std::vector<BasePDU*> CreateNEventReportPDU  (const ULConnection& inConnection, const BaseQuery
      *inQuery);
00057     static std::vector<BasePDU*> CreateNGetPDU      (const ULConnection& inConnection, const BaseQuery
      *inQuery);
00058     static std::vector<BasePDU*> CreateNSetPDU      (const ULConnection& inConnection, const BaseQuery
      *inQuery);
00059     static std::vector<BasePDU*> CreateNActionPDU     (const ULConnection& inConnection, const BaseQuery
      *inQuery);
00060     static std::vector<BasePDU*> CreateNCreatePDU     (const ULConnection& inConnection, const BaseQuery
      *inQuery);
00061     static std::vector<BasePDU*> CreateNDeletePDU     (const ULConnection& inConnection, const BaseQuery
      *inQuery);
00062
00063
00064       //given data pdus, produce the presentation data values stored within.
00065       //all operations have these as the payload of the data sending operation
00066       //however, echo does not have a dataset in the pdv.
00067       static std::vector<PresentationDataValue> GetPDVs(const std::vector<BasePDU*> & inDataPDUs);
00068     };
00069   }
00070 }
00071 #endif //GDCMPDUFACTORY_H
```

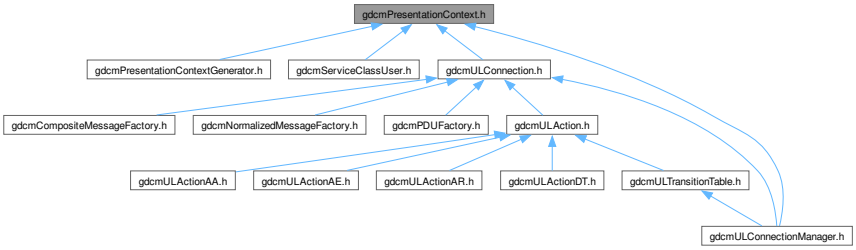
13.543 gdcmPresentationContext.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmUIDs.h"
#include <vector>
```

Include dependency graph for gdcmPresentationContext.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::PresentationContext

  PresentationContext.

Namespaces

- namespace gdcm

13.544 gdcmPresentationContext.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPRESENTATIONCONTEXT_H
00015 #define GDCMPRESENTATIONCONTEXT_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmUIDs.h"
00019
00020 #include <vector>
00021
00022 namespace gdcm
00023 {
00024
00029 class GDCM_EXPORT PresentationContext
00030 {
00031 public:
00032   PresentationContext();
00033
00037   PresentationContext( UIDs::TSName asname,
00038     UIDs::TSName tsname = UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM );
00039
00040   void SetAbstractSyntax( const char *absyn ) { AbstractSyntax = absyn; }
00041   const char *GetAbstractSyntax() const { return AbstractSyntax.c_str(); }
00042
00043   void AddTransferSyntax( const char *tsstr );
00044   typedef std::vector<std::string> TransferSyntaxArrayType;
00045   typedef TransferSyntaxArrayType::size_type SizeType;
00046   const char *GetTransferSyntax(SizeType i) const { return TransferSyntaxes[i].c_str(); }
00047   SizeType GetNumberOfTransferSyntaxes() const { return TransferSyntaxes.size(); }
00048
00049   void SetPresentationContextID( uint8_t id );
00050   uint8_t GetPresentationContextID() const;
00051
00052   void Print(std::ostream &os) const;
00053
00054   bool operator==(const PresentationContext & pc) const
00055     {
00056     assert( TransferSyntaxes.size() == 1 ); // TODO
00057     assert( pc.TransferSyntaxes.size() == 1 );
00058     return AbstractSyntax == pc.AbstractSyntax && TransferSyntaxes == pc.TransferSyntaxes;
00059     }
00060
00061 protected :
00062   std::string AbstractSyntax;
00063   std::vector<std::string> TransferSyntaxes;
00064   uint8_t /*PresentationContext*/ID;
00065 };
00066
00067 } // end namespace gdcm
00068
00069 #endif //GDCMPRESENTATIONCONTEXT_H
```
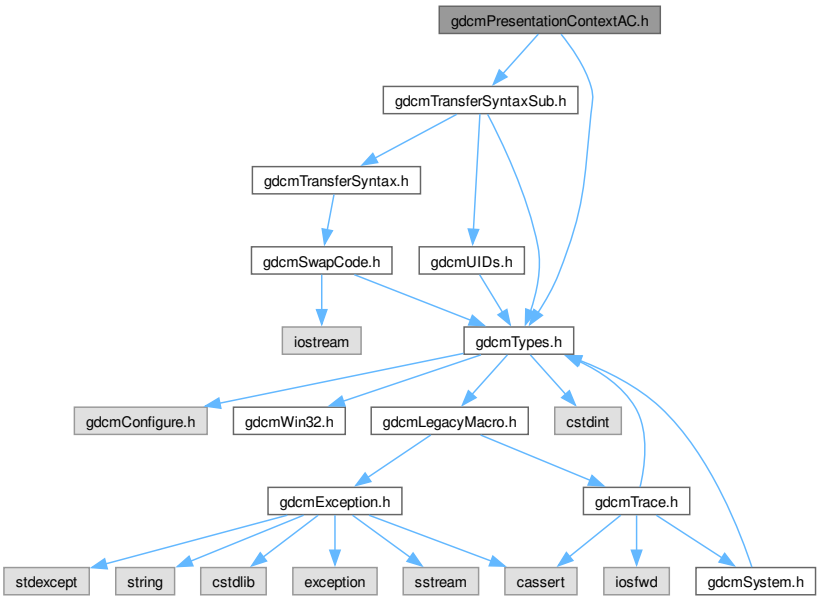
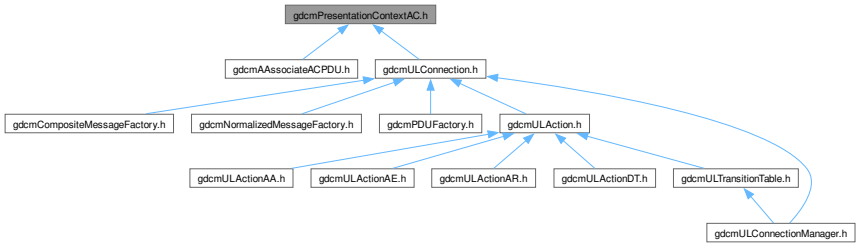

13.545 gdcmPresentationContextAC.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTransferSyntaxSub.h"
```

Include dependency graph for gdcmPresentationContextAC.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::PresentationContextAC

  PresentationContextAC.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.546 gdcmPresentationContextAC.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPRESENTATIONCONTEXTAC_H
00015 #define GDCMPRESENTATIONCONTEXTAC_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmTransferSyntaxSub.h"
00019
00020 namespace gdcm
00021 {
00022
00023 namespace network
00024 {
00025
00032 class PresentationContextAC
00033 {
00034 public:
00035   PresentationContextAC();
00036   std::istream &Read(std::istream &is);
00037   const std::ostream &Write(std::ostream &os) const;
00038
00039   size_t Size() const;
00040
00041   void SetTransferSyntax( TransferSyntaxSub const &ts );
00042   void SetPresentationContextID( uint8_t id );
00043
00044   void Print(std::ostream &os) const;
00045
00046   uint8_t GetPresentationContextID() const
00047     {
00048     return ID;
00049     }
00050   TransferSyntaxSub const & GetTransferSyntax() const { return SubItems; }
00051
00052   void SetReason( uint8_t r ) { Result = r; }
00053   uint8_t GetReason() const { return Result; }
00054
00055 private:
00056   static const uint8_t ItemType;
00057   static const uint8_t Reserved2;
00058   uint16_t ItemLength; // len of last transfer syntax
00059   uint8_t /*PresentationContext*/ID;
00060   static const uint8_t Reserved6;
00061   uint8_t /*Reason*/Result;
00062   static const uint8_t Reserved8;
00063   TransferSyntaxSub SubItems;
00064 };
00065
00066 } // end namespace network
00067
00068 } // end namespace gdcm
00069
00070 #endif //GDCMPRESENTATIONCONTEXTAC_H
```
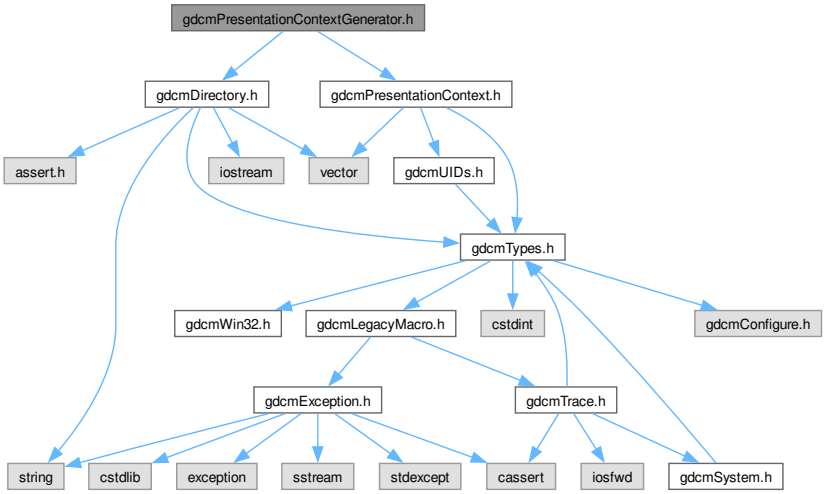

13.547 gdcmPresentationContextGenerator.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmPresentationContext.h"
```

Include dependency graph for gdcmPresentationContextGenerator.h:



Classes

- class gdcm::PresentationContextGenerator

  PresentationContextGenerator.

Namespaces

- namespace gdcm

13.548 gdcmPresentationContextGenerator.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPRESENTATIONCONTEXTGENERATOR_H
00015 #define GDCMPRESENTATIONCONTEXTGENERATOR_H
00016
00017 #include "gdcmDirectory.h"
00018 #include "gdcmPresentationContext.h"
00019
00020 namespace gdcm
00021 {
```
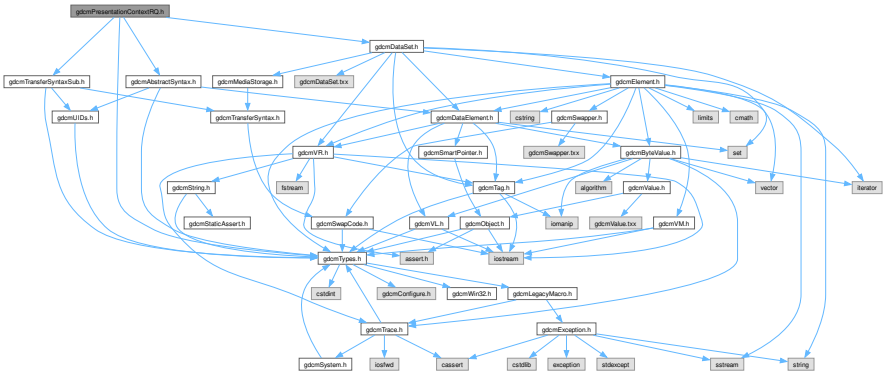

```
00022 class TransferSyntax;
00023 class File;
00024
00053 class GDCM_EXPORT PresentationContextGenerator
00054 {
00055 public:
00056   PresentationContextGenerator();
00057
00058   // Set MergeMode
00059   // Default mode, each pair AbstractSyntax/TransferSyntax are only merged when
00060   // exactly identical
00061   void SetMergeModeToAbstractSyntax();
00062
00063   // Set MergeMode
00064   // Merge is done on a per AbstractSyntax basis. Any new TransferSyntax for a
00065   // given AbstractSyntax is merge to the existing PresentationContext referring
00066   // to that AbstractSyntax
00067   void SetMergeModeToTransferSyntax();
00068
00070   bool GenerateFromUID(UIDs::TSName asname);
00071
00075   bool GenerateFromFilenames(const Directory::FilenamesType &files);
00076
00079   bool AddFromFile(const File &file);
00080
00081   typedef std::vector<PresentationContext> PresentationContextArrayType;
00082   typedef PresentationContextArrayType::size_type SizeType;
00083   PresentationContextArrayType const &GetPresentationContexts() { return PresContext; }
00084
00086   void SetDefaultTransferSyntax( const TransferSyntax &ts );
00087 protected:
00088   bool AddPresentationContext( const char *absyn, const char *ts );
00089   const char *GetDefaultTransferSyntax() const;
00090
00091 private:
00092   std::vector<PresentationContext> PresContext;
00093   static std::string DefaultTransferSyntax;
00094 };
00095
00096 } // end namespace gdcm
00097
00098 #endif //GDCMPRESENTATIONCONTEXTGENERATOR_H
```

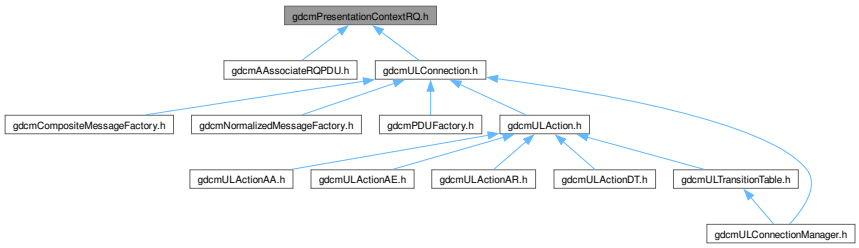
13.549 gdcmPresentationContextRQ.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmAbstractSyntax.h"
#include "gdcmTransferSyntaxSub.h"
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmPresentationContextRQ.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::PresentationContextRQ

  PresentationContextRQ.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.550 gdcmPresentationContextRQ.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPRESENTATIONCONTEXTRQ_H
00015 #define GDCMPRESENTATIONCONTEXTRQ_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmAbstractSyntax.h"
00019 #include "gdcmTransferSyntaxSub.h"
00020 #include "gdcmDataSet.h"
00021
00022 namespace gdcm
00023 {
00024 class PresentationContext;
00025 namespace network
00026 {
00027
00034 class GDCM_EXPORT PresentationContextRQ
00035 {
00036 public:
00037   PresentationContextRQ();
00038
```
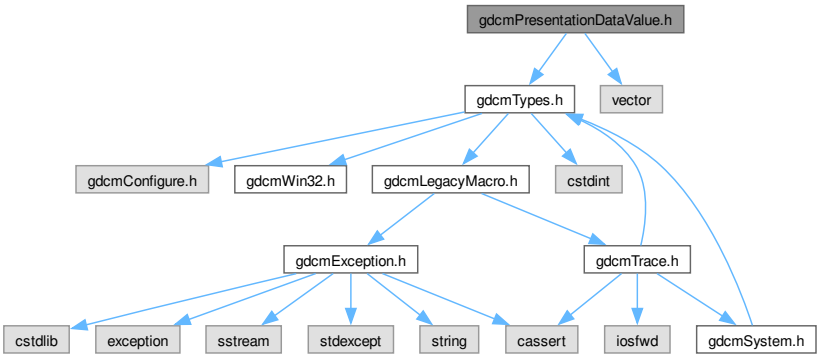

```
00042   PresentationContextRQ( UIDs::TSName asname, UIDs::TSName tsname =
00043     UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM  );
00044
00045   std::istream &Read(std::istream &is);
00046   const std::ostream &Write(std::ostream &os) const;
00047   size_t Size() const;
00048
00049   void SetAbstractSyntax( AbstractSyntax const & absyn );
00050   AbstractSyntax const &GetAbstractSyntax() const { return SubItems; }
00051   AbstractSyntax &GetAbstractSyntax() { return SubItems; }
00052
00053   void AddTransferSyntax( TransferSyntaxSub const &ts );
00054   typedef std::vector<TransferSyntaxSub>::size_type SizeType;
00055   TransferSyntaxSub const & GetTransferSyntax(SizeType i) const { return TransferSyntaxes[i]; }
00056   TransferSyntaxSub & GetTransferSyntax(SizeType i) { return TransferSyntaxes[i]; }
00057   std::vector<TransferSyntaxSub> const & GetTransferSyntaxes() const {return TransferSyntaxes; }
00058   SizeType GetNumberOfTransferSyntaxes() const { return TransferSyntaxes.size(); }
00059
00060   void SetPresentationContextID( uint8_t id );
00061   uint8_t GetPresentationContextID() const;
00062
00063   void Print(std::ostream &os) const;
00064
00065   bool operator==(const PresentationContextRQ & pc) const
00066     {
00067     assert( TransferSyntaxes.size() == 1 ); // TODO
00068     assert( pc.TransferSyntaxes.size() == 1 );
00069     return SubItems == pc.SubItems && TransferSyntaxes == pc.TransferSyntaxes;
00070     }
00071
00072   PresentationContextRQ(const PresentationContext & pc);
00073
00074 private:
00075   static const uint8_t ItemType;
00076   static const uint8_t Reserved2;
00077   uint16_t ItemLength; // len of last transfer syntax
00078   uint8_t /*PresentationContext*/ID;
00079   static const uint8_t Reserved6;
00080   static const uint8_t Reserved7;
00081   static const uint8_t Reserved8;
00082   /*
00083   This variable field shall contain the following sub-items: one Abstract
00084   Syntax and one or more Transfer Syntax(es). For a complete
00085   description of the use and encoding of these sub-items see Sections
00086   9.3.2.2.1 and 9.3.2.2.2.
00087    */
00088   AbstractSyntax SubItems;
00089   std::vector<TransferSyntaxSub> TransferSyntaxes;
00090 };
00091
00092 } // end namespace network
00093
00094 } // end namespace gdcm
00095
00096 #endif //GDCMPRESENTATIONCONTEXTRQ_H
```

13.551 gdcmPresentationDataValue.h File Reference

```
#include "gdcmTypes.h"
#include <vector>
```

Include dependency graph for gdcmPresentationDataValue.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::network::PresentationDataValue

  PresentationDataValue.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.552 gdcmPresentationDataValue.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
```

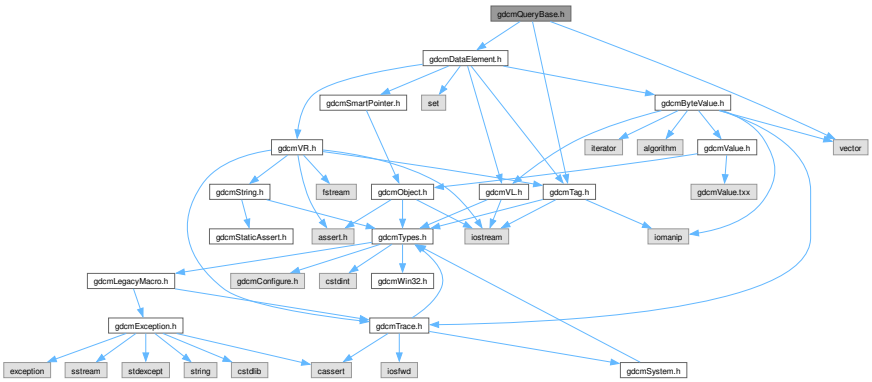
```
00014 #ifndef GDCMPRESENTATIONDATAVALUE_H
00015 #define GDCMPRESENTATIONDATAVALUE_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <vector>
00020
00021 namespace gdcm
00022 {
00023 class DataSet;
00024 namespace network
00025 {
00026
00032 class GDCM_EXPORT PresentationDataValue
00033 {
00034 public:
00035   PresentationDataValue();
00036   std::istream &Read(std::istream &is);
00037   std::istream &ReadInto(std::istream &is, std::ostream &os);
00038
00039   const std::ostream &Write(std::ostream &os) const;
00040
00042   size_t Size() const;
00043
00046   void SetDataSet(const DataSet & ds);
00047   void SetBlob(const std::string & partialblob);
00048   const std::string &GetBlob() const;
00049
00050   uint8_t GetPresentationContextID() const { return PresentationContextID; }
00051   void SetPresentationContextID(uint8_t id) {
00052     assert( id );
00053     PresentationContextID = id;
00054   }
00055   uint8_t GetMessageHeader() const {
00056     assert( MessageHeader <= 0x3 );
00057     return MessageHeader;
00058   }
00059   // E.2 MESSAGE CONTROL HEADER ENCODING
00060   // Only the first two bits are considered
00061   void SetMessageHeader(uint8_t messageheader) {
00062     MessageHeader = messageheader;
00063     assert( MessageHeader <= 0x3 );
00064   }
00065   //flip the least significant bit of the message header to 1
00066   //if this is a command, else set it to 0.
00067   void SetCommand(bool inCommand);
00068   void SetLastFragment(bool inLast);//set to true if this is the last PDV of a set
00069
00070   bool GetIsCommand() const;
00071   bool GetIsLastFragment() const;
00072
00073   void Print(std::ostream &os) const;
00074
00075   //NOTE that the PDVs have to be given in the order in which they were received!
00076   //also note that a dataset may be across multiple PDVs
00078   static DataSet ConcatenatePDVBlobs(const std::vector<PresentationDataValue>& inPDVs);
00079
00080   static DataSet ConcatenatePDVBlobsAsExplicit(const std::vector<PresentationDataValue>& inPDVs);
00081
00082 private:
00083   uint32_t ItemLength;
00084   uint8_t PresentationContextID;
00085   uint8_t MessageHeader;
00086   std::string Blob;
00087 };
00088 } // end namespace network
00089
00090 } // end namespace gdcm
00091
00092 #endif //GDCMPRESENTATIONDATAVALUE_H
```

13.553 gdcmQueryBase.h File Reference

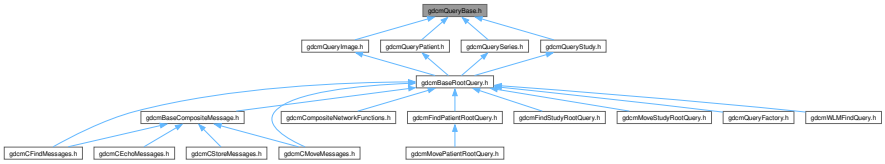
```
#include "gdcmTag.h"
#include "gdcmDataElement.h"
```

```
#include <vector>
```

Include dependency graph for gdcmQueryBase.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::QueryBase

  QueryBase.

Namespaces

- namespace gdcm

Enumerations

- enum gdcm::ERootType {
  gdcm::ePatientRootType ,
  gdcm::eStudyRootType }

13.554 gdcmQueryBase.h

Go to the documentation of this file.

```
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00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMQUERYBASE_H
00019 #define GDCMQUERYBASE_H
00020
00021 #include "gdcmTag.h"
00022 #include "gdcmDataElement.h"
00023
00024 #include <vector>
00025
00026 namespace gdcm
00027 {
00028   enum ERootType
00029     {
00030     ePatientRootType,
00031     eStudyRootType
00032     };
00033
00060 class GDCM_EXPORT QueryBase
00061 {
00062   public:
00063     virtual ~QueryBase() = default;
00064
00065     virtual std::vector<Tag> GetRequiredTags(const ERootType& inRootType) const = 0;
00066     virtual std::vector<Tag> GetUniqueTags(const ERootType& inRootType) const = 0;
00067     virtual std::vector<Tag> GetOptionalTags(const ERootType& inRootType) const = 0;
00068     // C.4.1.2.1 Baseline Behavior of SCU
00069     // All C-FIND SCUs shall be capable of generating query requests which
00070     // meet the requirements of the Hierarchical Search.
00071     // The Identifier contained in a C-FIND request shall contain a single
00072     // value in the Unique Key Attribute for each level above the
00073     // Query/Retrieve level. No Required or Optional Keys shall be
00074     // specified which are associated with levels above the Query/Retrieve
00075     // level.
00077     virtual std::vector<Tag> GetHierachicalSearchTags(const ERootType& inRootType) const = 0;
00078
00081     std::vector<Tag> GetAllTags(const ERootType& inRootType) const;
00082
00085     std::vector<Tag> GetAllRequiredTags(const ERootType& inRootType) const;
00086
00087     virtual const char * GetName() const = 0;
00088     virtual DataElement GetQueryLevel() const = 0;
00089   };
00090 }
00091
00092 #endif //GDCMQUERYBASE_H
```
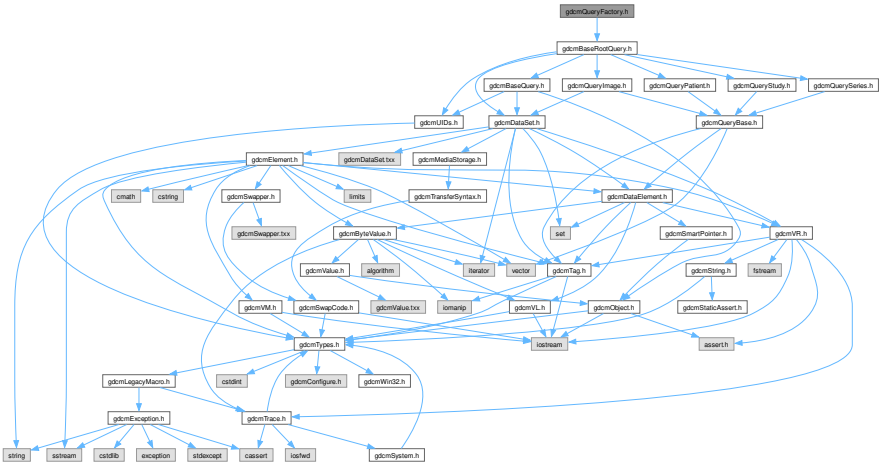

13.555 gdcmQueryFactory.h File Reference

```
#include "gdcmBaseRootQuery.h"
```

Include dependency graph for gdcmQueryFactory.h:



Classes

- class gdcm::QueryFactory

  QueryFactory.h.

Namespaces

- namespace gdcm

Enumerations

- enum gdcm::ECharSet {
  gdcm::eLatin1 = 0 ,
  gdcm::eLatin2 ,
  gdcm::eLatin3 ,
  gdcm::eLatin4 ,
  gdcm::eCyrillic ,
  gdcm::eArabic ,
  gdcm::eGreek ,
  gdcm::eHebrew ,
  gdcm::eLatin5 ,
  gdcm::eJapanese ,
  gdcm::eThai ,
  gdcm::eJapaneseKanjiMultibyte ,
  gdcm::eJapaneseSupplementaryKanjiMultibyte ,
  gdcm::eKoreanHangulHanjaMultibyte ,
  gdcm::eUTF8 ,
  gdcm::eGB18030 }

13.556 gdcmQueryFactory.h

Go to the documentation of this file.

```
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00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMQUERYFACTORY_H
00019 #define GDCMQUERYFACTORY_H
00020
00021 #include "gdcmBaseRootQuery.h"
00022
00023 namespace gdcm{
00027   enum ECharSet {
00028     eLatin1 = 0,
00029     eLatin2,
00030     eLatin3,
00031     eLatin4,
00032     eCyrillic,
00033     eArabic,
00034     eGreek,
00035     eHebrew,
00036     eLatin5, // Latin Alphabet No. 5 (Turkish) Extended
00037     eJapanese, // JIS X 0201 (Shift JIS) Extended
00038     eThai, // TIS 620-2533 (Thai) Extended
00039     eJapaneseKanjiMultibyte, // JIS X 0208 (Kanji) Extended
00040     eJapaneseSupplementaryKanjiMultibyte, // JIS X 0212 (Kanji) Extended
00041     eKoreanHangulHanjaMultibyte, // KS X 1001 (Hangul and Hanja) Extended
00042     eUTF8,
00043     eGB18030 // Chinese (Simplified) Extended
00044   };
00045
00057 class GDCM_EXPORT QueryFactory
00058 {
00059 public:
00060
00061   static BaseQuery* ProduceQuery( const std::string & sopInstanceUID, ENQueryType inQueryType );
00067   static BaseRootQuery* ProduceQuery(ERootType inRootType, EQueryType inQueryType,
00068     EQueryLevel inQueryLevel);
00069
00077   static DataElement ProduceCharacterSetDataElement(
00078     const std::vector<ECharSet>& inCharSetType);
00079
00082   static ECharSet GetCharacterFromCurrentLocale();
00083
00085   static void ListCharSets(std::ostream& os);
00086 };
00087
00088 } // end namespace gdcm
00089
00090 #endif // GDCMQUERYFACTORY_H
```
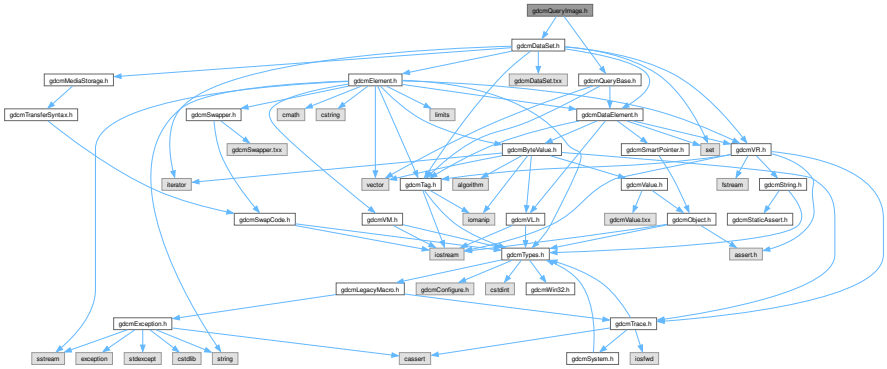

13.557 gdcmQueryImage.h File Reference

```
#include "gdcmQueryBase.h"
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmQueryImage.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::QueryImage

  QueryImage.

Namespaces

- namespace gdcm

13.558 gdcmQueryImage.h

Go to the documentation of this file.

```
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00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
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```
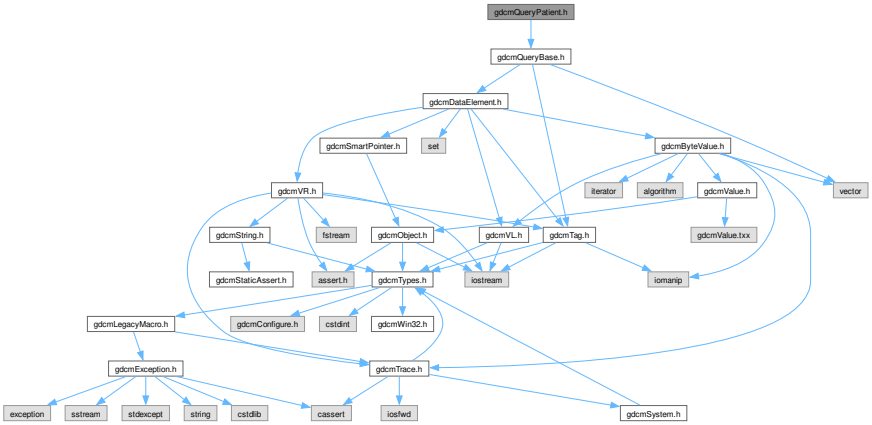

```
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMQUERYIMAGE_H
00019 #define GDCMQUERYIMAGE_H
00020
00021 #include "gdcmQueryBase.h"
00022 #include "gdcmDataSet.h"
00023
00024 namespace gdcm
00025 {
00030 class GDCM_EXPORT QueryImage : public QueryBase
00031 {
00032 public:
00033   std::vector<Tag> GetRequiredTags(const ERootType& inRootType) const override;
00034   std::vector<Tag> GetUniqueTags(const ERootType& inRootType) const override;
00035   std::vector<Tag> GetOptionalTags(const ERootType& inRootType) const override;
00036   std::vector<Tag> GetHierachicalSearchTags(const ERootType& inRootType) const override;
00037
00038   const char * GetName() const override;
00039
00040   DataElement GetQueryLevel() const override;
00041 };
00042
00043 } // end namespace gdcm
00044
00045 #endif // GDCMQUERYIMAGE_H
```

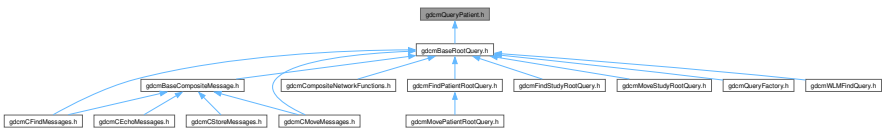
13.559 gdcmQueryPatient.h File Reference

`#include "gdcmQueryBase.h"`

Include dependency graph for gdcmQueryPatient.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::QueryPatient

  QueryPatient.

Namespaces

- namespace gdcm

13.560 gdcmQueryPatient.h

Go to the documentation of this file.

```
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00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
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00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMQUERYPATIENT_H
00019 #define GDCMQUERYPATIENT_H
00020
00021 #include "gdcmQueryBase.h"
00022
00023 namespace gdcm
00024 {
00029 class GDCM_EXPORT QueryPatient : public QueryBase
00030 {
00031 public:
00032   std::vector<Tag> GetRequiredTags(const ERootType& inRootType) const override;
00033   std::vector<Tag> GetUniqueTags(const ERootType& inRootType) const override;
00034   std::vector<Tag> GetOptionalTags(const ERootType& inRootType) const override;
00035   std::vector<Tag> GetHierachicalSearchTags(const ERootType& inRootType) const override;
00036
00037   const char * GetName() const override;
00038   DataElement GetQueryLevel() const override;
00039 };
00040
00041 } // end namespace gdcm
00042
00043 #endif //GDCMQUERYPATIENT_H
```
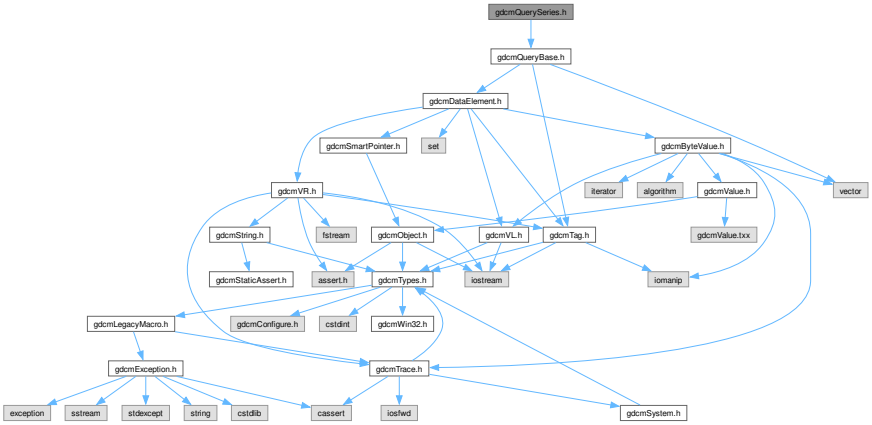
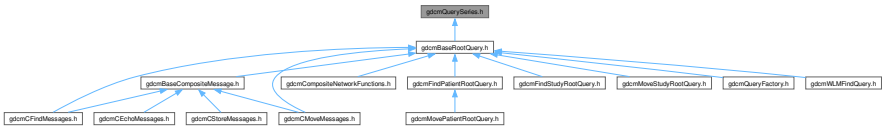

13.561 gdcmQuerySeries.h File Reference

`#include "gdcmQueryBase.h"`
Include dependency graph for gdcmQuerySeries.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::QuerySeries
  QuerySeries.

Namespaces

- namespace gdcm

13.562 gdcmQuerySeries.h

Go to the documentation of this file.

```
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```

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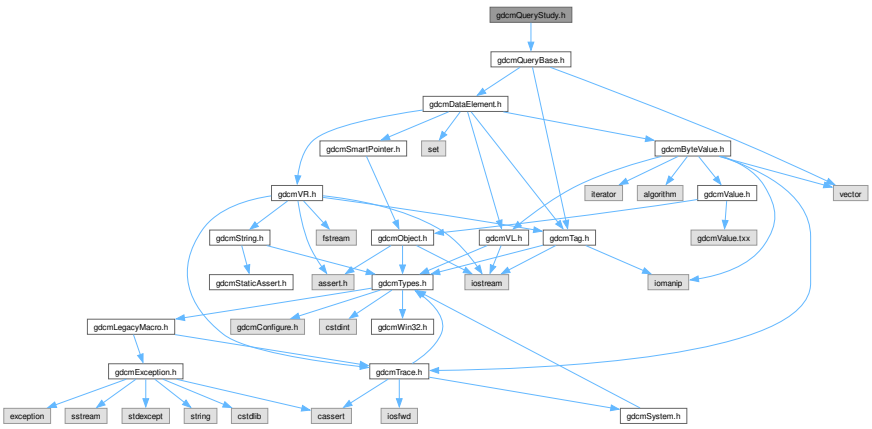
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMQUERYSERIES_H
00019 #define GDCMQUERYSERIES_H
00020
00021 #include "gdcmQueryBase.h"
00022
00023 namespace gdcm
00024 {
00029 class GDCM_EXPORT QuerySeries : public QueryBase
00030 {
00031 public:
00032   std::vector<Tag> GetRequiredTags(const ERootType& inRootType) const override;
00033   std::vector<Tag> GetUniqueTags(const ERootType& inRootType) const override;
00034   std::vector<Tag> GetOptionalTags(const ERootType& inRootType) const override;
00035   std::vector<Tag> GetHierachicalSearchTags(const ERootType& inRootType) const override;
00036
00037   const char * GetName() const override;
00038   DataElement GetQueryLevel() const override;
00039 };
00040
00041 } // end namespace gdcm
00042
00043 #endif //GDCMQUERYSERIES_H
```

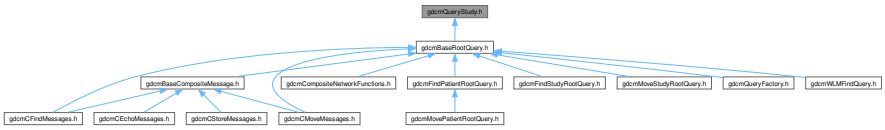
13.563 gdcmQueryStudy.h File Reference

`#include "gdcmQueryBase.h"`

Include dependency graph for gdcmQueryStudy.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::QueryStudy

  QueryStudy.h.

Namespaces

- namespace gdcm

13.564 gdcmQueryStudy.h

Go to the documentation of this file.

```
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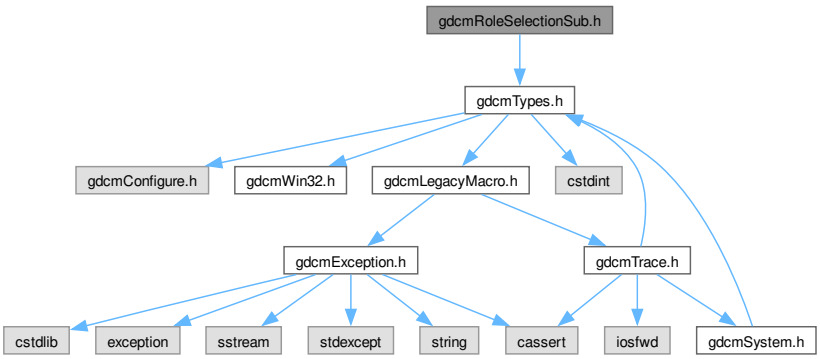
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMQUERYSTUDY_H
00019 #define GDCMQUERYSTUDY_H
00020
00021 #include "gdcmQueryBase.h"
00022
00023 namespace gdcm
00024 {
00029 class GDCM_EXPORT QueryStudy : public QueryBase
00030 {
00031 public:
00032   std::vector<Tag> GetRequiredTags(const ERootType& inRootType) const override;
00033   std::vector<Tag> GetUniqueTags(const ERootType& inRootType) const override;
00034   std::vector<Tag> GetOptionalTags(const ERootType& inRootType) const override;
00035   std::vector<Tag> GetHierachicalSearchTags(const ERootType& inRootType) const override;
00036
00037   const char *GetName() const override;
00038   DataElement GetQueryLevel() const override;
00039 };
00040
00041 } // end namespace gdcm
00042
00043 #endif //GDCMQUERYSTUDY_H
```

13.565 gdcmRoleSelectionSub.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmRoleSelectionSub.h:



Classes

- class gdcm::network::RoleSelectionSub

  RoleSelectionSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.566 gdcmRoleSelectionSub.h

Go to the documentation of this file.

```
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00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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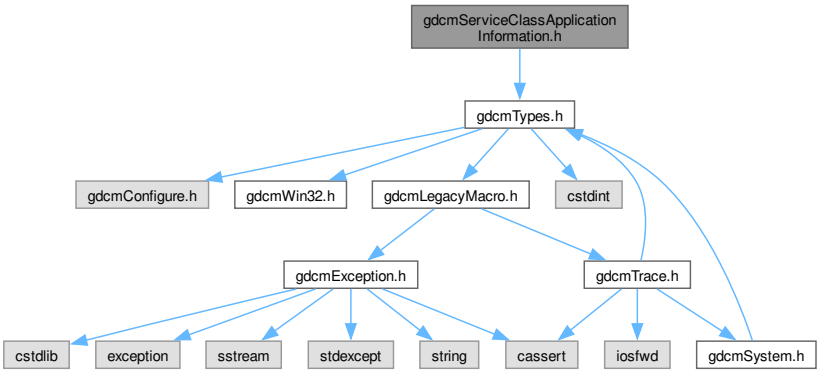
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMROLESELECTIONSUB_H
00015 #define GDCMROLESELECTIONSUB_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
```

```
00021
00022 namespace network
00023 {
00024
00031 class RoleSelectionSub
00032 {
00033 public:
00034   RoleSelectionSub();
00035   std::istream &Read(std::istream &is);
00036   const std::ostream &Write(std::ostream &os) const;
00037
00038   size_t Size() const;
00039   void Print(std::ostream &os) const;
00040
00041   void SetTuple(const char *uid, uint8_t scurole, uint8_t scprole);
00042
00043 private:
00044   static const uint8_t ItemType;
00045   static const uint8_t Reserved2;
00046   uint16_t ItemLength;
00047   uint16_t UIDLength;
00048   std::string /*SOP-class-uid*/ Name; // UID
00049   uint8_t SCURole;
00050   uint8_t SCPRole;
00051 };
00052
00053 } // end namespace network
00054
00055 } // end namespace gdcm
00056
00057 #endif // GDCMROLESELECTIONSUB_H
```

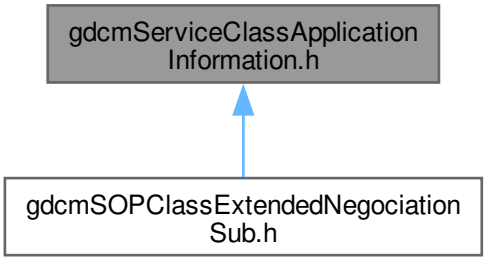
13.567 gdcmServiceClassApplicationInformation.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmServiceClassApplicationInformation.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ServiceClassApplicationInformation

Namespaces

- namespace gdcm
- namespace gdcm::network

13.568 gdcmServiceClassApplicationInformation.h

Go to the documentation of this file.

```
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00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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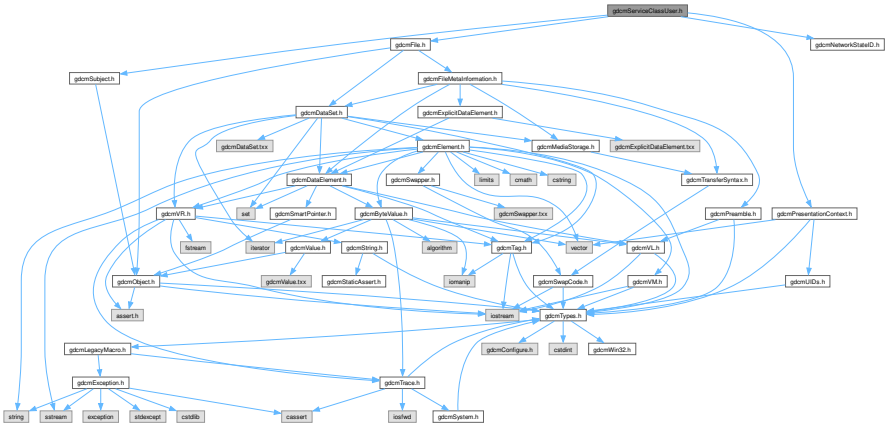
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSERVICECLASSAPPLICATIONINFORMATION_H
00015 #define GDCMSERVICECLASSAPPLICATIONINFORMATION_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00022 namespace network
00023 {
00024
00030 class ServiceClassApplicationInformation
00031 {
00032 public:
```

```
00033   ServiceClassApplicationInformation();
00034   std::istream &Read(std::istream &is);
00035   const std::ostream &Write(std::ostream &os) const;
00036
00037   size_t Size() const;
00038   void SetTuple(uint8_t levelofsupport, uint8_t levelofdigitalsig,
00039     uint8_t elementcoercion);
00040
00041   void Print(std::ostream &os) const;
00042 private:
00043   uint8_t InternalArray[6];
00044 };
00045
00046 } // end namespace network
00047
00048 } // end namespace gdcm
00049
00050 #endif //GDCMSERVICECLASSAPPLICATIONINFORMATION_H
```

13.569 gdcmServiceClassUser.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmPresentationContext.h"
#include "gdcmFile.h"
#include "gdcmNetworkStateID.h"
```

Include dependency graph for gdcmServiceClassUser.h:



Classes

- class gdcm::ServiceClassUser

  ServiceClassUser.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.570 gdcmServiceClassUser.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
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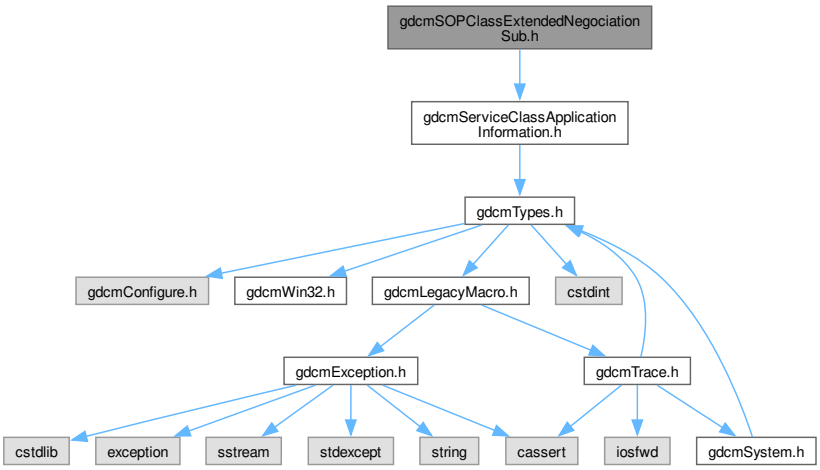
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSERVICECLASSUSER_H
00015 #define GDCMSERVICECLASSUSER_H
00016
00017 #include "gdcmSubject.h"
00018
00019 #include "gdcmPresentationContext.h"
00020 #include "gdcmFile.h"
00021
00022 #include "gdcmNetworkStateID.h" // EStateID
00023
00024 namespace gdcm
00025 {
00026 class ServiceClassUserInternals;
00027 class BaseRootQuery;
00028 namespace network{
00029 class ULEvent;
00030 class ULConnection;
00031 class ULConnectionCallback;
00032 }
00036 class GDCM_EXPORT ServiceClassUser : public Subject
00037 {
00038 public:
00042   ServiceClassUser();
00043   ~ServiceClassUser() override;
00044   ServiceClassUser(const ServiceClassUser&) = delete;
00045   void operator=(const ServiceClassUser &) = delete;
00046
00048   void SetHostname( const char *hostname );
00049
00051   void SetPort( uint16_t port );
00052
00054   void SetPortSCP( uint16_t portscp );
00055
00057   void SetAETitle(const char *aetitle);
00058   const char *GetAETitle() const;
00059
00061   void SetCalledAETitle(const char *aetitle);
00062   const char *GetCalledAETitle() const;
00063
00065   void SetTimeout(double t);
00066   double GetTimeout() const;
00067
00071   bool InitializeConnection();
00072
00074   void SetPresentationContexts(std::vector<PresentationContext> const & pcs);
00075
00077   bool IsPresentationContextAccepted(const PresentationContext& pc) const;
00078
00080   bool StartAssociation();
00081
00083   bool StopAssociation();
00084
00086   bool SendEcho();
00087
00089   bool SendStore(const char *filename);
00092   bool SendStore(File const &file);
00094   bool SendStore(DataSet const &ds);
00095
00097   bool SendFind(const BaseRootQuery* query, std::vector<DataSet> &retDatasets);
00098
00100   bool SendMove(const BaseRootQuery* query, const char *outputdir);
00102   bool SendMove(const BaseRootQuery* query, std::vector<DataSet> &retDatasets);
```

```
00104   bool SendMove(const BaseRootQuery* query, std::vector<File> &retFile);
00105
00107   static SmartPointer<ServiceClassUser> New() { return new ServiceClassUser; }
00108
00109 private:
00110   network::EStateID RunEventLoop(network::ULEvent& inEvent,
00111     network::ULConnection* inWhichConnection,
00112     network::ULConnectionCallback* inCallback, const bool& startWaiting);
00113   network::EStateID RunMoveEventLoop(network::ULEvent& inEvent,
00114     network::ULConnectionCallback* inCallback);
00115
00116 private:
00117   ServiceClassUserInternals *Internals;
00118 };
00119
00120 } // end namespace gdcm
00121
00122 #endif // GDCMSERVICECLASSUSER_H
```

13.571 gdcmSOPClassExtendedNegociationSub.h File Reference

`#include "gdcmServiceClassApplicationInformation.h"`
Include dependency graph for gdcmSOPClassExtendedNegociationSub.h:



Classes

- class gdcm::network::SOPClassExtendedNegociationSub
  SOPClassExtendedNegociationSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.572 gdcmSOPClassExtendedNegociationSub.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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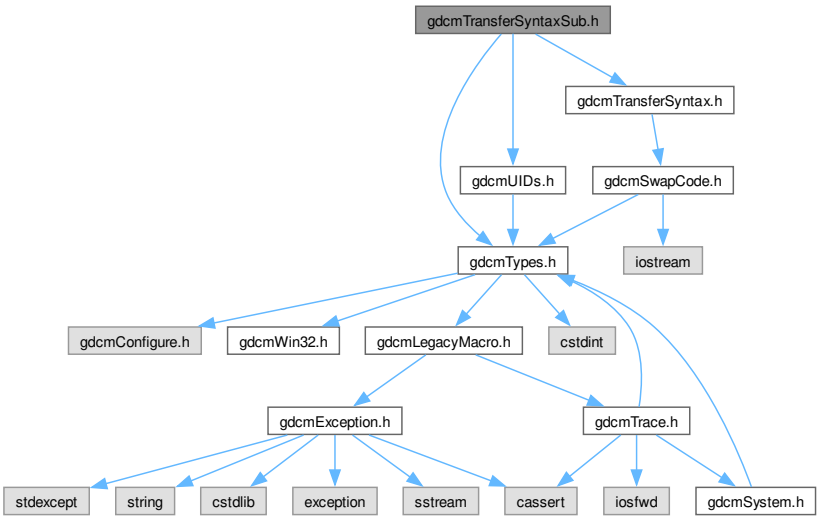
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSOPCLASSEXTENDEDNEGOCIATIONSUB_H
00015 #define GDCMSOPCLASSEXTENDEDNEGOCIATIONSUB_H
00016
00017 #include "gdcmServiceClassApplicationInformation.h"
00018
00019 namespace gdcm
00020 {
00021 namespace network
00022 {
00023
00031 class SOPClassExtendedNegociationSub
00032 {
00033 public:
00034   SOPClassExtendedNegociationSub();
00035   std::istream &Read(std::istream &is);
00036   const std::ostream &Write(std::ostream &os) const;
00037
00038   size_t Size() const;
00039   void Print(std::ostream &os) const;
00040
00041   void SetTuple(const char *uid, uint8_t levelofsupport = 3,
00042     uint8_t levelofdigitalsig = 0,
00043     uint8_t elementcoercion = 2);
00044
00045 private:
00046   static const uint8_t ItemType;
00047   static const uint8_t Reserved2;
00048   uint16_t ItemLength;
00049   uint16_t UIDLength;
00050   std::string /*SOP-class-uid*/ Name; // UID
00051   ServiceClassApplicationInformation SCAI;
00052 };
00053
00054 } // end namespace network
00055
00056 } // end namespace gdcm
00057
00058 #endif // GDCMSOPCLASSEXTENDEDNEGOCIATIONSUB_H
```

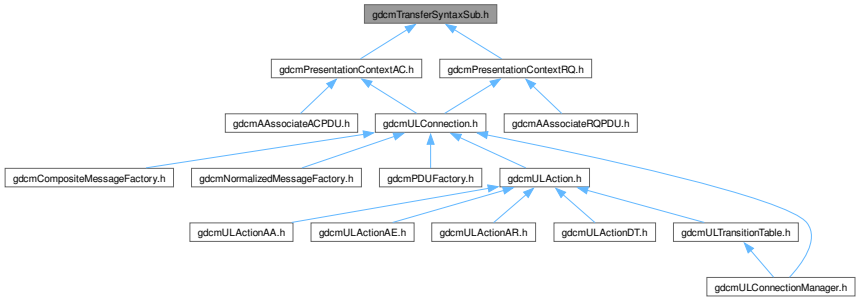
13.573 gdcmTransferSyntaxSub.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDs.h"
```

Include dependency graph for gdcmTransferSyntaxSub.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::TransferSyntaxSub

  TransferSyntaxSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.574 gdcmTransferSyntaxSub.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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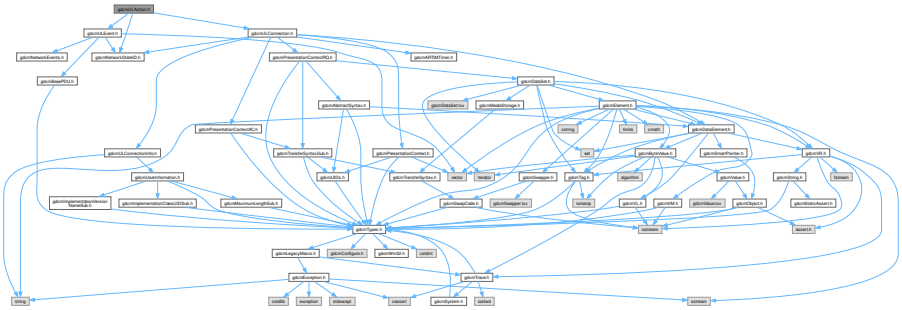
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTRANSFERSYNTAXSUB_H
00015 #define GDCMTRANSFERSYNTAXSUB_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmTransferSyntax.h"
00019 #include "gdcmUIDs.h"
00020
00021 namespace gdcm
00022 {
00023
00024 namespace network
00025 {
00026
00037 class TransferSyntaxSub
00038 {
00039 public:
00040   TransferSyntaxSub();
00041   void SetName( const char *name );
00042   const char *GetName() const { return Name.c_str(); }
00043
00044   // accept a UIDs::TSType also...
00045   void SetNameFromUID( UIDs::TSName tsname );
00046
00047   std::istream &Read(std::istream &is);
00048   const std::ostream &Write(std::ostream &os) const;
00049   size_t Size() const;
00050   void Print(std::ostream &os) const;
00051
00052   bool operator==(const TransferSyntaxSub & ts) const
00053     {
00054     return Name == ts.Name;
00055     }
00056
00057 private:
00058   void UpdateName( const char *name );
00059   static const uint8_t ItemType;
00060   static const uint8_t Reserved2;
00061   uint16_t ItemLength; // len of
00062   std::string /*TransferSyntaxSub*/ Name; // UID
00063 };
00064
00065 } // end namespace network
00066
00067 } // end namespace gdcm
00068
00069 #endif //GDCMTRANSFERSYNTAXSUB_H
```

13.575 gdcmULAction.h File Reference

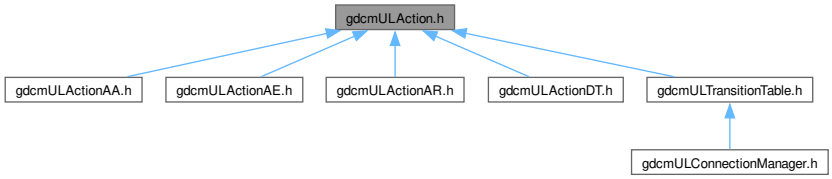
```
#include "gdcmNetworkStateID.h"
#include "gdcmULEvent.h"
```

```
#include "gdcmULConnection.h"
```

Include dependency graph for gdcmULAction.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ULAction

  ULAction.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.576 gdcmULAction.h

Go to the documentation of this file.

```
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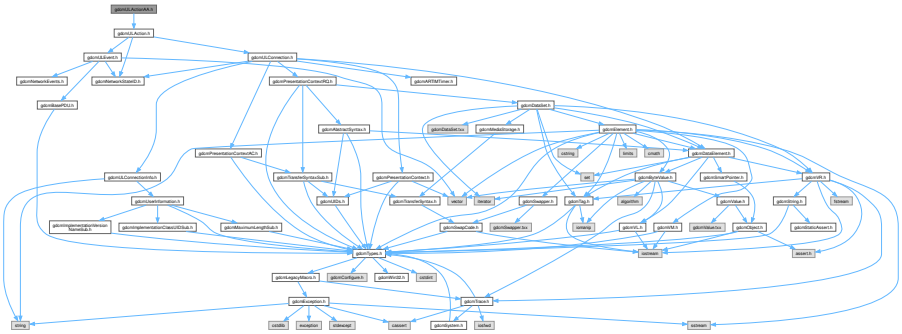
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
```

```
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULACTION_H
00019 #define GDCMULACTION_H
00020
00021 #include "gdcmNetworkStateID.h"
00022 #include "gdcmULEvent.h"
00023 #include "gdcmULConnection.h"
00024
00025 namespace gdcm {
00026 class Subject;
00027   namespace network {
00028
00062 class ULAction {
00063
00064     protected:
00065
00066
00067     public:
00068       ULAction() = default;
00069       //make sure destructors are virtual to avoid memory leaks
00070       virtual ~ULAction() = default;
00071       //cannot copy a ULAction
00072       ULAction(const ULAction& inAction) = delete;
00073       void operator=(const ULAction&) = delete;
00074
00075       virtual EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00076         bool& outWaitingForEvent, EEventID& outRaisedEvent) = 0;
00077     };
00078   }
00079 }
00080
00081 #endif // GDCMULACTION_H
```

13.577 gdcmULActionAA.h File Reference

`#include "gdcmULAction.h"`

Include dependency graph for gdcmULActionAA.h:



Classes

- class gdcm::network::ULActionAA1
- class gdcm::network::ULActionAA2
- class gdcm::network::ULActionAA3

- class gdcm::network::ULActionAA4
- class gdcm::network::ULActionAA5
- class gdcm::network::ULActionAA6
- class gdcm::network::ULActionAA7
- class gdcm::network::ULActionAA8

Namespaces

- namespace gdcm
- namespace gdcm::network

13.578 gdcmULActionAA.h

Go to the documentation of this file.

```
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00007  *  You may obtain a copy of the License at
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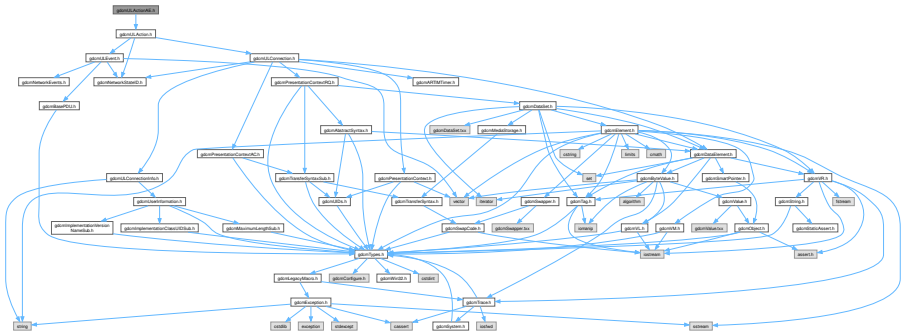
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULACTIONAA_H
00019 #define GDCMULACTIONAA_H
00020
00021 #include "gdcmULAction.h"
00022
00030
00031 namespace gdcm {
00032   namespace network {
00033
00034     //Send A-ABORT PDU (service-user source) and start (or restart if already started) ARTIM timer
00035     //Next State: eSta13AwaitingClose
00036     class ULActionAA1 : public ULAction {
00037     public:
00038       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00039         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00040     };
00041
00042     //Stop ARTIM timer if running.  Close transport connection.
00043     //Next State: eSta1Idle
00044     class ULActionAA2 : public ULAction {
00045     public:
00046       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00047         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00048     };
00049
00050     //If (service-user initiated abort)
00051     //- issue A-ABORT indication and close transport connection
00052     //otherwise (service-provider initiated abort):
00053     //- issue A-P-ABORT indication and close transport connection
00054     //Next State: eSta1Idle
00055     class ULActionAA3 : public ULAction {
00056     public:
00057       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00058         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00059     };
00060
00061     //Issue A-P-ABORT indication primitive
```

```
00062     //Next State: eSta1Idle
00063     class ULActionAA4 : public ULAction {
00064     public:
00065       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00066         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00067     };
00068
00069     //Stop ARTIM timer
00070     //Next State: eSta1Idle
00071     class ULActionAA5 : public ULAction {
00072     public:
00073       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00074         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00075     };
00076
00077     //Ignore PDU
00078     //Next State: eSta13AwaitingClose
00079     class ULActionAA6 : public ULAction {
00080     public:
00081       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00082         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00083     };
00084
00085     //Send A-ABORT PDU
00086     //Next State: eSta13AwaitingClose
00087     class ULActionAA7 : public ULAction {
00088     public:
00089       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00090         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00091     };
00092
00093     //Send A-ABORT PDU (service-provider source), issue an A-P-ABORT indication, and start ARTIM timer
00094     //Next State: eSta13AwaitingClose
00095     class ULActionAA8 : public ULAction {
00096     public:
00097       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00098         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00099     };
00100   }
00101 }
00102
00103 #endif // GDCMULACTIONAA_H
```

13.579 gdcmULActionAE.h File Reference

`#include "gdcmULAction.h"`

Include dependency graph for gdcmULActionAE.h:



Classes

- class gdcm::network::ULActionAE1

- class gdcm::network::ULActionAE2
- class gdcm::network::ULActionAE3
- class gdcm::network::ULActionAE4
- class gdcm::network::ULActionAE5
- class gdcm::network::ULActionAE6
- class gdcm::network::ULActionAE7
- class gdcm::network::ULActionAE8

Namespaces

- namespace gdcm
- namespace gdcm::network

13.580 gdcmULActionAE.h

Go to the documentation of this file.

```
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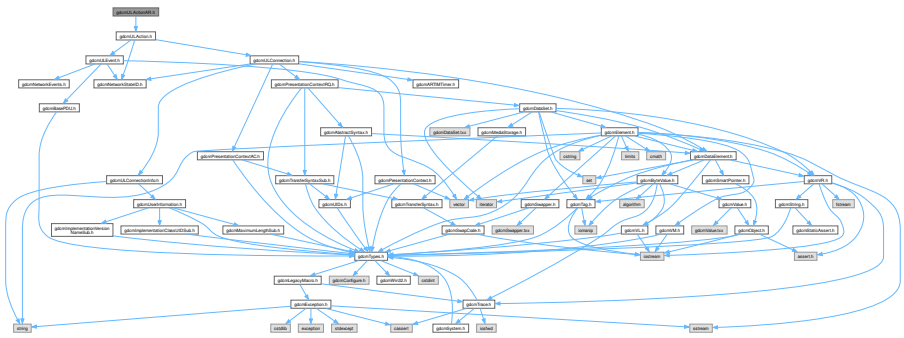
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULACTIONAE_H
00019 #define GDCMULACTIONAE_H
00020
00021 #include "gdcmULAction.h"
00022
00031
00032 namespace gdcm {
00033   namespace network {
00034
00035     //Issue TRANSPORT CONNECT request primitive to local transport service.
00036     class ULActionAE1 : public ULAction {
00037     public:
00038       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00039         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00040     };
00041
00042     //Send A-ASSOCIATE-RQ-PDU
00043     //Next State: eSta5WaitRemoteAssoc
00044     class ULActionAE2 : public ULAction {
00045     public:
00046       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00047         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00048     };
00049
00050     //Issue A-ASSOCIATE confirmation (accept) primitive
00051     //Next State: eSta6TransferReady
00052     class ULActionAE3 : public ULAction {
00053     public:
00054       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00055         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00056     };
00057
00058     //Issue A-ASSOCIATE confirmation (reject) primitive and close transport connection
```

```
00059     //Next State: eSta1Idle
00060     class ULActionAE4 : public ULAction {
00061     public:
00062       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00063         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00064     };
00065
00066     //Issue Transport connection response primitive, start ARTIM timer
00067     //Next State: eSta2Open
00068     class ULActionAE5 : public ULAction {
00069     public:
00070       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00071         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00072     };
00073
00074     //Stop ARTIM timer and if A-ASSOCIATE-RQ acceptable by service-provider:
00075     //- issue A-ASSOCIATE indication primitive
00076     //Next state: eSta3WaitLocalAssoc
00077     //otherwise:
00078     //- issue A-ASSOCIATE-RJ-PDU and start ARTIM timer
00079     //Next state: eSta13AwaitingClose
00080     class ULActionAE6 : public ULAction {
00081     public:
00082       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00083         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00084     };
00085
00086     //Send A-ASSOCIATE-AC PDU
00087     //Next State: eSta6TransferReady
00088     class ULActionAE7 : public ULAction {
00089     public:
00090       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00091         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00092     };
00093
00094     //Send A-ASSOCIATE-RJ PDU and start ARTIM timer
00095     //Next State: eSta13AwaitingClose
00096     class ULActionAE8 : public ULAction {
00097     public:
00098       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00099         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00100     };
00101   }
00102 }
00103 #endif // GDCMULACTIONAE_H
```

13.581 gdcmULActionAR.h File Reference

`#include "gdcmULAction.h"`

Include dependency graph for gdcmULActionAR.h:



Classes

- class gdcm::network::ULActionAR1
- class gdcm::network::ULActionAR10
- class gdcm::network::ULActionAR2
- class gdcm::network::ULActionAR3
- class gdcm::network::ULActionAR4
- class gdcm::network::ULActionAR5
- class gdcm::network::ULActionAR6
- class gdcm::network::ULActionAR7
- class gdcm::network::ULActionAR8
- class gdcm::network::ULActionAR9

Namespaces

- namespace gdcm
- namespace gdcm::network

13.582 gdcmULActionAR.h

Go to the documentation of this file.

```
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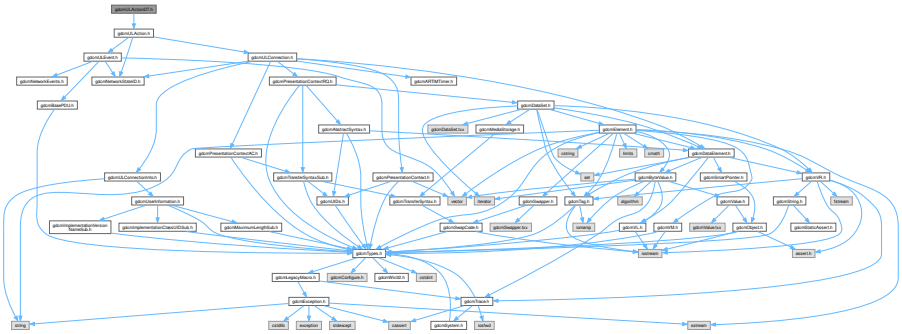
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULACTIONAR_H
00019 #define GDCMULACTIONAR_H
00020
00021 #include "gdcmULAction.h"
00022
00030
00031 namespace gdcm {
00032   namespace network {
00033
00034     //Send A-RELEASE-RQ-PDU
00035     //Next State: eSta7WaitRelease
00036     class ULActionAR1 : public ULAction {
00037     public:
00038       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00039         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00040     };
00041
00042     //Issue A-RELEASE indication primitive
00043     //Next State: eSta8WaitLocalRelease
00044     class ULActionAR2 : public ULAction {
00045     public:
00046       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00047         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00048     };
00049
00050     //Issue A-RELEASE confirmation primitive, and close transport connection
```

```
00051     //Next State: eSta1Idle
00052     class ULActionAR3 : public ULAction {
00053     public:
00054       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00055         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00056     };
00057
00058     //Issue A-RELEASE-RP PDU and start ARTIM timer
00059     //Next State: eSta13AwaitingClose
00060     class ULActionAR4 : public ULAction {
00061     public:
00062       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00063         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00064     };
00065
00066     //Stop ARTIM timer
00067     //Next State: eSta1Idle
00068     class ULActionAR5 : public ULAction {
00069     public:
00070       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00071         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00072     };
00073
00074     //Issue P-Data indication
00075     //Next State: eSta7WaitRelease
00076     class ULActionAR6 : public ULAction {
00077     public:
00078       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00079         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00080     };
00081
00082     //Issue P-DATA-TF PDU
00083     //Next State: eSta8WaitLocalRelease
00084     class ULActionAR7 : public ULAction {
00085     public:
00086       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00087         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00088     };
00089
00090     //Issue A-RELEASE indication (release collision):
00091     //- If association-requestor, next state is eSta9ReleaseCollisionRqLocal
00092     //- if not, next state is eSta10ReleaseCollisionAc
00093     class ULActionAR8 : public ULAction {
00094     public:
00095       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00096         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00097     };
00098
00099     //Send A-RELEASE-RP PDU
00100     //Next State: eSta11ReleaseCollisionRq
00101     class ULActionAR9 : public ULAction {
00102     public:
00103       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00104         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00105     };
00106
00107     //Issue A-RELEASE confirmation primitive
00108     //Next State: eSta12ReleaseCollisionAcLocal
00109     class ULActionAR10 : public ULAction {
00110     public:
00111       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00112         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00113     };
00114   }
00115 }
00116 #endif // GDCMULACTIONAR_H
```

13.583 gdcmULActionDT.h File Reference

`#include "gdcmULAction.h"`
Include dependency graph for gdcmULActionDT.h:



Classes

- class gdcm::network::ULActionDT1
- class gdcm::network::ULActionDT2

Namespaces

- namespace gdcm
- namespace gdcm::network

13.584 gdcmULActionDT.h

Go to the documentation of this file.

```
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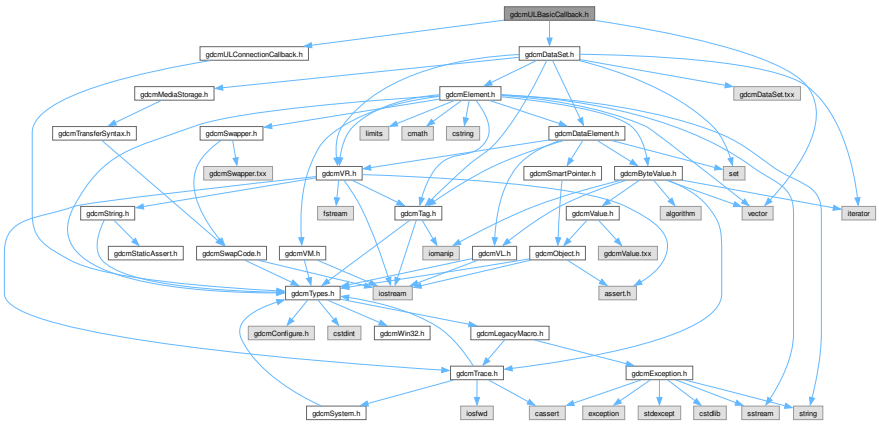
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULACTIONDT_H
00019 #define GDCMULACTIONDT_H
00020
00021 #include "gdcmULAction.h"
00022
00030
00031 namespace gdcm {
00032   namespace network {
```

```
00033
00034     //Send P-DATA-TF PDU
00035     //Next state: eSta6TransferReady
00036     class ULActionDT1 : public ULAction {
00037     public:
00038       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00039         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00040     };
00041
00042     //Send P-DATA indication primitive
00043     //Next state: eSta6TransferReady
00044     class ULActionDT2 : public ULAction {
00045     public:
00046       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00047         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00048     };
00049   }
00050 }
00051 #endif // GDCMULACTIONDT_H
```

13.585 gdcmULBasicCallback.h File Reference

```
#include "gdcmULConnectionCallback.h"
#include "gdcmDataSet.h"
#include <vector>
```

Include dependency graph for gdcmULBasicCallback.h:



Classes

- class gdcm::network::ULBasicCallback

  ULBasicCallback.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.586 gdcmULBasicCallback.h

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00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
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00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULCONNECTIONBASICCALLBACK_H
00019 #define GDCMULCONNECTIONBASICCALLBACK_H
00020
00021 #include "gdcmULConnectionCallback.h"
00022 #include "gdcmDataSet.h"
00023 #include <vector>
00024
00025 namespace gdcm
00026 {
00027   namespace network
00028     {
00038     class GDCM_EXPORT ULBasicCallback : public ULConnectionCallback
00039     {
00040     std::vector<DataSet> mDataSets;
00041     std::vector<DataSet> mResponses;
00042   public:
00043     ULBasicCallback() = default;
00044     ~ULBasicCallback() override = default; //empty, for later inheritance
00045
00046     void HandleDataSet(const DataSet& inDataSet) override;
00047     void HandleResponse(const DataSet& inDataSet) override;
00048
00049     std::vector<DataSet> const & GetDataSets() const;
00050     std::vector<DataSet> const & GetResponses() const;
00051     };
00052     } // end namespace network
00053 } // end namespace gdcm
00054
00055 #endif // GDCMULCONNECTIONBASICCALLBACK_H
```
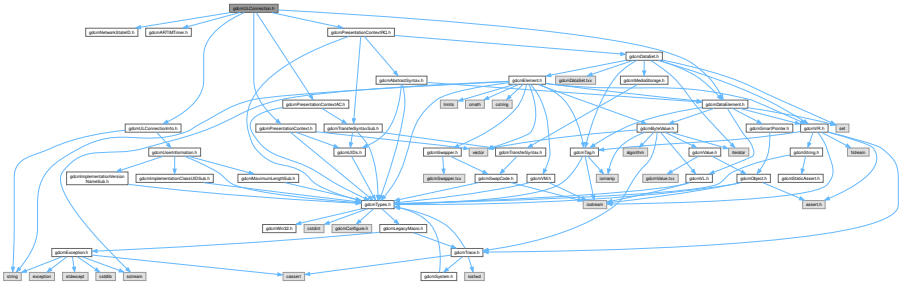
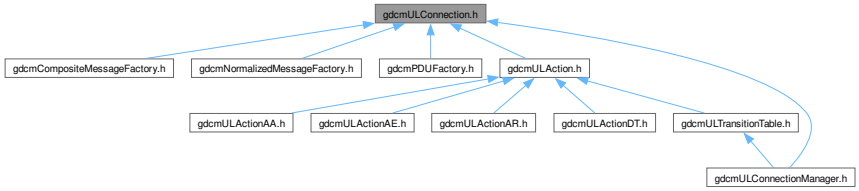

13.587 gdcmULConnection.h File Reference

```
#include "gdcmNetworkStateID.h"
#include "gdcmARTIMTimer.h"
#include "gdcmULConnectionInfo.h"
#include "gdcmPresentationContextRQ.h"
#include "gdcmDataElement.h"
#include "gdcmPresentationContextAC.h"
#include "gdcmPresentationContext.h"
```

Include dependency graph for gdcmULConnection.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ULConnection

  ULConnection.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.588 gdcmULConnection.h

Go to the documentation of this file.

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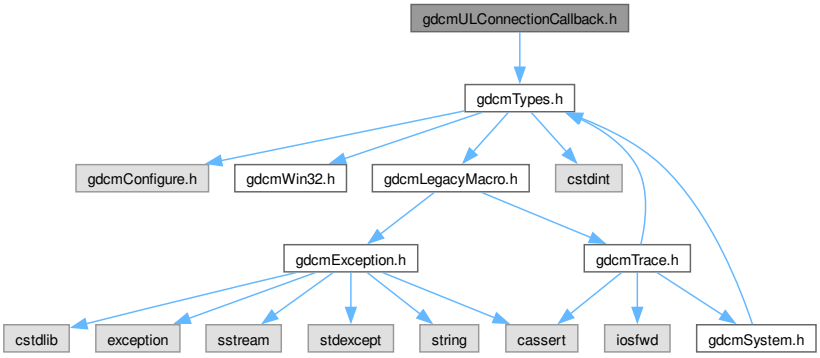
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
```

```
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULCONNECTION_H
00019 #define GDCMULCONNECTION_H
00020
00021 #include "gdcmNetworkStateID.h"
00022 #include "gdcmARTIMTimer.h"
00023 #include "gdcmULConnectionInfo.h"
00024 #include "gdcmPresentationContextRQ.h"
00025 #include "gdcmDataElement.h"
00026 #include "gdcmPresentationContextAC.h"
00027 #include "gdcmPresentationContext.h"
00028
00029 class iosockinet;
00030 class echo;
00031 namespace gdcm{
00032   namespace network{
00033
00057 class GDCM_EXPORT ULConnection
00058 {
00059       ULConnectionInfo mInfo;
00060       //this is a dirty dirty hack
00061       //but to establish an outgoing connection (scu), we need the echo service
00062       //to establish incoming, we just need a port and localhost, so an iosockinet works while an
00063       //echo would fail (probably because one already exists)
00064       echo* mEcho;
00065       iosockinet* mSocket;//of the three protocols offered by socket++-- echo, smtp, and ftp--
00066       //echo most closely matches what the DICOM standard describes as a network connection
00067       ARTIMTimer mTimer;
00068
00069       EStateID mCurrentState;
00070
00071       std::vector<PresentationContextRQ> mPresentationContexts;
00072       //this is our list of presentation contexts of what we can send
00073       uint32_t mMaxPDUSize;
00074
00075       std::vector<PresentationContextAC> mAcceptedPresentationContexts;//these come back from the server
00076       //and tell us what can be sent over this connection
00077
00078       TransferSyntaxSub cstorets;
00079
00080       friend class ULActionAE6;
00081       void SetCStoreTransferSyntax( TransferSyntaxSub const & ts );
00082       friend class ULConnectionManager;
00083       TransferSyntaxSub const & GetCStoreTransferSyntax( ) const;
00084     public:
00085
00086       ULConnection(const ULConnectionInfo& inUserInformation);
00087       //destructors are virtual to prevent memory leaks by inherited classes
00088       virtual ~ULConnection();
00089
00090       EStateID GetState() const;
00091       void SetState(const EStateID& inState);//must be able to update state...
00092
00093       //echo* GetProtocol();
00094       std::iostream* GetProtocol();
00095       void StopProtocol();
00096
00097       ARTIMTimer& GetTimer();
00098
00099       const ULConnectionInfo &GetConnectionInfo() const;
00100
00101       //when the connection is first associated, the connection is told
00102       //the max packet/PDU size and the way in which to present data
00103       //(presentation contexts, etc). Store that here.
00104       void SetMaxPDUSize(uint32_t inSize);
00105       uint32_t GetMaxPDUSize() const;
00106
00107       const PresentationContextAC *GetPresentationContextACByID(uint8_t id) const;
00108       const PresentationContextRQ *GetPresentationContextRQByID(uint8_t id) const;
00109
00111       uint8_t GetPresentationContextIDFromPresentationContext(PresentationContextRQ const & pc) const;
00112
00113       std::vector<PresentationContextRQ> const & GetPresentationContexts() const;
00114       void SetPresentationContexts(const std::vector<PresentationContextRQ>& inContexts);
00115
00116       void SetPresentationContexts(const std::vector<PresentationContext>& inContexts);
00117
00118       //given a particular data element, presumably the SOP class,
```

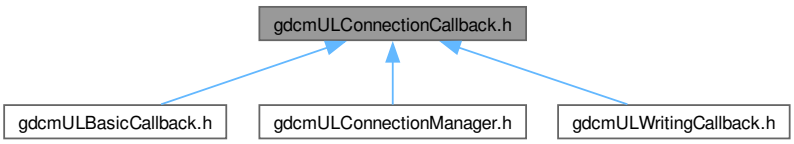
```
00119       //find the presentation context for that SOP
00120       //NOT YET IMPLEMENTED
00121       PresentationContextRQ FindContext(const DataElement& de) const;
00122
00123       std::vector<PresentationContextAC> const & GetAcceptedPresentationContexts() const;
00124       std::vector<PresentationContextAC> & GetAcceptedPresentationContexts();
00125       void AddAcceptedPresentationContext(const PresentationContextAC& inPC);
00126
00128       bool InitializeConnection();
00129
00131       bool InitializeIncomingConnection();
00132
00133       ULConnection(const ULConnection&) = delete;
00134       void operator=(const ULConnection&) = delete;
00135     };
00136   }
00137 }
00138
00139 #endif // ULCONNECTION_H
```

13.589 gdcmULConnectionCallback.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmULConnectionCallback.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ULConnectionCallback

Namespaces

- namespace gdcm
- namespace gdcm::network

13.590 gdcmULConnectionCallback.h

Go to the documentation of this file.

```
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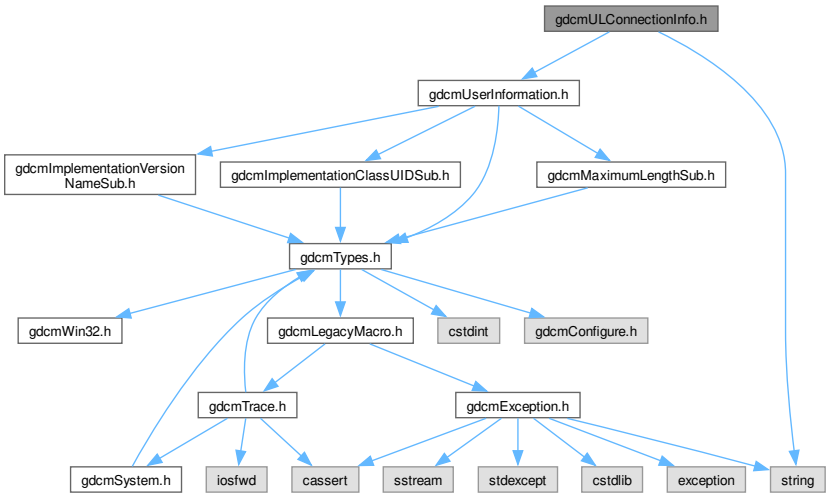
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULCONNECTIONCALLBACK_H
00019 #define GDCMULCONNECTIONCALLBACK_H
00020
00021 #include "gdcmTypes.h" //to be able to export the class
00022
00023 namespace gdcm
00024 {
00025   class DataSet;
00026   namespace network
00027   {
00039     class GDCM_EXPORT ULConnectionCallback {
00040       bool mHandledDataSet;
00041     protected:
00042       bool mImplicit;
00043       //inherited callbacks MUST call this function for the cmove loop to work properly
00044       void DataSetHandled() { mHandledDataSet = true; }
00045     public:
00046       ULConnectionCallback():mHandledDataSet(false),mImplicit(true){}
00047       virtual ~ULConnectionCallback() = default; //placeholder for inherited objects
00048       virtual void HandleDataSet(const DataSet& inDataSet) = 0;
00049       virtual void HandleResponse(const DataSet& inDataSet) = 0;
00050
00051       bool DataSetHandles() const { return mHandledDataSet; }
00052       void ResetHandledDataSet() { mHandledDataSet = false; }
00053
00054       void SetImplicitFlag( const bool imp ) { mImplicit = imp; }
00055     };
00056   }
00057 }
00058 #endif //GDCMULCONNECTIONCALLBACK_H
```

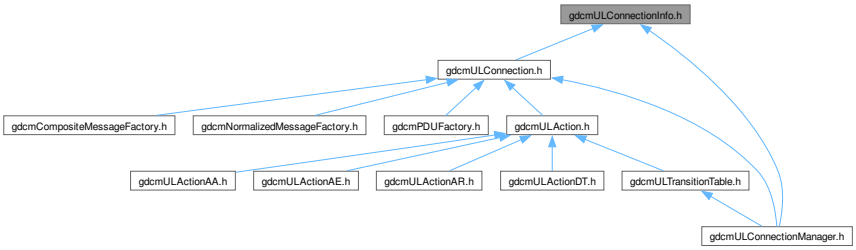
13.591 gdcmULConnectionInfo.h File Reference

```
#include "gdcmUserInformation.h"
#include <string>
```

Include dependency graph for gdcmULConnectionInfo.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ULConnectionInfo

  ULConnectionInfo.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.592 gdcmULConnectionInfo.h

Go to the documentation of this file.

```
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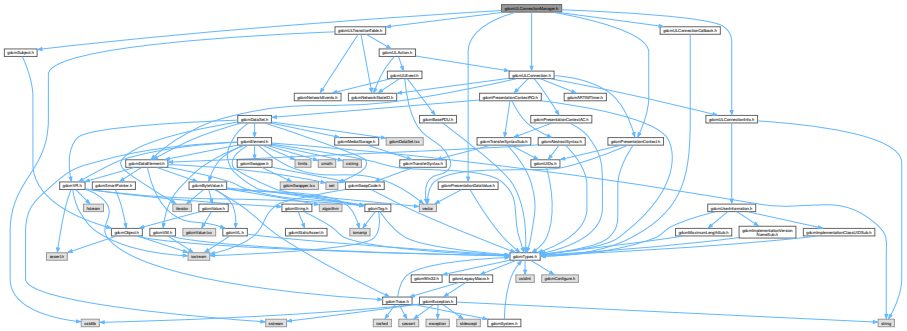
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULCONNECTIONINFO_H
00019 #define GDCMULCONNECTIONINFO_H
00020
00021 #include "gdcmUserInformation.h"
00022 #include <string>
00023
00024 namespace gdcm{
00025   namespace network {
00038 class ULConnectionInfo {
00039       UserInformation mUserInformation;
00040
00041       std::string mCalledAETitle;
00042       std::string mCallingAETitle;
00043
00044       unsigned long mCalledIPAddress;
00045       int mCalledIPPort;
00046       std::string mCalledComputerName; //either the IP or the name has to be filled in
00047
00048       unsigned long mMaxPDULength;
00049     public:
00050       ULConnectionInfo();
00051
00052       //it is possible to misinitialize this object, so
00053       //have it return false if something breaks (ie, given AEs are bigger than 16 characters,
00054       //no name or IP address).
00055       bool Initialize(UserInformation const &inUserInformation,
00056         const char *inCalledAETitle, const char *inCallingAETitle,
00057         unsigned long inCalledIPAddress, int inCalledIPPort,
00058         std::string inCalledComputerName);
00059
00060       //UserInformation GetUserInformation() const;
00061       const char* GetCalledAETitle() const;
00062       const char* GetCallingAETitle() const;
00063
00064       unsigned long GetCalledIPAddress() const;
00065       int GetCalledIPPort() const;
00066       std::string GetCalledComputerName() const;
00067
00068       //CStore needs to know the max pdu length, so the value gets initialized
00069       //when a cstore connection is established (but not for the others).
00070       void SetMaxPDULength(unsigned long inMaxPDULength);
00071       unsigned long GetMaxPDULength() const;
00072     };
00073   }
00074 }
00075
00076 #endif //GDCMULCONNECTIONINFO_H
```

13.593 gdcmULConnectionManager.h File Reference

```
#include "gdcmULTransitionTable.h"
#include "gdcmULConnection.h"
```

```
#include "gdcmULConnectionInfo.h"
#include "gdcmPresentationDataValue.h"
#include "gdcmULConnectionCallback.h"
#include "gdcmSubject.h"
#include "gdcmPresentationContext.h"
```

Include dependency graph for gdcmULConnectionManager.h:



Classes

- class gdcm::network::ULConnectionManager

  ULConnectionManager.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.594 gdcmULConnectionManager.h

Go to the documentation of this file.

```
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00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
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00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULCONNECTIONMANAGER_H
00019 #define GDCMULCONNECTIONMANAGER_H
00020
00021 #include "gdcmULTransitionTable.h"
00022 #include "gdcmULConnection.h"
00023 #include "gdcmULConnectionInfo.h"
```

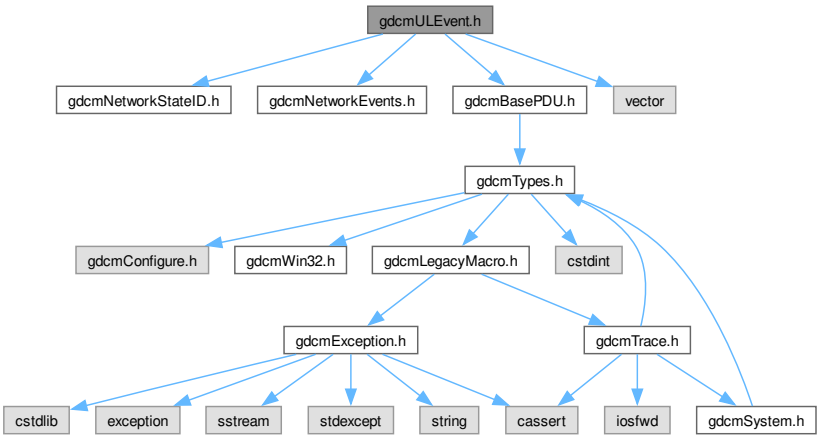
```
00024 #include "gdcmPresentationDataValue.h"
00025 #include "gdcmULConnectionCallback.h"
00026 #include "gdcmSubject.h"
00027 #include "gdcmPresentationContext.h"
00028
00029 namespace gdcm {
00030   class File;
00031   class BaseRootQuery;
00032   class BaseQuery;
00033
00034   namespace network {
00035
00045   class GDCM_EXPORT ULConnectionManager : public Subject
00046   {
00047     protected:
00048       ULConnection* mConnection;
00049       ULConnection* mSecondaryConnection;
00050       ULTransitionTable mTransitions;
00051
00052       //no copying
00053       ULConnectionManager(const ULConnectionManager& inCM);
00054
00055       //event handler loop.
00056       //will just keep running until the current event is nonexistent.
00057       //at which point, it will return the current state of the connection
00058       //this starts by initiating an action, but can be put into a passive mode
00059       //for a cmove/cstore combination by setting startWaiting to true
00060       EStateID RunEventLoop(ULEvent& inEvent, ULConnection* inWhichConnection,
00061         ULConnectionCallback* inCallback, const bool& startWaiting);
00062
00063       //like the above, but will manage the event loop for a move event (which
00064       //is basically two simultaneous connections interwoven, one inbound and
00065       //the other outbound.  Note, for instance, that cmoversp's can be sent back
00066       //during the other connection's operation.
00067       EStateID RunMoveEventLoop(ULEvent& inEvent, ULConnectionCallback* inCallback);
00068
00069     public:
00070       ULConnectionManager();
00071       ~ULConnectionManager() override;
00072
00073       // NOTE: (MM) The following two functions are difficult to use, therefore marking
00074       // them as internal for now.
00075
00076       // \internal
00084       bool EstablishConnection(const std::string& inAETitle,
00085         const std::string& inConnectAETitle,
00086         const std::string& inComputerName, long inIPAddress,
00087         uint16_t inConnectPort, double inTimeout,
00088         std::vector<PresentationContext> const & pcVector );
00089
00092       bool EstablishConnectionMove(const std::string& inAETitle,
00093         const std::string& inConnectAETitle,
00094         const std::string& inComputerName, long inIPAddress,
00095         uint16_t inConnectPort, double inTimeout,
00096         uint16_t inReturnPort,
00097         std::vector<PresentationContext> const & pcVector);
00098       // \endinternal
00099
00100
00101       //bool ReestablishConnection(const EConnectionType& inConnectionType,
00102       //  const DataSet& inDS);
00103
00104       //allows for a connection to be broken, but waits for an acknowledgement
00105       //of the breaking for a certain amount of time.  Returns true of the
00106       //other side acknowledges the break
00107       bool BreakConnection(const double& inTimeout);
00108
00109       //severs the connection, if it's open, without waiting for any kind of response.
00110       //typically done if the program is going down.
00111       void BreakConnectionNow();
00112
00113       //This function will send a given piece of data
00114       //across the network connection.  It will return true if the
00115       //sending worked, false otherwise.
00116       //note that sending is asynchronous; as such, there's
00117       //also a 'receive' option, but that requires a callback function.
00118       //bool SendData();
00119
00120       //send the Data PDU associated with Echo (ie, a default DataPDU)
00121       //this lets the user confirm that the connection is alive.
00122       //the user should look to cout to see the response of the echo command
```

```
00123       //returns the PresentationDataValue that was returned by the remote
00124       //host.  Note that the PDV can be uninitialized, which would indicate failure.
00125       //Echo does not use a callback for results.
00126       std::vector<PresentationDataValue> SendEcho();
00127
00128       // \internal
00129       // API will change...
00130       std::vector<DataSet> SendStore(const File &file, std::istream * pStream = nullptr, std::streampos
    dataSetOffset = 0  );
00131       std::vector<DataSet> SendFind(const BaseRootQuery* inRootQuery);
00132       std::vector<DataSet> SendMove(const BaseRootQuery* inRootQuery);
00133
00134     std::vector<DataSet> SendNEventReport (const BaseQuery* inQuery);
00135       std::vector<DataSet> SendNGet     (const BaseQuery* inQuery);
00136       std::vector<DataSet> SendNSet     (const BaseQuery* inQuery);
00137       std::vector<DataSet> SendNAction    (const BaseQuery* inQuery);
00138       std::vector<DataSet> SendNCreate    (const BaseQuery* inQuery);
00139       std::vector<DataSet> SendNDelete    (const BaseQuery* inQuery);
00140       // \endinternal
00141
00143       void SendStore(const File & file, ULConnectionCallback* inCallback, std::istream * pStream = nullptr
    , std::streampos dataSetOffset = 0 );
00144       void SendFind(const BaseRootQuery* inRootQuery, ULConnectionCallback* inCallback);
00146       bool SendMove(const BaseRootQuery* inRootQuery, ULConnectionCallback* inCallback);
00147
00148       void SendNEventReport (const BaseQuery* inQuery, ULConnectionCallback* inCallback);
00149       void SendNGet     (const BaseQuery* inQuery, ULConnectionCallback* inCallback);
00150       void SendNSet     (const BaseQuery* inQuery, ULConnectionCallback* inCallback);
00151       void SendNAction    (const BaseQuery* inQuery, ULConnectionCallback* inCallback);
00152       void SendNCreate    (const BaseQuery* inQuery, ULConnectionCallback* inCallback);
00153       void SendNDelete    (const BaseQuery* inQuery, ULConnectionCallback* inCallback);
00154
00155     };
00156   }
00157 }
00158
00159 #endif // GDCMULCONNECTIONMANAGER_H
```

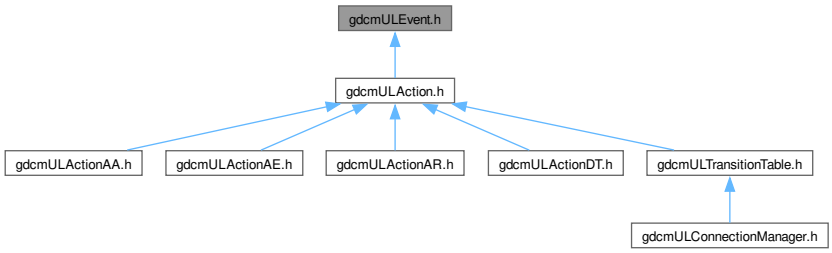
13.595 gdcmULEvent.h File Reference

```
#include "gdcmNetworkStateID.h"
#include "gdcmNetworkEvents.h"
#include "gdcmBasePDU.h"
#include <vector>
```

Include dependency graph for gdcmULEvent.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ULEvent

  ULEvent.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.596 gdcmULEvent.h

Go to the documentation of this file.

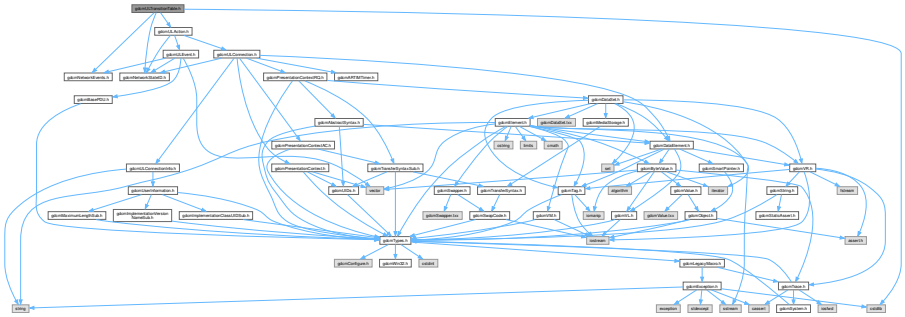
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULEVENT_H
00019 #define GDCMULEVENT_H
00020
00021 #include "gdcmNetworkStateID.h"
00022 #include "gdcmNetworkEvents.h"
00023 #include "gdcmBasePDU.h"
00024 #include <vector>
00025
00026 namespace gdcm {
00027   namespace network {
00028
00037 class ULEvent {
00038       EEventID mEvent;
00039       std::vector<BasePDU*> mBasePDU;
```

```
00040     std::istream * m_pStream ;
00041     std::streampos m_posDataSet ;
00042       void DeletePDUVector(){
00043         std::vector<BasePDU*>::iterator baseItor;
00044         for (baseItor = mBasePDU.begin(); baseItor < mBasePDU.end(); baseItor++){
00045           if (*baseItor != nullptr){
00046             delete *baseItor;
00047             *baseItor = nullptr;
00048           }
00049         }
00050       }
00051
00052     public:
00053       ULEvent(const EEventID& inEventID, std::vector<BasePDU*> inBasePDU, std::istream * iStream =
      nullptr, std::streampos posDataSet = 0 ){
00054         mEvent = inEventID;
00055         mBasePDU = inBasePDU;
00056     m_pStream = iStream ;
00057     m_posDataSet = posDataSet ;
00058       }
00059       ULEvent(const EEventID& inEventID, BasePDU* inBasePDU, std::istream * iStream = nullptr,
      std::streampos posDataSet = 0 ){
00060         mEvent = inEventID;
00061         mBasePDU.push_back(inBasePDU);
00062     m_pStream = iStream ;
00063     m_posDataSet = posDataSet ;
00064       }
00065       ~ULEvent(){
00066         DeletePDUVector();
00067       }
00068
00069       EEventID GetEvent() const { return mEvent; }
00070       std::vector<BasePDU*> const & GetPDUs() const { return mBasePDU; }
00071     std::istream * GetIStream() const { return m_pStream; }
00072     std::streampos GetDataSetPos() const { return m_posDataSet; }
00073
00074       void SetEvent(const EEventID& inEvent) { mEvent = inEvent; }
00075       void SetPDU(std::vector<BasePDU*> const & inPDU) {
00076         DeletePDUVector();
00077         mBasePDU = inPDU;
00078       }
00079     };
00080   }
00081 }
00082
00083 #endif //GDCMULEVENT_H
```

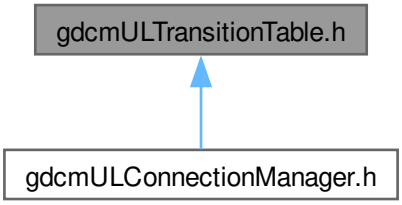
13.597 gdcmULTransitionTable.h File Reference

```
#include "gdcmNetworkStateID.h"
#include "gdcmNetworkEvents.h"
#include "gdcmULAction.h"
#include <cstdlib>
```

Include dependency graph for gdcmULTransitionTable.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::TableRow
- struct gdcm::network::Transition
- class gdcm::network::ULTransitionTable

  ULTransitionTable The transition table of all the ULEvents, new ULActions, and ULStates.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.598 gdcmULTransitionTable.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
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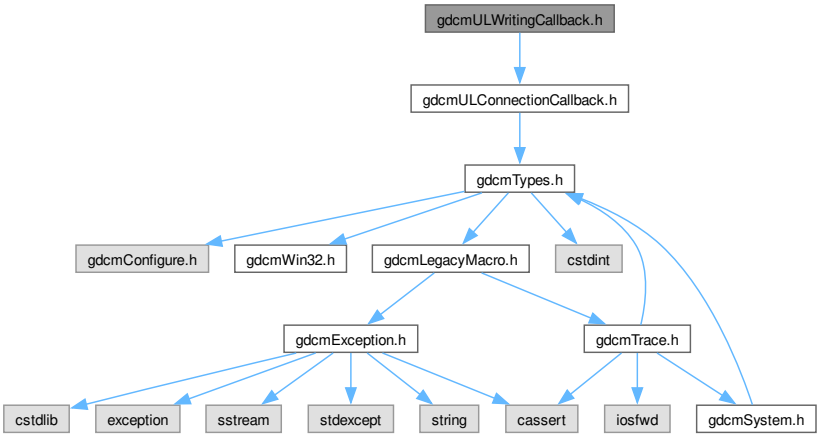
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULTRANSITIONTABLE_H
00019 #define GDCMULTRANSITIONTABLE_H
00020
00021 #include "gdcmNetworkStateID.h"
00022 #include "gdcmNetworkEvents.h"
00023 #include "gdcmULAction.h"
00024
00025 #include <cstdlib>  // NULL
```

```
00026
00027 namespace gdcm {
00028 class Subject;
00029   namespace network{
00030 class ULConnection;
00031 class ULAction;
00032 class ULEvent;
00033
00034     //The transition dictates the action that should be taken from the start state to the end state
00035     struct Transition {
00036       int mEnd;
00037       ULAction* mAction;
00038       Transition(){
00039         mEnd = eStaDoesNotExist;
00040         mAction = nullptr;
00041       }
00042       ~Transition(){
00043         if (mAction != nullptr){
00044           delete mAction;
00045           mAction = nullptr;
00046         }
00047       }
00048       Transition(int inEndState, ULAction* inAction){
00049         mEnd = inEndState;
00050         mAction = inAction;
00051       }
00052       static Transition* MakeNew(int inEndState, ULAction* inAction){
00053         return new Transition(inEndState, inAction);
00054       }
00055     };
00056
00057     //used to define a row in table 9-10 of 3.8 2009
00058     //the transition table is events, then state,
00059     //then the transition itself (which has the event
00060     //and start state implied by their starting locations)
00061     //don't need to store the event; that's implicitly defined in the Table itself by location
00062     class TableRow{
00063     public:
00064       TableRow() {
00065         for(int stateIndex = 0; stateIndex < cMaxStateID; ++stateIndex)
00066           {
00067           transitions[stateIndex] = nullptr;
00068           }
00069       }
00070       ~TableRow() {
00071         for(int stateIndex = 0; stateIndex < cMaxStateID; ++stateIndex)
00072           {
00073           Transition *t = transitions[stateIndex];
00074           delete t;
00075           }
00076        }
00077       Transition *transitions[cMaxStateID];
00078
00079       //copy constructor for stl additions into the transition table below.
00080     };
00081
00098 class ULTransitionTable
00099 {
00100     private:
00101       TableRow mTable[cMaxEventID];
00102     public:
00103       ULTransitionTable();
00104
00105       void HandleEvent(Subject*s,ULEvent& inEvent, ULConnection& inConnection,
00106         bool& outWaitingForEvent, EEventID& outRaisedEvent) const;
00107
00108       void PrintTable() const; //so that the table can be printed and verified against the DICOM standard
00109     };
00110   }
00111 }
00112 #endif // GDCMULTRANSITIONTABLE_H
```

13.599 gdcmULWritingCallback.h File Reference

`#include "gdcmULConnectionCallback.h"`
Include dependency graph for gdcmULWritingCallback.h:



Classes

- class gdcm::network::ULWritingCallback

Namespaces

- namespace gdcm
- namespace gdcm::network

13.600 gdcmULWritingCallback.h

Go to the documentation of this file.

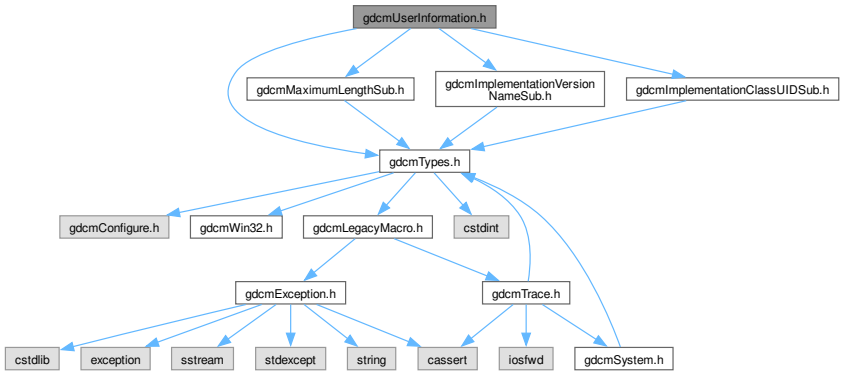
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULCONNECTIONWRITINGCALLBACK_H
```

```
00019 #define GDCMULCONNECTIONWRITINGCALLBACK_H
00020
00021 #include "gdcmULConnectionCallback.h"
00022
00023 namespace gdcm
00024 {
00025 class DataSet;
00026 namespace network
00027 {
00028 /* \brief ULWritingCallback
00029  * \details This is the most basic of callbacks for how the ULConnectionManager handles
00030  * incoming datasets.  DataSets are immediately written to disk as soon as they
00031  * are received.  NOTE that if the incoming connection is faster than the disk
00032  * writing speed, this callback could cause some pileups!
00033  */
00034 class GDCM_EXPORT ULWritingCallback : public ULConnectionCallback
00035 {
00036   std::string mDirectoryName;
00037 public:
00038   ULWritingCallback() = default;
00039   ~ULWritingCallback() override = default; //empty, for later inheritance
00040
00042   void SetDirectory(const std::string& inDirectoryName) { mDirectoryName = inDirectoryName; }
00043
00044   void HandleDataSet(const DataSet& inDataSet) override;
00045   void HandleResponse(const DataSet& inDataSet) override;
00046 };
00047 } // end namespace network
00048 } // end namespace gdcm
00049
00050 #endif //GDCMULCONNECTIONWRITINGCALLBACK_H
```

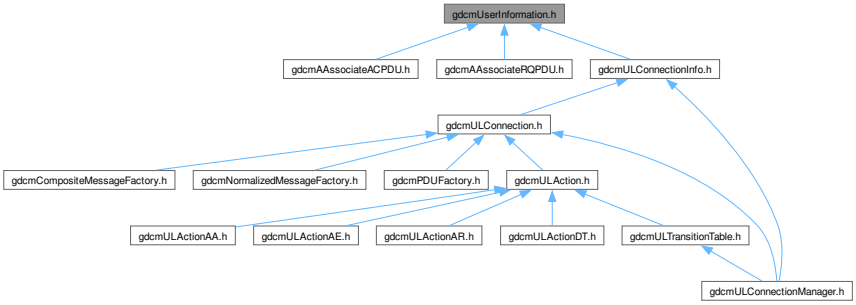
13.601 gdcmUserInformation.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmMaximumLengthSub.h"
#include "gdcmImplementationVersionNameSub.h"
#include "gdcmImplementationClassUIDSub.h"
```

Include dependency graph for gdcmUserInformation.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::UserInformation

  UserInformation.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.602 gdcmUserInformation.h

Go to the documentation of this file.

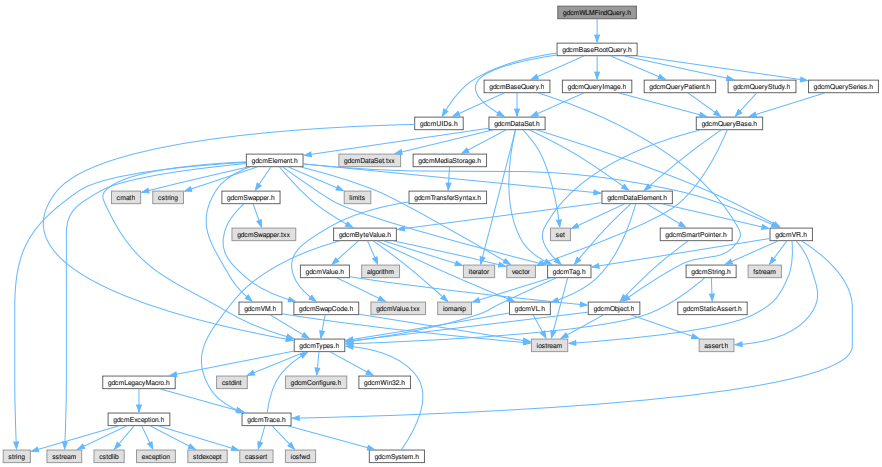
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMUSERINFORMATION_H
00015 #define GDCMUSERINFORMATION_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmMaximumLengthSub.h"
00019 #include "gdcmImplementationVersionNameSub.h"
00020 #include "gdcmImplementationClassUIDSub.h"
00021
00022 namespace gdcm
00023 {
00024
00025 namespace network
00026 {
00027
00028 class AsynchronousOperationsWindowSub;
00029 class RoleSelectionSub;
00030 struct RoleSelectionSubItems;
```

```
00031 class SOPClassExtendedNegociationSub;
00032 struct SOPClassExtendedNegociationSubItems;
00043 class UserInformation
00044 {
00045 public:
00046   UserInformation();
00047   ~UserInformation();
00048   std::istream &Read(std::istream &is);
00049   const std::ostream &Write(std::ostream &os) const;
00050   size_t Size() const;
00051
00052   void Print(std::ostream &os) const;
00053
00054   const MaximumLengthSub &GetMaximumLengthSub() const { return MLS; }
00055   MaximumLengthSub &GetMaximumLengthSub() { return MLS; }
00056
00057   void AddRoleSelectionSub( RoleSelectionSub const & r );
00058   void AddSOPClassExtendedNegociationSub( SOPClassExtendedNegociationSub const & s );
00059
00060 private:
00061   static const uint8_t ItemType;
00062   static const uint8_t Reserved2;
00063   uint16_t ItemLength; // len of
00064   MaximumLengthSub MLS;
00065   ImplementationClassUIDSub ICUID;
00066   AsynchronousOperationsWindowSub *AOWS;
00067   RoleSelectionSubItems *RSSI;
00068   SOPClassExtendedNegociationSubItems *SOPCENSI;
00069   ImplementationVersionNameSub IVNS;
00070
00071 public:
00072   UserInformation(const UserInformation&) = delete;
00073   UserInformation &operator=(const UserInformation&);
00074 };
00075
00076 } // end namespace network
00077
00078 } // end namespace gdcm
00079
00080 #endif //GDCMUSERINFORMATION_H
```

13.603 gdcmWLMFindQuery.h File Reference

`#include "gdcmBaseRootQuery.h"`

Include dependency graph for gdcmWLMFindQuery.h:



Classes

- class gdcm::WLMFindQuery

  PatientRootQuery.

Namespaces

- namespace gdcm

13.604 gdcmWLMFindQuery.h

Go to the documentation of this file.

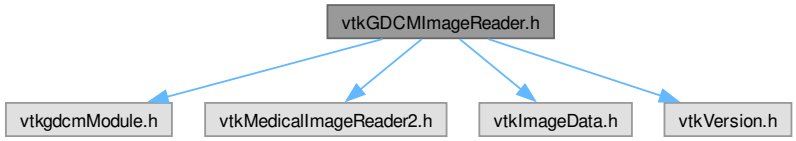
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMWLMFindQuery_H
00015 #define GDCMWLMFindQuery_H
00016
00017 #include "gdcmBaseRootQuery.h"
00018
00019 namespace gdcm
00020 {
00025 class GDCM_EXPORT WLMFindQuery : public BaseRootQuery
00026 {
00027   friend class QueryFactory;
00028 public:
00029   WLMFindQuery();
00030
00031   // no sense here
00032   void InitializeDataSet(const EQueryLevel& inQueryLevel) override;
00033   std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) override;
00034   // validate query has required tag
00035   bool ValidateQuery(bool inStrict = true) const override;
00036
00037   UIDs::TSName GetAbstractSyntaxUID() const override;
00038 protected :
00039   DataSet GetValidDataSet() const;
00040 };
00041
00042 } // end namespace gdcm
00043
00044 #endif // GDCMWLMFindQuery_H
```

13.605 vtkGDCMImageReader.h File Reference

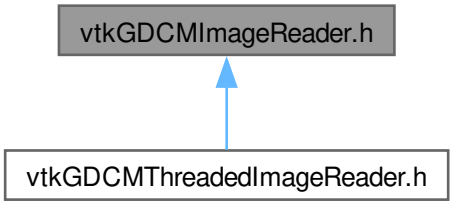
```
#include "vtkgdcmModule.h"
#include "vtkMedicalImageReader2.h"
#include "vtkImageData.h"
```

```
#include "vtkVersion.h"
```

Include dependency graph for vtkGDCMImageReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class vtkGDCMImageReader

Namespaces

- namespace gdcm

Macros

- #define VTK_CMYK 8
- #define VTK_INVERSE_LUMINANCE 5
- #define VTK_LOOKUP_TABLE 6
- #define VTK_YBR 7

13.605.1 Macro Definition Documentation

13.605.1.1 VTK_CMYK

```
#define VTK_CMYK 8
```

13.605.1.2 VTK_INVERSE_LUMINANCE

```
#define VTK_INVERSE_LUMINANCE 5
```

13.605.1.3 VTK_LOOKUP_TABLE

```
#define VTK_LOOKUP_TABLE 6
```

13.605.1.4 VTK_YBR

```
#define VTK_YBR 7
```

13.606 vtkGDCMImageReader.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMImageReader - read DICOM Image files (Pixel Data)
00015 // .SECTION Description
00016 // vtkGDCMImageReader is a source object that reads some DICOM files
00017 // this reader is single threaded.
00018 // .SECTION Implementation note: when FileLowerLeft is set to on the image is not flipped
00019 // upside down as VTK would expect, use this option only if you know what you are doing.
00020 // .SECTION Implementation note: when reading a series of 2D slices, user is
00021 // expected to provide an ordered list of filenames. No sorting will be applied afterward.
00022 // .SECTION Implementation note: Although 99% of the time the Zspacing as read
00023 // from a tag in a 2D DICOM file should be correct, there has been reports that this
00024 // value can be missing, or incorrect, in which case users are advised to override this
00025 // value using the return value from gdcm::IPPSorter::GetZSpacing() and set it via
00026 // vtkImageChangeInformation on the reader itself.
00027 // .SECTION TODO
00028 // This reader does not handle a series of 3D images, only a single 3D (multi frame) or a
00029 // list of 2D files are supported for now.
00030 // .SECTION TODO
00031 // Did not implement SetFilePattern / SetFilePrefix API, move it to protected section for now.
00032 // .SECTION BUG
00033 // Overlay are assumed to have the same extent as image. Right now if overlay origin is not
00034 // 0,0 the overlay will have an offset...
00035 // Only the very first overlay is loaded at the VTK level, for now (even if there are more than one in the
      file)
```

```
00036 // .SECTION DataOrigin
00037 // When the reader is instantiated with FileLowerLeftOn the DataOrigin and Image Position (Patient) are
00038 // identical. But when FileLowerLeft is Off, we have to reorder the Y-line of the image, and thus the
      DataOrigin
00039 // is then translated to the other side of the image.
00040 // .SECTION Spacing
00041 // When reading a 3D volume, the spacing along the Z dimension might be negative (so as to respect
      up-side-down)
00042 // as specified in the Image Orientation (Patient) tag. When Z-spacing is 0, this means the multi-frame
      object
00043 // contains image which do not represent uniform volume.
00044 // .SECTION Warning
00045 // When using vtkGDCMPolyDataReader in conjunction with vtkGDCMImageReader
00046 // it is *required* that FileLowerLeft is set to ON as coordinate system
00047 // would be inconsistent in between the two data structures.
00048 // .SECTION Color Space mapping:
00049 // * VTK_LUMINANCE         <-> MONOCHROME2
00050 // * VTK_LUMINANCE_ALPHA   <-> Not supported
00051 // * VTK_RGB               <-> RGB
00052 // * VTK_RGBA              <-> ARGB (deprecated, DICOM 2008)
00053 // * VTK_INVERSE_LUMINANCE <-> MONOCHROME1
00054 // * VTK_LOOKUP_TABLE      <-> PALETTE COLOR
00055 // * VTK_YBR               <-> YBR_FULL
00056 //
00057 // For detailed information on color space transformation and true lossless transformation see:
00058 // http://gdcm.sourceforge.net/wiki/index.php/Color_Space_Transformations
00059
00060 // .SECTION See Also
00061 // vtkMedicalImageReader2 vtkMedicalImageProperties vtkGDCMPolyDataReader vtkGDCMImageWriter
00062 // vtkDICOMImageReader
00063
00064 #ifndef VTKGDCMIMAGEREADER_H
00065 #define VTKGDCMIMAGEREADER_H
00066
00067 #include "vtkgdcmModule.h"
00068 #include "vtkMedicalImageReader2.h"
00069 #include "vtkImageData.h"
00070 #include "vtkVersion.h"
00071
00072 #if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
00073 #else
00074 class vtkMedicalImageProperties;
00075 #endif
00076 #if (VTK_MAJOR_VERSION > 5) || ( VTK_MAJOR_VERSION == 5 && VTK_MINOR_VERSION > 0 )
00077 #else
00078 class vtkStringArray;
00079 #endif
00080 class vtkPolyData;
00081
00082 // vtkSystemIncludes.h defines:
00083 // #define VTK_LUMINANCE       1
00084 // #define VTK_LUMINANCE_ALPHA 2
00085 // #define VTK_RGB             3
00086 // #define VTK_RGBA            4
00087 #ifndef VTK_INVERSE_LUMINANCE
00088 #define VTK_INVERSE_LUMINANCE 5
00089 #endif
00090 #ifndef VTK_LOOKUP_TABLE
00091 #define VTK_LOOKUP_TABLE 6
00092 #endif
00093 #ifndef VTK_YBR
00094 #define VTK_YBR 7
00095 #endif
00096 #ifndef VTK_CMYK
00097 #define VTK_CMYK 8
00098 #endif
00099
00100 //BTX
00101 namespace gdcm { class ImageReader; }
00102 //ETX
00103 class vtkMatrix4x4;
00104 class VTKGDCM_EXPORT vtkGDCMImageReader : public vtkMedicalImageReader2
00105 {
00106 public:
00107   static vtkGDCMImageReader *New();
00108   vtkTypeMacro(vtkGDCMImageReader,vtkMedicalImageReader2);
00109   virtual void PrintSelf(ostream& os, vtkIndent indent);
00110
00111   // Description: is the given file name a DICOM file containing an image ?
00112   virtual int CanReadFile(const char* fname);
00113
```

```
00114   // Description:
00115   // Valid extensions
00116   virtual const char* GetFileExtensions()
00117     {
00118     // I would like to get rid of ACR/NEMA/IMA so only allow dcm extension for now
00119     return ".dcm .DCM";
00120     }
00121
00122   // Description:
00123   // A descriptive name for this format
00124   virtual const char* GetDescriptiveName()
00125     {
00126     return "DICOM";
00127     }
00128
00129   // Description:
00130   // Get the Image Position (Patient) as stored in the DICOM file
00131   // This is a read-only data member
00132   vtkGetObjectMacro(DirectionCosines, vtkMatrix4x4);
00133
00134 #if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
00135 #else
00136   // Description:
00137   // Get the medical image properties object
00138   vtkGetObjectMacro(MedicalImageProperties, vtkMedicalImageProperties);
00139 #endif
00140   virtual void SetMedicalImageProperties(vtkMedicalImageProperties *pd);
00141
00142 #if (VTK_MAJOR_VERSION > 5) || ( VTK_MAJOR_VERSION == 5 && VTK_MINOR_VERSION > 0 )
00143 #else
00144   virtual void SetFileNames(vtkStringArray*);
00145   vtkGetObjectMacro(FileNames, vtkStringArray);
00146 #endif
00147
00148   // Description:
00149   // Specifically request to load the overlay into the gdcm-VTK layer (gdcm always loads them when found).
00150   // If no overlay is found in the image, then the vtkImageData for the overlay will be empty.
00151   vtkGetMacro(LoadOverlays,int);
00152   vtkSetMacro(LoadOverlays,int);
00153   vtkBooleanMacro(LoadOverlays,int);
00154
00155   // Description:
00156   // Set/Get whether or not to load the Icon as vtkImageData (if found in the DICOM file)
00157   vtkGetMacro(LoadIconImage,int);
00158   vtkSetMacro(LoadIconImage,int);
00159   vtkBooleanMacro(LoadIconImage,int);
00160
00161   // Description:
00162   // Set/Get whether or not the image was compressed using a lossy compression algorithm
00163   vtkGetMacro(LossyFlag,int);
00164   vtkSetMacro(LossyFlag,int);
00165   vtkBooleanMacro(LossyFlag,int);
00166
00167   // Description:
00168   // Read only: number of overlays as found in this image (multiple overlays per slice is allowed)
00169   // Only valid when LoadOverlays is true
00170   vtkGetMacro(NumberOfOverlays,int);
00171
00172   // Description:
00173   // Read only: number of icon image (there can only be zero or one icon per file)
00174   // Only valid when LoadIconImage is true
00175   vtkGetMacro(NumberOfIconImages,int);
00176
00177   // Description:
00178   // Get Overlay/IconImage
00179   // Remember to ALWAYS use those methods in your code, as the internal number for the output port
00180   // is not guaranteed to remain the same, as features are added to the reader
00181 #if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
00182 //FIXME: Need to get rid of BTX/ETX if only the Python Wrapper of VTK 4.2 would let me
00183 //BTX
00184   vtkAlgorithmOutput* GetOverlayPort(int index);
00185   vtkAlgorithmOutput* GetIconImagePort();
00186 //ETX
00187 #endif
00188   vtkImageData* GetOverlay(int i);
00189   vtkImageData* GetIconImage();
00190
00191   // Description:
00192   // Load image with its associated Lookup Table
00193   vtkGetMacro(ApplyLookupTable,int);
00194   vtkSetMacro(ApplyLookupTable,int);
```

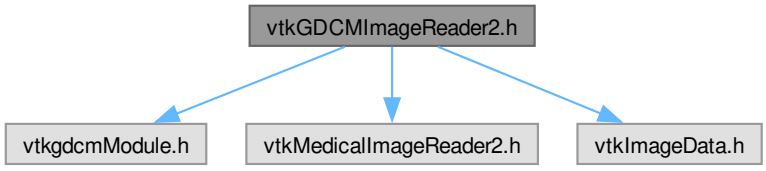
```
00195   vtkBooleanMacro(ApplyLookupTable,int);
00196
00197   // Description:
00198   // Load image as YBR
00199   vtkGetMacro(ApplyYBRToRGB,int)
00200   vtkSetMacro(ApplyYBRToRGB,int)
00201   vtkBooleanMacro(ApplyYBRToRGB,int);
00202
00203   // Description:
00204   // Return VTK_LUMINANCE, VTK_INVERSE_LUMINANCE, VTK_RGB, VTK_RGBA, VTK_LOOKUP_TABLE, VTK_YBR or VTK_CMYK
00205   // or 0 when ImageFormat is not handled.
00206   // Warning: For color image, PlanarConfiguration need to be taken into account.
00207   vtkGetMacro(ImageFormat,int);
00208
00209   // Description:
00210   // Return the Planar Configuration. This simply means that the internal DICOM image was stored
00211   // using a particular planar configuration (most of the time: 0)
00212   // For monochrome image, PlanarConfiguration is always 0
00213   vtkGetMacro(PlanarConfiguration,int);
00214
00215   // Description:
00216   // Return the 'raw' information stored in the DICOM file:
00217   // In case of a series of multiple files, only the first file is considered. The Image Orientation
      (Patient)
00218   // is guaranteed to remain the same, and image Image Position (Patient) in other slice can be computed
00219   // using the ZSpacing (3rd dimension)
00220   // (0020,0032) DS [87.774866\-182.908510\168.629671]       #  32, 3 ImagePositionPatient
00221   // (0020,0037) DS [0.001479\0.999989\-0.004376\-0.002039\-0.004372\-0.999988] #  58, 6
      ImageOrientationPatient
00222   vtkGetVector3Macro(ImagePositionPatient,double);
00223   vtkGetVector6Macro(ImageOrientationPatient,double);
00224
00225   // Description:
00226   // Set/Get the first Curve Data:
00227   vtkGetObjectMacro(Curve,vtkPolyData);
00228   virtual void SetCurve(vtkPolyData *pd);
00229
00230   // Description:
00231   // \DEPRECATED:
00232   // Modality LUT
00233   // Value returned by GetShift/GetScale might be inaccurate since Shift/Scale could be
00234   // varying along the Series read. Therefore user are advices not to use those functions
00235   // anymore
00236   vtkGetMacro(Shift,double);
00237   vtkGetMacro(Scale,double);
00238
00239 protected:
00240   vtkGDCMImageReader();
00241   ~vtkGDCMImageReader();
00242
00243   vtkSetVector6Macro(ImageOrientationPatient,double);
00244
00245 //BTX
00246   void FillMedicalImageInformation(const gdcm::ImageReader &reader);
00247 //ETX
00248   int RequestInformationCompat();
00249   int RequestDataCompat();
00250
00251 #if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
00252   int ProcessRequest(vtkInformation* request,
00253                                 vtkInformationVector** inputVector,
00254                                 vtkInformationVector* outputVector);
00255   int RequestInformation(vtkInformation *request,
00256                          vtkInformationVector **inputVector,
00257                          vtkInformationVector *outputVector);
00258   int RequestData(vtkInformation *request,
00259                   vtkInformationVector **inputVector,
00260                   vtkInformationVector *outputVector);
00261 #else /*(VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )*/
00262   void ExecuteInformation();
00263   void ExecuteData(vtkDataObject *out);
00264 #endif /*(VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )*/
00265
00266 protected:
00267 #if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
00268 #else
00269   // Description:
00270   // Medical Image properties
00271   vtkMedicalImageProperties *MedicalImageProperties;
00272 #endif
00273 #if (VTK_MAJOR_VERSION > 5) || ( VTK_MAJOR_VERSION == 5 && VTK_MINOR_VERSION > 0 )
```

```
00274 #else
00275   vtkStringArray *FileNames;
00276 #endif
00277
00278   vtkMatrix4x4 *DirectionCosines;
00279   int LoadOverlays;
00280   int NumberOfOverlays;
00281   int LoadIconImage;
00282   int NumberOfIconImages;
00283   int IconImageDataExtent[6];
00284   double ImagePositionPatient[3];
00285   double ImageOrientationPatient[6];
00286   vtkPolyData *Curve;
00287
00288   int ImageFormat;
00289   // the following 3, should remain optional
00290   int ApplyInverseVideo;
00291   int ApplyLookupTable;
00292   int ApplyYBRToRGB;
00293   // I think that planar configuration need to always be applied as far as VTK is concerned
00294   int ApplyPlanarConfiguration;
00295   int ApplyShiftScale;
00296
00297   int LoadSingleFile(const char *filename, char *pointer, unsigned long &outlen);
00298
00299   double Shift;
00300   double Scale;
00301   int IconDataScalarType;
00302   int IconNumberOfScalarComponents;
00303   int PlanarConfiguration;
00304   int LossyFlag;
00305   int ForceRescale;
00306
00307 protected:
00308   // TODO / FIXME
00309   void SetFilePrefix(const char *) {}
00310   vtkGetStringMacro(FilePrefix);
00311   void SetFilePattern(const char *) {}
00312   vtkGetStringMacro(FilePattern);
00313
00314 private:
00315   vtkGDCMImageReader(const vtkGDCMImageReader&);  // Not implemented.
00316   void operator=(const vtkGDCMImageReader&);  // Not implemented.
00317 };
00318 #endif
```

13.607 vtkGDCMImageReader2.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkMedicalImageReader2.h"
#include "vtkImageData.h"
```

Include dependency graph for vtkGDCMImageReader2.h:



Classes

- class vtkGDCMImageReader2

Namespaces

- namespace gdcm

Macros

- #define VTK_CMYK 8
- #define VTK_INVERSE_LUMINANCE 5
- #define VTK_LOOKUP_TABLE 6
- #define VTK_YBR 7

13.607.1 Macro Definition Documentation

13.607.1.1 VTK_CMYK

```
#define VTK_CMYK 8
```

13.607.1.2 VTK_INVERSE_LUMINANCE

```
#define VTK_INVERSE_LUMINANCE 5
```

13.607.1.3 VTK_LOOKUP_TABLE

```
#define VTK_LOOKUP_TABLE 6
```

13.607.1.4 VTK_YBR

```
#define VTK_YBR 7
```

13.608 vtkGDCMImageReader2.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMImageReader2 - read DICOM Image files (Pixel Data)
00015 // .SECTION Description
00016 // vtkGDCMImageReader2 is a source object that reads some DICOM files
00017 // this reader is single threaded.
00018 // .SECTION Implementation note: when FileLowerLeft is set to on the image is not flipped
00019 // upside down as VTK would expect, use this option only if you know what you are doing.
00020 // .SECTION Implementation note: when reading a series of 2D slices, user is
00021 // expected to provide an ordered list of filenames. No sorting will be applied afterward.
00022 // .SECTION Implementation note: Although 99% of the time the Zspacing as read
00023 // from a tag in a 2D DICOM file should be correct, there has been reports that this
00024 // value can be missing, or incorrect, in which case users are advised to override this
00025 // value using the return value from gdcm::IPPSorter::GetZSpacing() and set it via
00026 // vtkImageChangeInformation on the reader itself.
00027 // .SECTION TODO
00028 // This reader does not handle a series of 3D images, only a single 3D (multi frame) or a
00029 // list of 2D files are supported for now.
00030 // .SECTION TODO
00031 // Did not implement SetFilePattern / SetFilePrefix API, move it to protected section for now.
00032 // .SECTION BUG
00033 // Overlay are assumed to have the same extent as image. Right now if overlay origin is not
00034 // 0,0 the overlay will have an offset...
00035 // Only the very first overlay is loaded at the VTK level, for now (even if there are more than one in the
      file)
00036 // .SECTION DataOrigin
00037 // When the reader is instantiated with FileLowerLeftOn the DataOrigin and Image Position (Patient) are
00038 // identical. But when FileLowerLeft is Off, we have to reorder the Y-line of the image, and thus the
      DataOrigin
00039 // is then translated to the other side of the image.
00040 // .SECTION Spacing
00041 // When reading a 3D volume, the spacing along the Z dimension might be negative (so as to respect
      up-side-down)
00042 // as specified in the Image Orientation (Patient) tag. When Z-spacing is 0, this means the multi-frame
      object
00043 // contains image which do not represent uniform volume.
00044 // .SECTION Warning
00045 // When using vtkGDCMPolyDataReader in conjunction with vtkGDCMImageReader2
00046 // it is *required* that FileLowerLeft is set to ON as coordinate system
00047 // would be inconsistent in between the two data structures.
00048 // .SECTION Color Space mapping:
00049 // * VTK_LUMINANCE         <-> MONOCHROME2
00050 // * VTK_LUMINANCE_ALPHA   <-> Not supported
00051 // * VTK_RGB               <-> RGB
00052 // * VTK_RGBA              <-> ARGB (deprecated, DICOM 2008)
00053 // * VTK_INVERSE_LUMINANCE <-> MONOCHROME1
00054 // * VTK_LOOKUP_TABLE      <-> PALETTE COLOR
00055 // * VTK_YBR               <-> YBR_FULL
00056 //
00057 // For detailed information on color space transformation and true lossless transformation see:
00058 // http://gdcm.sourceforge.net/wiki/index.php/Color_Space_Transformations
00059
00060 // .SECTION See Also
00061 // vtkMedicalImageReader2 vtkMedicalImageProperties vtkGDCMPolyDataReader vtkGDCMImageWriter
00062 // vtkDICOMImageReader
00063
00064 #ifndef VTKGDCMIMAGEREADER2_H
00065 #define VTKGDCMIMAGEREADER2_H
00066
00067 #include "vtkgdcmModule.h"
00068 #include "vtkMedicalImageReader2.h"
00069 #include "vtkImageData.h"
00070
00071 class vtkPolyData;
```

```
00072
00073 // vtkSystemIncludes.h defines:
00074 // #define VTK_LUMINANCE       1
00075 // #define VTK_LUMINANCE_ALPHA 2
00076 // #define VTK_RGB             3
00077 // #define VTK_RGBA            4
00078 #ifndef VTK_INVERSE_LUMINANCE
00079 #define VTK_INVERSE_LUMINANCE 5
00080 #endif
00081 #ifndef VTK_LOOKUP_TABLE
00082 #define VTK_LOOKUP_TABLE 6
00083 #endif
00084 #ifndef VTK_YBR
00085 #define VTK_YBR 7
00086 #endif
00087 #ifndef VTK_CMYK
00088 #define VTK_CMYK 8
00089 #endif
00090
00091 //BTX
00092 namespace gdcm { class ImageReader; }
00093 //ETX
00094 class vtkMatrix4x4;
00095 class VTKGDCM_EXPORT vtkGDCMImageReader2 : public vtkMedicalImageReader2
00096 {
00097 public:
00098   static vtkGDCMImageReader2 *New();
00099   vtkTypeMacro(vtkGDCMImageReader2,vtkMedicalImageReader2);
00100   virtual void PrintSelf(ostream& os, vtkIndent indent);
00101
00102   // Description: is the given file name a DICOM file containing an image ?
00103   virtual int CanReadFile(const char* fname);
00104
00105   // Description:
00106   // Valid extensions
00107   virtual const char* GetFileExtensions()
00108     {
00109     // I would like to get rid of ACR/NEMA/IMA so only allow dcm extension for now
00110     return ".dcm .DCM";
00111     }
00112
00113   // Description:
00114   // A descriptive name for this format
00115   virtual const char* GetDescriptiveName()
00116     {
00117     return "DICOM";
00118     }
00119
00120   // Description:
00121   // Get the Image Position (Patient) as stored in the DICOM file
00122   // This is a read-only data member
00123   vtkGetObjectMacro(DirectionCosines, vtkMatrix4x4);
00124
00125   virtual void SetMedicalImageProperties(vtkMedicalImageProperties *pd);
00126
00127   // Description:
00128   // Specifically request to load the overlay into the gdcm-VTK layer (gdcm always loads them when found).
00129   // If no overlay is found in the image, then the vtkImageData for the overlay will be empty.
00130   vtkGetMacro(LoadOverlays,int);
00131   vtkSetMacro(LoadOverlays,int);
00132   vtkBooleanMacro(LoadOverlays,int);
00133
00134   // Description:
00135   // Set/Get whether or not to load the Icon as vtkImageData (if found in the DICOM file)
00136   vtkGetMacro(LoadIconImage,int);
00137   vtkSetMacro(LoadIconImage,int);
00138   vtkBooleanMacro(LoadIconImage,int);
00139
00140   // Description:
00141   // Set/Get whether or not the image was compressed using a lossy compression algorithm
00142   vtkGetMacro(LossyFlag,int);
00143   vtkSetMacro(LossyFlag,int);
00144   vtkBooleanMacro(LossyFlag,int);
00145
00146   // Description:
00147   // Read only: number of overlays as found in this image (multiple overlays per slice is allowed)
00148   // Only valid when LoadOverlays is true
00149   vtkGetMacro(NumberOfOverlays,int);
00150
00151   // Description:
00152   // Read only: number of icon image (there can only be zero or one icon per file)
```

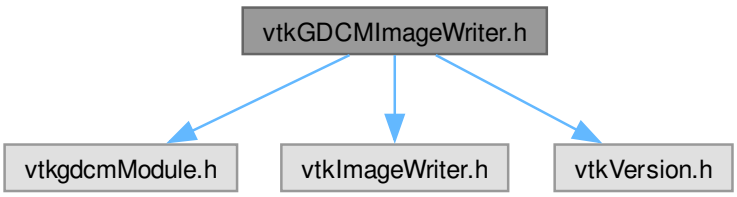
```
00153   // Only valid when LoadIconImage is true
00154   vtkGetMacro(NumberOfIconImages,int);
00155
00156   // Description:
00157   // Get Overlay/IconImage
00158   // Remember to ALWAYS use those methods in your code, as the internal number for the output port
00159   // is not guaranteed to remain the same, as features are added to the reader
00160   vtkAlgorithmOutput* GetOverlayPort(int index);
00161   vtkAlgorithmOutput* GetIconImagePort();
00162   vtkImageData* GetOverlay(int i);
00163   vtkImageData* GetIconImage();
00164
00165   // Description:
00166   // Load image with its associated Lookup Table
00167   vtkGetMacro(ApplyLookupTable,int);
00168   vtkSetMacro(ApplyLookupTable,int);
00169   vtkBooleanMacro(ApplyLookupTable,int);
00170
00171   // Description:
00172   // Load image as YBR
00173   vtkGetMacro(ApplyYBRToRGB,int)
00174   vtkSetMacro(ApplyYBRToRGB,int)
00175   vtkBooleanMacro(ApplyYBRToRGB,int);
00176
00177   // Description:
00178   // Return VTK_LUMINANCE, VTK_INVERSE_LUMINANCE, VTK_RGB, VTK_RGBA, VTK_LOOKUP_TABLE, VTK_YBR or VTK_CMYK
00179   // or 0 when ImageFormat is not handled.
00180   // Warning: For color image, PlanarConfiguration need to be taken into account.
00181   vtkGetMacro(ImageFormat,int);
00182
00183   // Description:
00184   // Return the Planar Configuration. This simply means that the internal DICOM image was stored
00185   // using a particular planar configuration (most of the time: 0)
00186   // For monochrome image, PlanarConfiguration is always 0
00187   vtkGetMacro(PlanarConfiguration,int);
00188
00189   // Description:
00190   // Return the 'raw' information stored in the DICOM file:
00191   // In case of a series of multiple files, only the first file is considered. The Image Orientation
      (Patient)
00192   // is guaranteed to remain the same, and image Image Position (Patient) in other slice can be computed
00193   // using the ZSpacing (3rd dimension)
00194   // (0020,0032) DS [87.774866\-182.908510\168.629671]       #  32, 3 ImagePositionPatient
00195   // (0020,0037) DS [0.001479\0.999989\-0.004376\-0.002039\-0.004372\-0.999988] #  58, 6
      ImageOrientationPatient
00196   vtkGetVector3Macro(ImagePositionPatient,double);
00197   vtkGetVector6Macro(ImageOrientationPatient,double);
00198
00199   // Description:
00200   // Set/Get the first Curve Data:
00201   vtkGetObjectMacro(Curve,vtkPolyData);
00202   virtual void SetCurve(vtkPolyData *pd);
00203
00204   // Description:
00205   // \DEPRECATED:
00206   // Modality LUT
00207   // Value returned by GetShift/GetScale might be inaccurate since Shift/Scale could be
00208   // varying along the Series read. Therefore user are advices not to use those functions
00209   // anymore
00210   vtkGetMacro(Shift,double);
00211   vtkGetMacro(Scale,double);
00212
00213 protected:
00214   vtkGDCMImageReader2();
00215   ~vtkGDCMImageReader2();
00216
00217   vtkSetVector6Macro(ImageOrientationPatient,double);
00218
00219 //BTX
00220   void FillMedicalImageInformation(const gdcm::ImageReader &reader);
00221 //ETX
00222   int RequestInformationCompat();
00223   int RequestDataCompat();
00224
00225   int ProcessRequest(vtkInformation* request,
00226                                 vtkInformationVector** inputVector,
00227                                 vtkInformationVector* outputVector);
00228   int RequestInformation(vtkInformation *request,
00229                          vtkInformationVector **inputVector,
00230                          vtkInformationVector *outputVector);
00231   int RequestData(vtkInformation *request,
```

```
00232                   vtkInformationVector **inputVector,
00233                   vtkInformationVector *outputVector);
00234
00235 protected:
00236   vtkMatrix4x4 *DirectionCosines;
00237   int LoadOverlays;
00238   int NumberOfOverlays;
00239   int LoadIconImage;
00240   int NumberOfIconImages;
00241   int IconImageDataExtent[6];
00242   double ImagePositionPatient[3];
00243   double ImageOrientationPatient[6];
00244   vtkPolyData *Curve;
00245
00246   int ImageFormat;
00247   // the following 3, should remain optional
00248   int ApplyInverseVideo;
00249   int ApplyLookupTable;
00250   int ApplyYBRToRGB;
00251   // I think that planar configuration need to always be applied as far as VTK is concerned
00252   int ApplyPlanarConfiguration;
00253   int ApplyShiftScale;
00254
00255   int LoadSingleFile(const char *filename, char *pointer, unsigned long &outlen);
00256
00257   double Shift;
00258   double Scale;
00259   int IconDataScalarType;
00260   int IconNumberOfScalarComponents;
00261   int PlanarConfiguration;
00262   int LossyFlag;
00263   int ForceRescale;
00264
00265 protected:
00266   // TODO / FIXME
00267   void SetFilePrefix(const char *) {}
00268   vtkGetStringMacro(FilePrefix);
00269   void SetFilePattern(const char *) {}
00270   vtkGetStringMacro(FilePattern);
00271
00272 private:
00273   vtkGDCMImageReader2(const vtkGDCMImageReader2&);  // Not implemented.
00274   void operator=(const vtkGDCMImageReader2&);  // Not implemented.
00275 };
00276 #endif
```

13.609 vtkGDCMImageWriter.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkImageWriter.h"
#include "vtkVersion.h"
```

Include dependency graph for vtkGDCMImageWriter.h:



Classes

- class vtkGDCMImageWriter

13.610 vtkGDCMImageWriter.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMImageWriter - write DICOM files
00015 // .SECTION Description
00016 // vtkGDCMImageWriter is a sink object that write DICOM files
00017 // this writer is single threaded (see vtkGDCMThreadedImageReader2 for multi-thread)
00018 //
00019 // .SECTION Warning: vtkLookupTable from the vtkImageData object taken into account
00020 // only if ImageFormat is set to VTK_LOOKUP_TABLE
00021 //
00022 // .SECTION NOTE We are not using the usual API SetFilePrefix / SetFilePattern,
00023 // but instead a list of filenames: see SetFileNames and class gdcm::FilenameGenerator
00024 //
00025 // .SECTION Warning
00026 // You need to specify the correct ImageFormat (taken from the reader)
00027 // You need to explicitly specify the DirectionCosines (taken from the reader)
00028 // Since VTK 5.4 vtkMedicalImageProperties has its own DirectionCosine (no 's')
00029 // user need to make sure the vtkMatrix4x4 is compatible with the 6-vector DirectionCosine.
00030 //
00031 // .SECTION NOTE Shift/Scale are global to all DICOM frames (=files) written
00032 // as 2D slice, therefore the shift/scale operation might not be optimized for
00033 // all slices. This is not recommended for image with a large dynamic range.
00034 //
00035 // .SECTION See Also
00036 // vtkImageWriter vtkMedicalImageProperties vtkGDCMImageReader
00037
00038 #ifndef VTKGDCMIMAGEWRITER_H
00039 #define VTKGDCMIMAGEWRITER_H
00040
00041 #include "vtkgdcmModule.h"
00042 #include "vtkImageWriter.h"
00043 #include "vtkVersion.h"
00044
00045 class vtkLookupTable;
00046 class vtkMedicalImageProperties;
00047 class vtkMatrix4x4;
00048 class vtkStringArray;
00049 class VTKGDCM_EXPORT vtkGDCMImageWriter : public vtkImageWriter
00050 {
00051 public:
00052   static vtkGDCMImageWriter *New();
00053   vtkTypeMacro(vtkGDCMImageWriter,vtkImageWriter);
00054   virtual void PrintSelf(ostream& os, vtkIndent indent);
00055
00056   // Description:
00057   // Pass in the vtkmedicalimageproperties object for medical information
00058   // to be mapped to DICOM attributes.
00059   vtkGetObjectMacro(MedicalImageProperties, vtkMedicalImageProperties);
00060   virtual void SetMedicalImageProperties(vtkMedicalImageProperties*);
00061
00062   // Description:
00063   // Pass in the list of filename to be used to write out the DICOM file(s)
00064   virtual void SetFileNames(vtkStringArray*);
00065   vtkGetObjectMacro(FileNames, vtkStringArray);
00066
```

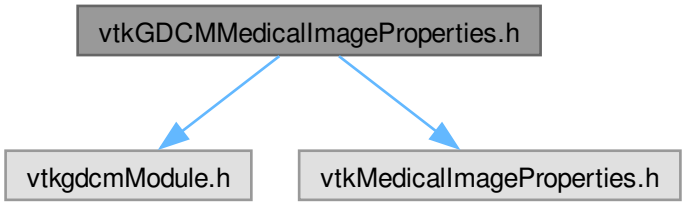
```
00067   // Description:
00068   // Set/Get whether or not the image was compressed using a lossy compression algorithm
00069   vtkGetMacro(LossyFlag,int);
00070   vtkSetMacro(LossyFlag,int);
00071   vtkBooleanMacro(LossyFlag,int);
00072
00073   // I need that...
00074   virtual void Write();
00075
00076   // Description:
00077   // Get the extension for this file format.
00078   virtual const char* GetFileExtensions() {
00079     return ".dcm .DCM"; }
00080
00081   // Description:
00082   // Get the name of this file format.
00083   virtual const char* GetDescriptiveName() {
00084     return "DICOM"; }
00085
00086   // Description:
00087   // You need to manually specify the direction the image is in to write a valid DICOM file
00088   // since vtkImageData do not contains one (eg. MR Image Storage, CT Image Storage...)
00089   virtual void SetDirectionCosines(vtkMatrix4x4 *matrix);
00090   vtkGetObjectMacro(DirectionCosines, vtkMatrix4x4);
00091   virtual void SetDirectionCosinesFromImageOrientationPatient(const double dircos[6]);
00092
00093   // Description:
00094   // Modality LUT
00095   vtkSetMacro(Shift, double);
00096   vtkGetMacro(Shift, double);
00097   vtkSetMacro(Scale, double);
00098   vtkGetMacro(Scale, double);
00099
00100   // Description:
00101   // See vtkGDCMImageReader for list of ImageFormat
00102   vtkGetMacro(ImageFormat,int);
00103   vtkSetMacro(ImageFormat,int);
00104
00105   // Description:
00106   // Set/Get whether the data comes from the file starting in the lower left
00107   // corner or upper left corner.
00108   vtkBooleanMacro(FileLowerLeft, int);
00109   vtkGetMacro(FileLowerLeft, int);
00110   vtkSetMacro(FileLowerLeft, int);
00111
00112   // Description:
00113   // For color image (more than a single comp) you can specify the planar configuration you prefer
00114   vtkSetMacro(PlanarConfiguration,int);
00115   vtkGetMacro(PlanarConfiguration,int);
00116
00117   // Description:
00118   // Set/Get specific StudyUID / SeriesUID
00119   vtkSetStringMacro(StudyUID);
00120   vtkGetStringMacro(StudyUID);
00121   vtkSetStringMacro(SeriesUID);
00122   vtkGetStringMacro(SeriesUID);
00123
00124 //BTX
00125   enum CompressionTypes {
00126     NO_COMPRESSION = 0,   // raw (default)
00127     JPEG_COMPRESSION,     // JPEG
00128     JPEG2000_COMPRESSION, // J2K
00129     JPEGLS_COMPRESSION,   // JPEG-LS
00130     RLE_COMPRESSION       // RLE
00131   };
00132 //ETX
00133   // Set/Get the compression type
00134   vtkSetMacro(CompressionType, int);
00135   vtkGetMacro(CompressionType, int);
00136
00137   //void SetCompressionTypeFromString(const char *);
00138   //const char *GetCompressionTypeAsString();
00139
00140 protected:
00141   vtkGDCMImageWriter();
00142   ~vtkGDCMImageWriter();
00143
00144 #if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
00145   int FillInputPortInformation(int port, vtkInformation *info);
00146   int RequestInformation(
00147     vtkInformation *request,
```

```
00148     vtkInformationVector **inputVector,
00149     vtkInformationVector *outputVector);
00150   int RequestUpdateExtent(
00151     vtkInformation *request,
00152     vtkInformationVector **inputVector,
00153     vtkInformationVector *outputVector);
00154   int RequestData(
00155     vtkInformation *request,
00156     vtkInformationVector **inputVector,
00157     vtkInformationVector *outputVector);
00158 #else
00159   void WriteSlice(vtkImageData *data);
00160 #endif /*(VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )*/
00161   int WriteGDCMData(vtkImageData *data, int timeStep);
00162
00163 protected:
00164   virtual /*const*/ char *GetFileName();
00165
00166 private:
00167   vtkGDCMImageWriter(const vtkGDCMImageWriter&);  // Not implemented.
00168   void operator=(const vtkGDCMImageWriter&);  // Not implemented.
00169
00170   // VTK structs:
00171   //vtkLookupTable *LookupTable;
00172   vtkMedicalImageProperties *MedicalImageProperties;
00173   char *StudyUID;
00174   char *SeriesUID;
00175
00176   int DataUpdateExtent[6];
00177   int ImageFormat;
00178
00179   vtkStringArray *FileNames;
00180   vtkMatrix4x4 *DirectionCosines;
00181
00182   double Shift;
00183   double Scale;
00184   int FileLowerLeft;
00185   int PlanarConfiguration;
00186   int LossyFlag;
00187   int CompressionType;
00188 };
00189
00190 #endif
```

13.611 vtkGDCMMedicalImageProperties.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkMedicalImageProperties.h"
```

Include dependency graph for vtkGDCMMedicalImageProperties.h:



Classes

- class vtkGDCMMedicalImageProperties

Namespaces

- namespace gdcm

13.612 vtkGDCMMedicalImageProperties.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMMedicalImageProperties - some medical image properties.
00015 // .SECTION Description
00016 // vtkGDCMMedicalImageProperties is a helper class that can be used by medical
00017 // image readers and applications to encapsulate medical image/acquisition
00018 // properties. Later on, this should probably be extended to add
00019 // any user-defined property.
00020 // .SECTION See Also
00021 // vtkMedicalImageReader2
00022
00023 #ifndef VTKGDCMMEDICALIMAGEPROPERTIES_H
00024 #define VTKGDCMMEDICALIMAGEPROPERTIES_H
00025
00026 #include "vtkgdcmModule.h"
00027 #include "vtkMedicalImageProperties.h"
00028
00029 class vtkGDCMMedicalImagePropertiesInternals;
00030 //BTX
00031 namespace gdcm { class File; }
00032 //ETX
00033
00034 class VTKGDCM_EXPORT vtkGDCMMedicalImageProperties : public vtkMedicalImageProperties
00035 {
00036 public:
00037   static vtkGDCMMedicalImageProperties *New();
00038   vtkTypeMacro(vtkGDCMMedicalImageProperties,vtkMedicalImageProperties);
00039   void PrintSelf(ostream& os, vtkIndent indent);
00040
00041   // Description:
00042   // Convenience method to reset all fields to an empty string/value
00043   virtual void Clear();
00044
00045 /*
00046   // Description:
00047   // Patient name
00048   // For ex: DICOM (0010,0010) = DOE,JOHN
00049   vtkSetStringMacro(PatientName);
00050   vtkGetStringMacro(PatientName);
00051
00052   // Description:
00053   // Patient ID
00054   // For ex: DICOM (0010,0020) = 1933197
00055   vtkSetStringMacro(PatientID);
00056   vtkGetStringMacro(PatientID);
00057
00058   // Description:
00059   // Patient age
```

```
00060   // Format: nnnD, nnW, nnnM or nnnY (eventually nnD, nnW, nnY)
00061   //         with D (day), M (month), W (week), Y (year)
00062   // For ex: DICOM (0010,1010) = 031Y
00063   vtkSetStringMacro(PatientAge);
00064   vtkGetStringMacro(PatientAge);
00065
00066   // Description:
00067   // Take as input a string in VR=AS (DICOM PS3.5) and extract either
00068   // different fields namely: year month week day
00069   // Return 0 on error, 1 on success
00070   // One can test fields if they are different from -1 upon success
00071   static int GetAgeAsFields(const char *age, int &year, int &month, int &week, int &day);
00072
00073   // For Tcl:
00074   // From C++ use GetPatientAge + GetAgeAsField
00075   // Those function parse a DICOM string, and return the value of the number expressed
00076   // this is either expressed in year, month or days. Thus if a string is expressed in years
00077   // GetPatientAgeDay/GetPatientAgeWeek/GetPatientAgeMonth will return 0
00078   int GetPatientAgeYear();
00079   int GetPatientAgeMonth();
00080   int GetPatientAgeWeek();
00081   int GetPatientAgeDay();
00082
00083   // Description:
00084   // Patient sex
00085   // For ex: DICOM (0010,0040) = M
00086   vtkSetStringMacro(PatientSex);
00087   vtkGetStringMacro(PatientSex);
00088
00089   // Description:
00090   // Patient birth date
00091   // Format: yyyymmdd
00092   // For ex: DICOM (0010,0030) = 19680427
00093   vtkSetStringMacro(PatientBirthDate);
00094   vtkGetStringMacro(PatientBirthDate);
00095
00096   // For Tcl:
00097   // From C++ use GetPatientBirthDate + GetDateAsFields
00098   int GetPatientBirthDateYear();
00099   int GetPatientBirthDateMonth();
00100   int GetPatientBirthDateDay();
00101
00102   // Description:
00103   // Study Date
00104   // Format: yyyymmdd
00105   // For ex: DICOM (0008,0020) = 20030617
00106   vtkSetStringMacro(StudyDate);
00107   vtkGetStringMacro(StudyDate);
00108
00109   // Description:
00110   // Acquisition Date
00111   // Format: yyyymmdd
00112   // For ex: DICOM (0008,0022) = 20030617
00113   vtkSetStringMacro(AcquisitionDate);
00114   vtkGetStringMacro(AcquisitionDate);
00115
00116   // For Tcl:
00117   // From C++ use GetAcquisitionDate + GetDateAsFields
00118   int GetAcquisitionDateYear();
00119   int GetAcquisitionDateMonth();
00120   int GetAcquisitionDateDay();
00121
00122   // Description:
00123   // Study Time
00124   // Format: hhmmss.frac (any trailing component(s) can be omitted)
00125   // For ex: DICOM (0008,0030) = 162552.0705 or 230012, or 0012
00126   vtkSetStringMacro(StudyTime);
00127   vtkGetStringMacro(StudyTime);
00128
00129   // Description:
00130   // Acquisition time
00131   // Format: hhmmss.frac (any trailing component(s) can be omitted)
00132   // For ex: DICOM (0008,0032) = 162552.0705 or 230012, or 0012
00133   vtkSetStringMacro(AcquisitionTime);
00134   vtkGetStringMacro(AcquisitionTime);
00135
00136   // Description:
00137   // Image Date aka Content Date
00138   // Format: yyyymmdd
00139   // For ex: DICOM (0008,0023) = 20030617
00140   vtkSetStringMacro(ImageDate);
```

```
00141   vtkGetStringMacro(ImageDate);
00142
00143   // For Tcl:
00144   // From C++ use GetImageDate + GetDateAsFields
00145   int GetImageDateYear();
00146   int GetImageDateMonth();
00147   int GetImageDateDay();
00148
00149   // Description:
00150   // Take as input a string in ISO 8601 date (YYYY/MM/DD) and extract the
00151   // different fields namely: year month day
00152   // Return 0 on error, 1 on success
00153   static int GetDateAsFields(const char *date, int &year, int &month, int &day);
00154
00155   // Description:
00156   // Take as input a string in ISO 8601 date (YYYY/MM/DD) and construct a
00157   // locale date based on the different fields (see GetDateAsFields to extract
00158   // different fields)
00159   // Return 0 on error, 1 on success
00160   static int GetDateAsLocale(const char *date, char *locale);
00161
00162   // Description:
00163   // Image Time
00164   // Format: hhmmss.frac (any trailing component(s) can be omitted)
00165   // For ex: DICOM (0008,0033) = 162552.0705 or 230012, or 0012
00166   vtkSetStringMacro(ImageTime);
00167   vtkGetStringMacro(ImageTime);
00168
00169   // Description:
00170   // Image number
00171   // For ex: DICOM (0020,0013) = 1
00172   vtkSetStringMacro(ImageNumber);
00173   vtkGetStringMacro(ImageNumber);
00174
00175   // Description:
00176   // Series number
00177   // For ex: DICOM (0020,0011) = 902
00178   vtkSetStringMacro(SeriesNumber);
00179   vtkGetStringMacro(SeriesNumber);
00180
00181   // Description:
00182   // Series Description
00183   // User provided description of the Series
00184   // For ex: DICOM (0008,103e) = SCOUT
00185   vtkSetStringMacro(SeriesDescription);
00186   vtkGetStringMacro(SeriesDescription);
00187
00188   // Description:
00189   // Study ID
00190   // For ex: DICOM (0020,0010) = 37481
00191   vtkSetStringMacro(StudyID);
00192   vtkGetStringMacro(StudyID);
00193
00194   // Description:
00195   // Study description
00196   // For ex: DICOM (0008,1030) = BRAIN/C-SP/FACIAL
00197   vtkSetStringMacro(StudyDescription);
00198   vtkGetStringMacro(StudyDescription);
00199
00200   // Description:
00201   // Modality
00202   // For ex: DICOM (0008,0060)= CT
00203   vtkSetStringMacro(Modality);
00204   vtkGetStringMacro(Modality);
00205
00206   // Description:
00207   // Manufacturer
00208   // For ex: DICOM (0008,0070) = Siemens
00209   vtkSetStringMacro(Manufacturer);
00210   vtkGetStringMacro(Manufacturer);
00211
00212   // Description:
00213   // Manufacturer's Model Name
00214   // For ex: DICOM (0008,1090) = LightSpeed QX/i
00215   vtkSetStringMacro(ManufacturerModelName);
00216   vtkGetStringMacro(ManufacturerModelName);
00217
00218   // Description:
00219   // Station Name
00220   // For ex: DICOM (0008,1010) = LSPD_OC8
00221   vtkSetStringMacro(StationName);
```

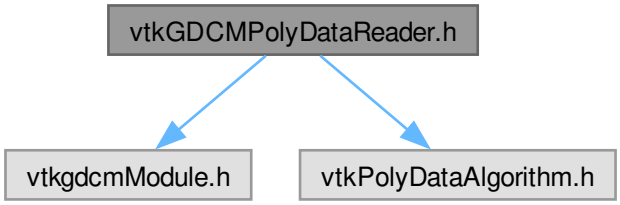
```
00222   vtkGetStringMacro(StationName);
00223
00224   // Description:
00225   // Institution Name
00226   // For ex: DICOM (0008,0080) = FooCity Medical Center
00227   vtkSetStringMacro(InstitutionName);
00228   vtkGetStringMacro(InstitutionName);
00229
00230   // Description:
00231   // Convolution Kernel (or algorithm used to reconstruct the data)
00232   // For ex: DICOM (0018,1210) = Bone
00233   vtkSetStringMacro(ConvolutionKernel);
00234   vtkGetStringMacro(ConvolutionKernel);
00235
00236   // Description:
00237   // Slice Thickness (Nominal reconstructed slice thickness, in mm)
00238   // For ex: DICOM (0018,0050) = 0.273438
00239   vtkSetStringMacro(SliceThickness);
00240   vtkGetStringMacro(SliceThickness);
00241   virtual double GetSliceThicknessAsDouble();
00242
00243   // Description:
00244   // Peak kilo voltage output of the (x-ray) generator used
00245   // For ex: DICOM (0018,0060) = 120
00246   vtkSetStringMacro(KVP);
00247   vtkGetStringMacro(KVP);
00248
00249   // Description:
00250   // Gantry/Detector tilt (Nominal angle of tilt in degrees of the scanning
00251   // gantry.)
00252   // For ex: DICOM (0018,1120) = 15
00253   vtkSetStringMacro(GantryTilt);
00254   vtkGetStringMacro(GantryTilt);
00255   virtual double GetGantryTiltAsDouble();
00256
00257   // Description:
00258   // Echo Time
00259   // (Time in ms between the middle of the excitation pulse and the peak of
00260   // the echo produced)
00261   // For ex: DICOM (0018,0081) = 105
00262   vtkSetStringMacro(EchoTime);
00263   vtkGetStringMacro(EchoTime);
00264
00265   // Description:
00266   // Echo Train Length
00267   // (Number of lines in k-space acquired per excitation per image)
00268   // For ex: DICOM (0018,0091) = 35
00269   vtkSetStringMacro(EchoTrainLength);
00270   vtkGetStringMacro(EchoTrainLength);
00271
00272   // Description:
00273   // Repetition Time
00274   // The period of time in msec between the beginning of a pulse sequence and
00275   // the beginning of the succeeding (essentially identical) pulse sequence.
00276   // For ex: DICOM (0018,0080) = 2040
00277   vtkSetStringMacro(RepetitionTime);
00278   vtkGetStringMacro(RepetitionTime);
00279
00280   // Description:
00281   // Exposure time (time of x-ray exposure in msec)
00282   // For ex: DICOM (0018,1150) = 5
00283   vtkSetStringMacro(ExposureTime);
00284   vtkGetStringMacro(ExposureTime);
00285
00286   // Description:
00287   // X-ray tube current (in mA)
00288   // For ex: DICOM (0018,1151) = 400
00289   vtkSetStringMacro(XRayTubeCurrent);
00290   vtkGetStringMacro(XRayTubeCurrent);
00291
00292   // Description:
00293   // Exposure (The exposure expressed in mAs, for example calculated
00294   // from Exposure Time and X-ray Tube Current)
00295   // For ex: DICOM (0018,1152) = 114
00296   vtkSetStringMacro(Exposure);
00297   vtkGetStringMacro(Exposure);
00298
00299   // Interface to allow insertion of user define values, for instance in DICOM one would want to
00300   // store the Protocol Name (0018,1030), in this case one would do:
00301   // AddUserDefinedValue( "Protocol Name", "T1W/SE/1024" );
00302   void AddUserDefinedValue(const char *name, const char *value);
```

```
00303   // Get a particular user value
00304   const char *GetUserDefinedValue(const char *name);
00305   // Get the number of user defined values
00306   unsigned int GetNumberOfUserDefinedValues();
00307   // Get a name/value by index
00308   const char *GetUserDefinedNameByIndex(unsigned int idx);
00309   const char *GetUserDefinedValueByIndex(unsigned int idx);
00310
00311   // Description:
00312   // Copy the contents of p to this instance.
00313   virtual void DeepCopy(vtkGDCMMedicalImageProperties *p);
00314
00315   // Description:
00316   // Add/Remove/Query the window/level presets that may have been associated
00317   // to a medical image. Window is also known as 'width', level is also known
00318   // as 'center'. The same window/level pair can not be added twice.
00319   // As a convenience, a comment (aka Explanation) can be associated to a preset.
00320   // For ex: DICOM Window Center (0028,1050) = 00045\000470
00321   //         DICOM Window Width  (0028,1051) = 0106\03412
00322   //         DICOM Window Center Width Explanation (0028,1055) = WINDOW1\WINDOW2
00323   virtual void AddWindowLevelPreset(double w, double l);
00324   virtual void RemoveWindowLevelPreset(double w, double l);
00325   virtual void RemoveAllWindowLevelPresets();
00326   virtual int GetNumberOfWindowLevelPresets();
00327   virtual int HasWindowLevelPreset(double w, double l);
00328   virtual int GetNthWindowLevelPreset(int idx, double *w, double *l);
00329   virtual double* GetNthWindowLevelPreset(int idx);
00330   virtual void SetNthWindowLevelPresetComment(int idx, const char *comment);
00331   virtual const char* GetNthWindowLevelPresetComment(int idx);
00332
00333   // Description:
00334   // Mapping from a sliceidx within a volumeidx into a DICOM Instance UID
00335   // Some DICOM reader can populate this structure so that later on from a slice index
00336   // in a vtkImageData volume we can backtrack and find out which 2d slice it was coming from
00337   const char *GetInstanceUIDFromSliceID(int volumeidx, int sliceid);
00338   void SetInstanceUIDFromSliceID(int volumeidx, int sliceid, const char *uid);
00339
00340   // Description:
00341   // Provides the inverse mapping. Returns -1 if a slice for this uid is
00342   // not found.
00343   int GetSliceIDFromInstanceUID(int &volumeidx, const char *uid);
00344
00345 //BTX
00346   typedef enum {
00347     AXIAL = 0,
00348     CORONAL,
00349     SAGITTAL
00350   } OrientationType;
00351 //ETX
00352   int GetOrientationType(int volumeidx);
00353   void SetOrientationType(int volumeidx, int orientation);
00354   static const char *GetStringFromOrientationType(unsigned int type);
00355 */
00356 protected:
00357   vtkGDCMMedicalImageProperties();
00358   ~vtkGDCMMedicalImageProperties();
00359
00360 //BTX
00361   friend class vtkGDCMImageReader;
00362   friend class vtkGDCMImageReader2;
00363   friend class vtkGDCMImageWriter;
00364   void PushBackFile(gdcm::File const &f);
00365   gdcm::File const & GetFile(unsigned int t);
00366 //ETX
00367
00368 private:
00369   vtkGDCMMedicalImagePropertiesInternals *Internals;
00370
00371   vtkGDCMMedicalImageProperties(const vtkGDCMMedicalImageProperties&); // Not implemented.
00372   void operator=(const vtkGDCMMedicalImageProperties&); // Not implemented.
00373 };
00374
00375 #endif
```

13.613 vtkGDCMPolyDataReader.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkPolyDataAlgorithm.h"
```

Include dependency graph for vtkGDCMPolyDataReader.h:



Classes

- class vtkGDCMPolyDataReader

Namespaces

- namespace gdcm

13.614 vtkGDCMPolyDataReader.h

Go to the documentation of this file.

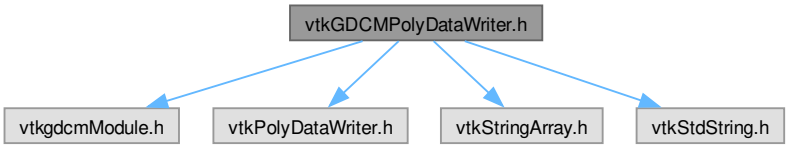
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMPolyDataReader - read DICOM PolyData files (Contour Data...)
00015 // .SECTION Description
00016 // For now only support RTSTRUCT (RT Structure Set Storage)
00017 // .SECTION TODO
00018 // Need to do the same job for DVH Sequence/DVH Data...
00019 // .SECTION Warning
00020 // When using vtkGDCMPolyDataReader in conjunction with vtkGDCMImageReader
00021 // it is *required* that FileLowerLeft is set to ON as coordinate system
00022 // would be inconsistent in between the two data structures.
00023 //
00024 // .SECTION See Also
```

```
00025 // vtkGDCMImageReader vtkGDCMPolyDataWriter vtkRTStructSetProperties
00026
00027
00028 #ifndef VTKGDCMPOLYDATAREADER_H
00029 #define VTKGDCMPOLYDATAREADER_H
00030
00031 #include "vtkgdcmModule.h"
00032 #include "vtkPolyDataAlgorithm.h"
00033
00034 class vtkMedicalImageProperties;
00035 class vtkRTStructSetProperties;
00036 //BTX
00037 namespace gdcm { class Reader; }
00038 //ETX
00039 class VTKGDCM_EXPORT vtkGDCMPolyDataReader : public vtkPolyDataAlgorithm
00040 {
00041 public:
00042   static vtkGDCMPolyDataReader *New();
00043   vtkTypeMacro(vtkGDCMPolyDataReader,vtkPolyDataAlgorithm);
00044   virtual void PrintSelf(ostream& os, vtkIndent indent);
00045
00046   // Description:
00047   // Set/Get the filename of the file to be read
00048   vtkSetStringMacro(FileName);
00049   vtkGetStringMacro(FileName);
00050
00051   // Description:
00052   // Get the medical image properties object
00053   vtkGetObjectMacro(MedicalImageProperties, vtkMedicalImageProperties);
00054
00055   vtkGetObjectMacro(RTStructSetProperties, vtkRTStructSetProperties);
00056
00057 protected:
00058   vtkGDCMPolyDataReader();
00059   ~vtkGDCMPolyDataReader();
00060
00061   char *FileName;
00062   vtkMedicalImageProperties *MedicalImageProperties;
00063   vtkRTStructSetProperties *RTStructSetProperties;
00064 //BTX
00065   void FillMedicalImageInformation(const gdcm::Reader &reader);
00066 //ETX
00067
00068   int RequestData(vtkInformation *, vtkInformationVector **, vtkInformationVector *);
00069   int RequestInformation(
00070     vtkInformation *vtkNotUsed(request),
00071     vtkInformationVector **vtkNotUsed(inputVector),
00072     vtkInformationVector *outputVector);
00073 //BTX
00074   int RequestInformation_RTStructureSetStorage(gdcm::Reader const & reader);
00075   int RequestData_RTStructureSetStorage(gdcm::Reader const &reader, vtkInformationVector *outputVector);
00076   int RequestInformation_HemodynamicWaveformStorage(gdcm::Reader const & reader);
00077   int RequestData_HemodynamicWaveformStorage(gdcm::Reader const &reader, vtkInformationVector
      *outputVector);
00078 //ETX
00079
00080 private:
00081   vtkGDCMPolyDataReader(const vtkGDCMPolyDataReader&);  // Not implemented.
00082   void operator=(const vtkGDCMPolyDataReader&);  // Not implemented.
00083 };
00084
00085 #endif
```

13.615 vtkGDCMPolyDataWriter.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkPolyDataWriter.h"
#include "vtkStringArray.h"
#include "vtkStdString.h"
```

Include dependency graph for vtkGDCMPolyDataWriter.h:



Classes

- class vtkGDCMPolyDataWriter

Namespaces

- namespace gdcm

13.616 vtkGDCMPolyDataWriter.h

Go to the documentation of this file.

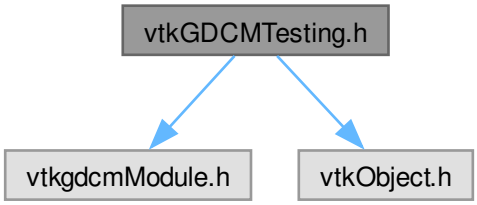
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMPolyDataWriter - writer DICOM PolyData files (Contour Data...)
00015 // .SECTION Description
00016 // For now only support RTSTRUCT (RT Structure Set Storage)
00017 // .SECTION TODO
00018 // Need to do the same job for DVH Sequence/DVH Data...
00019 // .SECTION Warning
00020 //
00021 // .SECTION See Also
00022 // vtkGDCMImageReader vtkGDCMPolyDataReader vtkRTStructSetProperties
00023
00024
00025 #ifndef VTKGDCMPOLYDATAWRITER_H
00026 #define VTKGDCMPOLYDATAWRITER_H
00027
00028 #include "vtkgdcmModule.h"
00029 #include "vtkPolyDataWriter.h"
00030 #include "vtkStringArray.h"
00031 #include "vtkStdString.h"
00032
00033
00034 class vtkMedicalImageProperties;
00035 class vtkRTStructSetProperties;
00036 //BTX
00037 namespace gdcm { class File; }
```

```
00038 //ETX
00039 class VTKGDCM_EXPORT vtkGDCMPolyDataWriter : public vtkPolyDataWriter
00040 {
00041 public:
00042   static vtkGDCMPolyDataWriter *New();
00043   vtkTypeMacro(vtkGDCMPolyDataWriter,vtkPolyDataWriter);
00044   virtual void PrintSelf(ostream& os, vtkIndent indent);
00045
00046   // Description:
00047   // Set/Get the filename of the file to be read
00048 //  vtkSetStringMacro(FileName);
00049 //  vtkGetStringMacro(FileName);
00050
00051   // Description:
00052   // Get the medical image properties object
00053 //  vtkGetObjectMacro(MedicalImageProperties, vtkMedicalImageProperties);
00054   virtual void SetMedicalImageProperties(vtkMedicalImageProperties *pd);
00055
00056   virtual void SetRTStructSetProperties(vtkRTStructSetProperties *pd);
00057
00058
00059   //this function will initialize the contained rtstructset with
00060   //the inputs of the writer and the various extra information
00061   //necessary for writing a complete rtstructset.
00062   //NOTE: inputs must be set BEFORE calling this function!
00063   //NOTE: the number of outputs for the appendpolydata MUST MATCH the ROI vectors!
00064   void InitializeRTStructSet(vtkStdString inDirectory,
00065      vtkStdString inStructLabel, vtkStdString inStructName,
00066      vtkStringArray* inROINames,
00067      vtkStringArray* inROIAlgorithmName,
00068      vtkStringArray* inROIType);
00069
00070   // make parent class public...
00071   void SetNumberOfInputPorts(int n);
00072
00073 protected:
00074   vtkGDCMPolyDataWriter();
00075   ~vtkGDCMPolyDataWriter();
00076
00077   vtkMedicalImageProperties *MedicalImageProperties;
00078   vtkRTStructSetProperties *RTStructSetProperties;
00079
00080   void WriteData();
00081 //BTX
00082   void WriteRTSTRUCTInfo(gdcm::File &file);
00083   void WriteRTSTRUCTData(gdcm::File &file, int num);
00084 //ETX
00085
00086 private:
00087   vtkGDCMPolyDataWriter(const vtkGDCMPolyDataWriter&);  // Not implemented.
00088   void operator=(const vtkGDCMPolyDataWriter&);  // Not implemented.
00089 };
00090
00091 #endif
```

13.617 vtkGDCMTesting.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkObject.h"
```

Include dependency graph for vtkGDCMTesting.h:



Classes

- class vtkGDCMTesting

13.618 vtkGDCMTesting.h

Go to the documentation of this file.

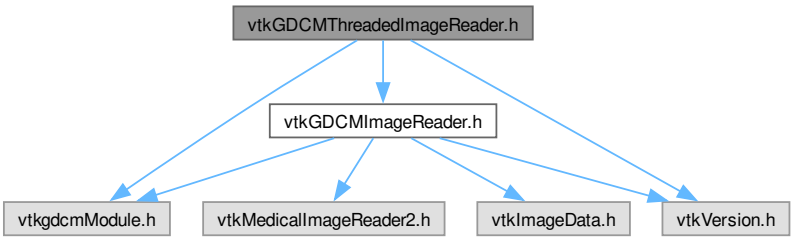
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMTesting - GDCM Testing
00015 // .SECTION Description
00016 // GDCM Testing
00017
00018 // .SECTION See Also
00019 // vtkTesting
00020
00021 #ifndef VTKGDCMTESTING_H
00022 #define VTKGDCMTESTING_H
00023
00024 #include "vtkgdcmModule.h"
00025 #include "vtkObject.h"
00026
00027 class VTKGDCM_EXPORT vtkGDCMTesting : public vtkObject
00028 {
00029 public:
00030   static vtkGDCMTesting *New();
00031   vtkTypeMacro(vtkGDCMTesting,vtkObject);
00032   void PrintSelf(ostream& os, vtkIndent indent);
00033
00034   static const char *GetVTKDataRoot();
00035   static const char *GetGDCMDataRoot();
00036
00037 //BTX
00038   typedef const char* const (*MD5MetaImagesType)[3];
00039   static const char * const * GetMD5MetaImage(unsigned int file);
```

```
00040 //ETX
00041   static unsigned int GetNumberOfMD5MetaImages();
00042
00043   static const char * GetMHDMD5FromFile(const char *filepath);
00044   static const char * GetRAWMD5FromFile(const char *filepath);
00045
00046 protected:
00047   vtkGDCMTesting();
00048   ~vtkGDCMTesting();
00049
00050 private:
00051   vtkGDCMTesting(const vtkGDCMTesting&);  // Not implemented.
00052   void operator=(const vtkGDCMTesting&);  // Not implemented.
00053 };
00054
00055 #endif
```

13.619 vtkGDCMThreadedImageReader.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkGDCMImageReader.h"
#include "vtkVersion.h"
```

Include dependency graph for vtkGDCMThreadedImageReader.h:



Classes

- class vtkGDCMThreadedImageReader

13.620 vtkGDCMThreadedImageReader.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
```

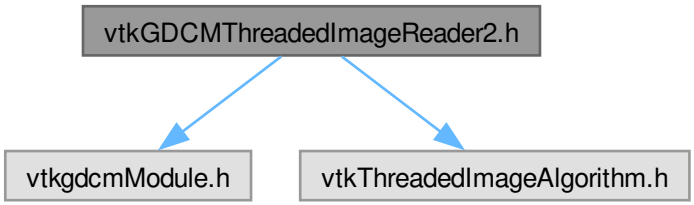
```
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMThreadedImageReader - read DICOM files with multiple threads
00015 // .SECTION Description
00016 // vtkGDCMThreadedImageReader is a source object that reads some DICOM files
00017 // This reader is threaded. Meaning that on a multiple core CPU with N cpu, it will
00018 // read approx N times faster than when reading in a single thread.
00019 //
00020 // .SECTION Warning: Advanced users only. Do not use this class in the general case,
00021 // you have to understand how physically medium works first (sequential reading for
00022 // instance) before playing with this class
00023 //
00024 // .SECTION Implementation note: when FileLowerLeft is set to on the image is not flipped
00025 // upside down as VTK would expect, use this option only if you know what you are doing
00026 //
00027 // .SECTION FIXME: need to implement the other mode where FileLowerLeft is set to OFF
00028 //
00029 // .SECTION FIXME: you need to call SetFileName when reading a volume file (multiple slices DICOM)
00030 // since SetFileNames expect each single file to be single slice (see parent class)
00031 //
00032 // .SECTION BUG: you should really consider using vtkGDCMThreadedImageReader2 instead !
00033 //
00034 // .SECTION See Also
00035 // vtkMedicalImageReader2 vtkMedicalImageProperties vtkGDCMThreadedImageReader2
00036
00037 #ifndef VTKGDCMTHREADEDIMAGEREADER_H
00038 #define VTKGDCMTHREADEDIMAGEREADER_H
00039
00040 #include "vtkgdcmModule.h"
00041 #include "vtkGDCMImageReader.h"
00042 #include "vtkVersion.h"
00043
00044 class VTKGDCM_EXPORT vtkGDCMThreadedImageReader : public vtkGDCMImageReader
00045 {
00046 public:
00047   static vtkGDCMThreadedImageReader *New();
00048   vtkTypeMacro(vtkGDCMThreadedImageReader,vtkGDCMImageReader);
00049   virtual void PrintSelf(ostream& os, vtkIndent indent);
00050
00051   // Description:
00052   // Explicitly set the Rescale Intercept (0028,1052)
00053   vtkSetMacro(Shift,double);
00054
00055   // Description:
00056   // Explicitly get/set the Rescale Slope (0028,1053)
00057   vtkSetMacro(Scale,double);
00058
00059   // Description:
00060   // Determine whether or not reader should use value from Shift/Scale
00061   // Default is 1
00062   vtkSetMacro(UseShiftScale,int);
00063   vtkGetMacro(UseShiftScale,int);
00064   vtkBooleanMacro(UseShiftScale,int);
00065
00066   // Within this class this is allowed to set the Number of Overlays from outside
00067   //vtkSetMacro(NumberOfOverlays,int);
00068
00069 protected:
00070   vtkGDCMThreadedImageReader();
00071   ~vtkGDCMThreadedImageReader();
00072
00073 #if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
00074   int RequestInformation(vtkInformation *request,
00075                          vtkInformationVector **inputVector,
00076                          vtkInformationVector *outputVector);
00077   int RequestData(vtkInformation *request,
00078                   vtkInformationVector **inputVector,
00079                   vtkInformationVector *outputVector);
00080 #else /*(VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )*/
00081   void ExecuteInformation();
00082   void ExecuteData(vtkDataObject *out);
00083 #endif /*(VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )*/
00084
00085   void ReadFiles(unsigned int nfiles, const char *filenames[]);
00086   void RequestDataCompat();
00087
00088 private:
00089   vtkGDCMThreadedImageReader(const vtkGDCMThreadedImageReader&);  // Not implemented.
00090   void operator=(const vtkGDCMThreadedImageReader&);  // Not implemented.
00091
00092   int UseShiftScale;
```

```
00093 };
00094
00095 #endif
```

13.621 vtkGDCMThreadedImageReader2.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkThreadedImageAlgorithm.h"
```

Include dependency graph for vtkGDCMThreadedImageReader2.h:



Classes

- class vtkGDCMThreadedImageReader2

13.622 vtkGDCMThreadedImageReader2.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMThreadedImageReader2 - read DICOM files with multiple threads
00015 // .SECTION Description
00016 // vtkGDCMThreadedImageReader2 is a source object that reads some DICOM files
00017 // This reader is threaded. Meaning that on a multiple core CPU with N cpu, it will
00018 // read approx N times faster than when reading in a single thread assuming the IO is
00019 // not a bottleneck operation.
00020 // If looking for a single threaded class see: vtkGDCMImageReader
00021 //
00022 // .SECTION Warning: Advanced users only. Do not use this class in the general case,
00023 // you have to understand how physically medium works first (sequential reading for
00024 // instance) before playing with this class
```

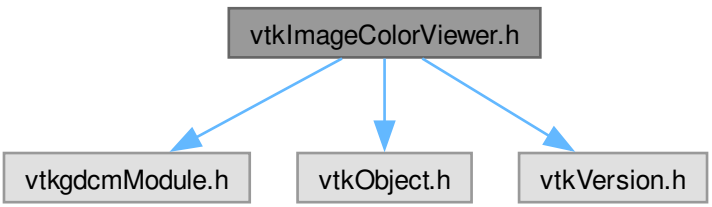
```
00025 //
00026 // .SECTION Implementation note: when FileLowerLeft is set to on the image is not flipped
00027 // upside down as VTK would expect, use this option only if you know what you are doing
00028 //
00029 // .SECTION FIXME: need to implement the other mode where FileLowerLeft is set to OFF
00030 //
00031 // .SECTION FIXME: need to implement reading of series of 3D files
00032 //
00033 // .SECTION Implementation note: this class is meant to supersede vtkGDCMThreadedImageReader
00034 // because it had support for ProgressEvent support even from python layer. There is a
00035 // subtle trick down in the threading mechanism in VTK were the main thread (talking to the
00036 // python interpreter) is also part of the execution process (and the N-1 other thread
00037 // are just there to execute the remaining of ThreadedRequestData), this separation into
00038 // two types of thread is necessary to achieve a working implementation of UpdateProgress
00039
00040 // .SECTION See Also
00041 // vtkMedicalImageReader2 vtkMedicalImageProperties vtkGDCMImageReader
00042
00043 #ifndef VTKGDCMTHREADEDIMAGEREADER2_H
00044 #define VTKGDCMTHREADEDIMAGEREADER2_H
00045
00046 #include "vtkgdcmModule.h"
00047 #include "vtkThreadedImageAlgorithm.h"
00048
00049 class vtkStringArray;
00050 class VTKGDCM_EXPORT vtkGDCMThreadedImageReader2 : public vtkThreadedImageAlgorithm
00051 {
00052 public:
00053   static vtkGDCMThreadedImageReader2 *New();
00054   vtkTypeMacro(vtkGDCMThreadedImageReader2,vtkThreadedImageAlgorithm);
00055   virtual void PrintSelf(ostream& os, vtkIndent indent);
00056
00057   vtkGetMacro(FileLowerLeft,int);
00058   vtkSetMacro(FileLowerLeft,int);
00059   vtkBooleanMacro(FileLowerLeft,int);
00060
00061   vtkGetMacro(NumberOfOverlays,int);
00062
00063   vtkSetMacro(DataScalarType,int);
00064   vtkGetMacro(DataScalarType,int);
00065
00066   vtkSetMacro(NumberOfScalarComponents,int);
00067   vtkGetMacro(NumberOfScalarComponents,int);
00068
00069   vtkGetMacro(LoadOverlays,int);
00070   vtkSetMacro(LoadOverlays,int);
00071   vtkBooleanMacro(LoadOverlays,int);
00072
00073   vtkSetVector6Macro(DataExtent,int);
00074   vtkGetVector6Macro(DataExtent,int);
00075
00076   vtkSetVector3Macro(DataOrigin,double);
00077   vtkGetVector3Macro(DataOrigin,double);
00078
00079   vtkSetVector3Macro(DataSpacing,double);
00080   vtkGetVector3Macro(DataSpacing,double);
00081
00082   //vtkGetStringMacro(FileName);
00083   //vtkSetStringMacro(FileName);
00084   virtual const char *GetFileName(int i = 0);
00085   virtual void SetFileName(const char *filename);
00086
00087   virtual void SetFileNames(vtkStringArray*);
00088   vtkGetObjectMacro(FileNames, vtkStringArray);
00089
00090   int SplitExtent(int splitExt[6], int startExt[6],
00091                   int num, int total);
00092
00093   // Description:
00094   // Explicitly set the Rescale Intercept (0028,1052)
00095   vtkSetMacro(Shift,double);
00096   vtkGetMacro(Shift,double);
00097
00098   // Description:
00099   // Explicitly get/set the Rescale Slope (0028,1053)
00100   vtkSetMacro(Scale,double);
00101   vtkGetMacro(Scale,double);
00102
00103   // Description:
00104   // Determine whether or not reader should use value from Shift/Scale
00105   // Default is 1
```

```
00106   vtkSetMacro(UseShiftScale,int);
00107   vtkGetMacro(UseShiftScale,int);
00108   vtkBooleanMacro(UseShiftScale,int);
00109
00110 protected:
00111   vtkGDCMThreadedImageReader2();
00112   ~vtkGDCMThreadedImageReader2();
00113
00114   int RequestInformation(vtkInformation *request,
00115                          vtkInformationVector **inputVector,
00116                          vtkInformationVector *outputVector);
00117
00118 protected:
00119   void ThreadedRequestData (
00120     vtkInformation * request,
00121     vtkInformationVector** inputVector,
00122     vtkInformationVector * outputVector,
00123     vtkImageData ***inData,
00124     vtkImageData **outData,
00125     int outExt[6], int id);
00126
00127 private:
00128   int FileLowerLeft;
00129   char *FileName;
00130   vtkStringArray *FileNames;
00131   int LoadIconImage;
00132   int DataExtent[6];
00133   int LoadOverlays;
00134   int NumberOfOverlays;
00135   int DataScalarType;
00136
00137   int NumberOfScalarComponents;
00138   double DataSpacing[3];
00139   double DataOrigin[3];
00140   int IconImageDataExtent[6];
00141
00142   double Shift;
00143   double Scale;
00144   int UseShiftScale;
00145
00146 private:
00147   vtkGDCMThreadedImageReader2(const vtkGDCMThreadedImageReader2&);  // Not implemented.
00148   void operator=(const vtkGDCMThreadedImageReader2&);  // Not implemented.
00149 };
00150
00151 #endif
```

13.623 vtkImageColorViewer.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkObject.h"
#include "vtkVersion.h"
```

Include dependency graph for vtkImageColorViewer.h:



Classes

- class vtkImageColorViewer

13.624 vtkImageColorViewer.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkImageColorViewer - Display a 2D image.
00015 // .SECTION Description
00016 // vtkImageColorViewer is a convenience class for displaying a 2D image.  It
00017 // packages up the functionality found in vtkRenderWindow, vtkRenderer,
00018 // vtkImageActor and vtkImageMapToWindowLevelColors into a single easy to use
00019 // class.  This class also creates an image interactor style
00020 // (vtkInteractorStyleImage) that allows zooming and panning of images, and
00021 // supports interactive window/level operations on the image. Note that
00022 // vtkImageColorViewer is simply a wrapper around these classes.
00023 //
00024 // vtkImageColorViewer uses the 3D rendering and texture mapping engine
00025 // to draw an image on a plane.  This allows for rapid rendering,
00026 // zooming, and panning. The image is placed in the 3D scene at a
00027 // depth based on the z-coordinate of the particular image slice. Each
00028 // call to SetSlice() changes the image data (slice) displayed AND
00029 // changes the depth of the displayed slice in the 3D scene. This can
00030 // be controlled by the AutoAdjustCameraClippingRange ivar of the
00031 // InteractorStyle member.
00032 //
00033 // It is possible to mix images and geometry, using the methods:
00034 //
00035 // viewer->SetInput( myImage );
00036 // viewer->GetRenderer()->AddActor( myActor );
00037 //
00038 // This can be used to annotate an image with a PolyData of "edges" or
00039 // or highlight sections of an image or display a 3D isosurface
00040 // with a slice from the volume, etc. Any portions of your geometry
00041 // that are in front of the displayed slice will be visible; any
00042 // portions of your geometry that are behind the displayed slice will
00043 // be obscured. A more general framework (with respect to viewing
00044 // direction) for achieving this effect is provided by the
00045 // vtkImagePlaneWidget .
00046 //
00047 // Note that pressing 'r' will reset the window/level and pressing
00048 // shift+'r' or control+'r' will reset the camera.
00049 //
00050 // .SECTION See Also
00051 // vtkRenderWindow vtkRenderer vtkImageActor vtkImageMapToWindowLevelColors
00052
00053 #ifndef VTKIMAGECOLORVIEWER_H
00054 #define VTKIMAGECOLORVIEWER_H
00055
00056 #include "vtkgdcmModule.h"
00057 #include "vtkObject.h"
00058 #include "vtkVersion.h"
00059
00060 class vtkAlgorithm;
00061 class vtkAlgorithmOutput;
00062 class vtkImageActor;
00063 class vtkImageData;
00064 class vtkImageMapToWindowLevelColors2;
00065 class vtkInformation;
00066 class vtkInteractorStyleImage;
```

```
00067 class vtkRenderWindow;
00068 class vtkRenderer;
00069 class vtkRenderWindowInteractor;
00070 class vtkPolyData;
00071
00072 class VTKGDCM_EXPORT vtkImageColorViewer : public vtkObject
00073 {
00074 public:
00075   static vtkImageColorViewer *New();
00076   vtkTypeMacro(vtkImageColorViewer,vtkObject);
00077   void PrintSelf(ostream& os, vtkIndent indent);
00078
00079   // Description:
00080   // Get the name of rendering window.
00081   virtual const char *GetWindowName();
00082
00083   // Description:
00084   // Render the resulting image.
00085   virtual void Render(void);
00086
00087   // Description:
00088   // Set/Get the input image to the viewer.
00089 #if (VTK_MAJOR_VERSION >= 6)
00090   virtual void SetInputData(vtkImageData *in);
00091 #else
00092   virtual void SetInput(vtkImageData *in);
00093 #endif
00094   virtual vtkImageData *GetInput();
00095   virtual void SetInputConnection(vtkAlgorithmOutput* input);
00096   virtual void AddInputConnection(vtkAlgorithmOutput* input);
00097   virtual void AddInput(vtkImageData * input);
00098   //virtual void AddInput(vtkPolyData * input);
00099
00100   double GetOverlayVisibility();
00101   void SetOverlayVisibility(double vis);
00102
00103   // Description:
00104   // Set/get the slice orientation
00105   //BTX
00106   enum
00107   {
00108     SLICE_ORIENTATION_YZ = 0,
00109     SLICE_ORIENTATION_XZ = 1,
00110     SLICE_ORIENTATION_XY = 2
00111   };
00112   //ETX
00113   vtkGetMacro(SliceOrientation, int);
00114   virtual void SetSliceOrientation(int orientation);
00115   virtual void SetSliceOrientationToXY()
00116     { this->SetSliceOrientation(vtkImageColorViewer::SLICE_ORIENTATION_XY); };
00117   virtual void SetSliceOrientationToYZ()
00118     { this->SetSliceOrientation(vtkImageColorViewer::SLICE_ORIENTATION_YZ); };
00119   virtual void SetSliceOrientationToXZ()
00120     { this->SetSliceOrientation(vtkImageColorViewer::SLICE_ORIENTATION_XZ); };
00121
00122   // Description:
00123   // Set/Get the current slice to display (depending on the orientation
00124   // this can be in X, Y or Z).
00125   vtkGetMacro(Slice, int);
00126   virtual void SetSlice(int s);
00127
00128   // Description:
00129   // Update the display extent manually so that the proper slice for the
00130   // given orientation is displayed. It will also try to set a
00131   // reasonable camera clipping range.
00132   // This method is called automatically when the Input is changed, but
00133   // most of the time the input of this class is likely to remain the same,
00134   // i.e. connected to the output of a filter, or an image reader. When the
00135   // input of this filter or reader itself is changed, an error message might
00136   // be displayed since the current display extent is probably outside
00137   // the new whole extent. Calling this method will ensure that the display
00138   // extent is reset properly.
00139   virtual void UpdateDisplayExtent();
00140
00141   // Description:
00142   // Return the minimum and maximum slice values (depending on the orientation
00143   // this can be in X, Y or Z).
00144   virtual int GetSliceMin();
00145   virtual int GetSliceMax();
00146   virtual void GetSliceRange(int range[2])
00147     { this->GetSliceRange(range[0], range[1]); }
```

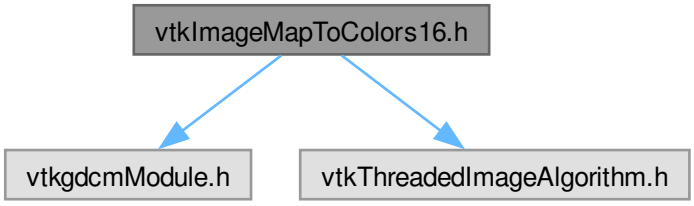
```
00148   virtual void GetSliceRange(int &min, int &max);
00149   virtual int* GetSliceRange();
00150
00151   // Description:
00152   // Set window and level for mapping pixels to colors.
00153   virtual double GetColorWindow();
00154   virtual double GetColorLevel();
00155   virtual void SetColorWindow(double s);
00156   virtual void SetColorLevel(double s);
00157
00158   // Description:
00159   // These are here when using a Tk window.
00160   virtual void SetDisplayId(void *a);
00161   virtual void SetWindowId(void *a);
00162   virtual void SetParentId(void *a);
00163
00164   // Description:
00165   // Set/Get the position in screen coordinates of the rendering window.
00166   virtual int* GetPosition();
00167   virtual void SetPosition(int a,int b);
00168   virtual void SetPosition(int a[2]) { this->SetPosition(a[0],a[1]); }
00169
00170   // Description:
00171   // Set/Get the size of the window in screen coordinates in pixels.
00172   virtual int* GetSize();
00173   virtual void SetSize(int a, int b);
00174   virtual void SetSize(int a[2]) { this->SetSize(a[0],a[1]); }
00175
00176   // Description:
00177   // Get the internal render window, renderer, image actor, and
00178   // image map instances.
00179   vtkGetObjectMacro(RenderWindow,vtkRenderWindow);
00180   vtkGetObjectMacro(Renderer, vtkRenderer);
00181   vtkGetObjectMacro(ImageActor,vtkImageActor);
00182   vtkGetObjectMacro(WindowLevel,vtkImageMapToWindowLevelColors2);
00183   vtkGetObjectMacro(InteractorStyle,vtkInteractorStyleImage);
00184
00185   // Description:
00186   // Set your own renderwindow and renderer
00187   virtual void SetRenderWindow(vtkRenderWindow *arg);
00188   virtual void SetRenderer(vtkRenderer *arg);
00189
00190   // Description:
00191   // Attach an interactor for the internal render window.
00192   virtual void SetupInteractor(vtkRenderWindowInteractor*);
00193
00194   // Description:
00195   // Create a window in memory instead of on the screen. This may not
00196   // be supported for every type of window and on some windows you may
00197   // need to invoke this prior to the first render.
00198   virtual void SetOffScreenRendering(int);
00199   virtual int GetOffScreenRendering();
00200   vtkBooleanMacro(OffScreenRendering,int);
00201
00202 protected:
00203   vtkImageColorViewer();
00204   ~vtkImageColorViewer();
00205
00206   virtual void InstallPipeline();
00207   virtual void UnInstallPipeline();
00208
00209   vtkImageMapToWindowLevelColors2  *WindowLevel;
00210   vtkRenderWindow                 *RenderWindow;
00211   vtkRenderer                     *Renderer;
00212   vtkImageActor                   *ImageActor;
00213   vtkImageActor                   *OverlayImageActor;
00214   vtkRenderWindowInteractor       *Interactor;
00215   vtkInteractorStyleImage         *InteractorStyle;
00216
00217   int SliceOrientation;
00218   int FirstRender;
00219   int Slice;
00220
00221   virtual void UpdateOrientation();
00222
00223 #if (VTK_MAJOR_VERSION >= 6)
00224   vtkAlgorithm* GetInputAlgorithm();
00225   vtkInformation* GetInputInformation();
00226 #endif
00227
00228   friend class vtkImageColorViewerCallback;
```

```
00229
00230 private:
00231   vtkImageColorViewer(const vtkImageColorViewer&);  // Not implemented.
00232   void operator=(const vtkImageColorViewer&);  // Not implemented.
00233 };
00234
00235 #endif
```

13.625 vtkImageMapToColors16.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkThreadedImageAlgorithm.h"
```

Include dependency graph for vtkImageMapToColors16.h:



Classes

- class vtkImageMapToColors16

13.626 vtkImageMapToColors16.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 /*=========================================================================
00015
00016   Portions of this file are subject to the VTK Toolkit Version 3 copyright.
00017
00018   Program:   Visualization Toolkit
00019   Module:    $RCSfile: vtkImageMapToColors16.h,v $
00020
```

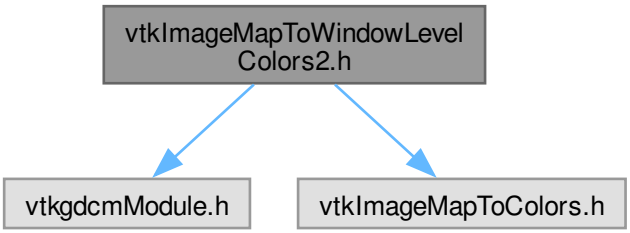
```
00021   Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
00022   All rights reserved.
00023   See Copyright.txt or http://www.kitware.com/Copyright.htm for details.
00024
00025      This software is distributed WITHOUT ANY WARRANTY; without even
00026      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00027      PURPOSE.  See the above copyright notice for more information.
00028
00029 =========================================================================*/
00030 // .NAME vtkImageMapToColors16 - map the input image through a lookup table
00031 // .SECTION Description
00032 // The vtkImageMapToColors16 filter will take an input image of any valid
00033 // scalar type, and map the first component of the image through a
00034 // lookup table.  The result is an image of type VTK_UNSIGNED_CHAR.
00035 // If the lookup table is not set, or is set to NULL, then the input
00036 // data will be passed through if it is already of type VTK_UNSIGNED_CHAR.
00037
00038 // .SECTION See Also
00039 // vtkLookupTable vtkScalarsToColors
00040
00041 #ifndef VTKIMAGEMAPTOCOLORS16_H
00042 #define VTKIMAGEMAPTOCOLORS16_H
00043
00044
00045 #include "vtkgdcmModule.h"
00046 #include "vtkThreadedImageAlgorithm.h"
00047
00048 class vtkScalarsToColors;
00049
00050 class VTKGDCM_EXPORT vtkImageMapToColors16 : public vtkThreadedImageAlgorithm
00051 {
00052 public:
00053   static vtkImageMapToColors16 *New();
00054   vtkTypeMacro(vtkImageMapToColors16,vtkThreadedImageAlgorithm);
00055   void PrintSelf(ostream& os, vtkIndent indent);
00056
00057   // Description:
00058   // Set the lookup table.
00059   virtual void SetLookupTable(vtkScalarsToColors*);
00060   vtkGetObjectMacro(LookupTable,vtkScalarsToColors);
00061
00062   // Description:
00063   // Set the output format, the default is RGBA.
00064   vtkSetMacro(OutputFormat,int);
00065   vtkGetMacro(OutputFormat,int);
00066   void SetOutputFormatToRGBA() { this->OutputFormat = VTK_RGBA; };
00067   void SetOutputFormatToRGB() { this->OutputFormat = VTK_RGB; };
00068   void SetOutputFormatToLuminanceAlpha() { this->OutputFormat = VTK_LUMINANCE_ALPHA; };
00069   void SetOutputFormatToLuminance() { this->OutputFormat = VTK_LUMINANCE; };
00070
00071   // Description:
00072   // Set the component to map for multi-component images (default: 0)
00073   vtkSetMacro(ActiveComponent,int);
00074   vtkGetMacro(ActiveComponent,int);
00075
00076   // Description:
00077   // Use the alpha component of the input when computing the alpha component
00078   // of the output (useful when converting monochrome+alpha data to RGBA)
00079   vtkSetMacro(PassAlphaToOutput,int);
00080   vtkBooleanMacro(PassAlphaToOutput,int);
00081   vtkGetMacro(PassAlphaToOutput,int);
00082
00083   // Description:
00084   // We need to check the modified time of the lookup table too.
00085 #ifdef VTK_HAS_MTIME_TYPE
00086   virtual vtkMTimeType GetMTime();
00087 #else
00088   virtual unsigned long GetMTime();
00089 #endif
00090
00091 protected:
00092   vtkImageMapToColors16();
00093   ~vtkImageMapToColors16();
00094
00095   virtual int RequestInformation (vtkInformation *, vtkInformationVector **, vtkInformationVector *);
00096
00097   void ThreadedRequestData(vtkInformation *request,
00098                            vtkInformationVector **inputVector,
00099                            vtkInformationVector *outputVector,
00100                            vtkImageData ***inData, vtkImageData **outData,
00101                            int extent[6], int id);
```

```
00102
00103   virtual int RequestData(vtkInformation *request,
00104                           vtkInformationVector **inputVector,
00105                           vtkInformationVector *outputVector);
00106
00107   vtkScalarsToColors *LookupTable;
00108   int OutputFormat;
00109
00110   int ActiveComponent;
00111   int PassAlphaToOutput;
00112
00113   int DataWasPassed;
00114 private:
00115   vtkImageMapToColors16(const vtkImageMapToColors16&);  // Not implemented.
00116   void operator=(const vtkImageMapToColors16&);  // Not implemented.
00117 };
00118
00119 #endif
```

13.627 vtkImageMapToWindowLevelColors2.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkImageMapToColors.h"
```

Include dependency graph for vtkImageMapToWindowLevelColors2.h:



Classes

- class vtkImageMapToWindowLevelColors2

13.628 vtkImageMapToWindowLevelColors2.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
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00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
```

```
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 /*=========================================================================
00015
00016   Portions of this file are subject to the VTK Toolkit Version 3 copyright.
00017
00018   Program:   Visualization Toolkit
00019   Module:    $RCSfile: vtkImageMapToWindowLevelColors2.h,v $
00020
00021   Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
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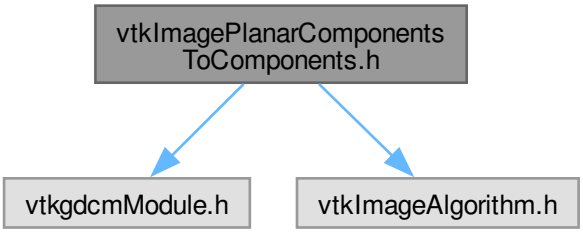
00024
00025      This software is distributed WITHOUT ANY WARRANTY; without even
00026      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00027      PURPOSE.  See the above copyright notice for more information.
00028
00029 =========================================================================*/
00030 // .NAME vtkImageMapToWindowLevelColors2 - map the input image through a lookup table and window / level
     it
00031 // .SECTION Description
00032 // The vtkImageMapToWindowLevelColors2 filter will take an input image of any
00033 // valid scalar type, and map the first component of the image through a
00034 // lookup table.  This resulting color will be modulated with value obtained
00035 // by a window / level operation. The result is an image of type
00036 // VTK_UNSIGNED_CHAR. If the lookup table is not set, or is set to NULL, then
00037 // the input data will be passed through if it is already of type
00038 // UNSIGNED_CHAR.
00039 //
00040 // .SECTION See Also
00041 // vtkLookupTable vtkScalarsToColors
00042
00043 #ifndef VTKIMAGEMAPTOWINDOWLEVELCOLORS2_H
00044 #define VTKIMAGEMAPTOWINDOWLEVELCOLORS2_H
00045
00046 #include "vtkgdcmModule.h"
00047 #include "vtkImageMapToColors.h"
00048
00049 class VTKGDCM_EXPORT vtkImageMapToWindowLevelColors2 : public vtkImageMapToColors
00050 {
00051 public:
00052   static vtkImageMapToWindowLevelColors2 *New();
00053   vtkTypeMacro(vtkImageMapToWindowLevelColors2,vtkImageMapToColors);
00054   void PrintSelf(ostream& os, vtkIndent indent);
00055
00056   // Description:
00057   // Set / Get the Window to use -> modulation will be performed on the
00058   // color based on (S - (L - W/2))/W where S is the scalar value, L is
00059   // the level and W is the window.
00060   vtkSetMacro( Window, double );
00061   vtkGetMacro( Window, double );
00062
00063   // Description:
00064   // Set / Get the Level to use -> modulation will be performed on the
00065   // color based on (S - (L - W/2))/W where S is the scalar value, L is
00066   // the level and W is the window.
00067   vtkSetMacro( Level, double );
00068   vtkGetMacro( Level, double );
00069
00070 protected:
00071   vtkImageMapToWindowLevelColors2();
00072   ~vtkImageMapToWindowLevelColors2();
00073
00074   virtual int RequestInformation (vtkInformation *, vtkInformationVector **, vtkInformationVector *);
00075   void ThreadedRequestData(vtkInformation *request,
00076                            vtkInformationVector **inputVector,
00077                            vtkInformationVector *outputVector,
00078                            vtkImageData ***inData, vtkImageData **outData,
00079                            int extent[6], int id);
00080   virtual int RequestData(vtkInformation *request,
00081                           vtkInformationVector **inputVector,
00082                           vtkInformationVector *outputVector);
00083
00084   double Window;
00085   double Level;
00086
00087 private:
00088   vtkImageMapToWindowLevelColors2(const vtkImageMapToWindowLevelColors2&);  // Not implemented.
```

```
00089   void operator=(const vtkImageMapToWindowLevelColors2&);  // Not implemented.
00090 };
00091
00092 #endif
```

13.629 vtkImagePlanarComponentsToComponents.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkImageAlgorithm.h"
```

Include dependency graph for vtkImagePlanarComponentsToComponents.h:



Classes

- class vtkImagePlanarComponentsToComponents

13.630 vtkImagePlanarComponentsToComponents.h

Go to the documentation of this file.

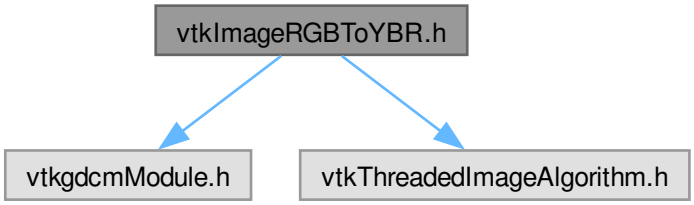
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 /*=========================================================================
00015
00016   Portions of this file are subject to the VTK Toolkit Version 3 copyright.
00017
00018   Program:   Visualization Toolkit
00019   Module:    $RCSfile: vtkImagePlanarComponentsToComponents.h,v $
00020
00021   Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
00022   All rights reserved.
```

```
00023   See Copyright.txt or http://www.kitware.com/Copyright.htm for details.
00024
00025      This software is distributed WITHOUT ANY WARRANTY; without even
00026      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00027      PURPOSE.  See the above copyright notice for more information.
00028
00029 =========================================================================*/
00030 // .NAME vtkImagePlanarComponentsToComponents - Converts planar comp to pixel comp
00031 // .SECTION Description
00032
00033 // .SECTION See Also
00034 // TODO: Can I make this filter threaded ?
00035 // TODO: How do I handle the VTK-flipping (FileLowerLeft)?
00036
00037 #ifndef VTKIMAGEPLANARCOMPONENTSTOCOMPONENTS_H
00038 #define VTKIMAGEPLANARCOMPONENTSTOCOMPONENTS_H
00039
00040 #include "vtkgdcmModule.h"
00041 #include "vtkImageAlgorithm.h"
00042
00043 // everything is now handled within the vtkGDCMImageReader as Planar Configuration can not
00044 // be externalized (conflict with file lower left)
00045
00046 #error do not use this class
00047
00048 //class VTKGDCM_EXPORT vtkImagePlanarComponentsToComponents : public vtkThreadedImageAlgorithm
00049 class VTKGDCM_EXPORT vtkImagePlanarComponentsToComponents : public vtkImageAlgorithm
00050 {
00051 public:
00052   static vtkImagePlanarComponentsToComponents *New();
00053   //vtkTypeMacro(vtkImagePlanarComponentsToComponents,vtkThreadedImageAlgorithm);
00054   vtkTypeMacro(vtkImagePlanarComponentsToComponents,vtkImageAlgorithm);
00055
00056   void PrintSelf(ostream& os, vtkIndent indent);
00057
00058 protected:
00059   vtkImagePlanarComponentsToComponents();
00060   ~vtkImagePlanarComponentsToComponents() {};
00061
00062 //  void ThreadedExecute (vtkImageData *inData, vtkImageData *outData,
00063 //                        int ext[6], int id);
00064 //  virtual int RequestInformation (vtkInformation *, vtkInformationVector**, vtkInformationVector *);
00065   virtual int RequestData(vtkInformation *, vtkInformationVector **, vtkInformationVector *);
00066
00067 private:
00068   vtkImagePlanarComponentsToComponents(const vtkImagePlanarComponentsToComponents&);  // Not implemented.
00069   void operator=(const vtkImagePlanarComponentsToComponents&);  // Not implemented.
00070 };
00071
00072 #endif
```

13.631 vtkImageRGBToYBR.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkThreadedImageAlgorithm.h"
```

Include dependency graph for vtkImageRGBToYBR.h:



Classes

- class vtkImageRGBToYBR

13.632 vtkImageRGBToYBR.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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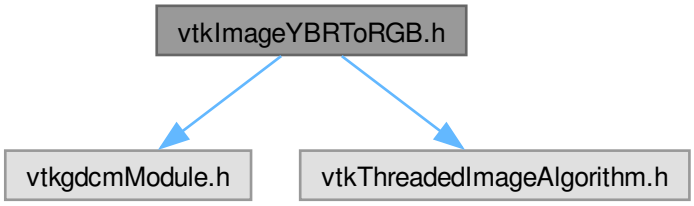
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 /*=========================================================================
00015
00016   Portions of this file are subject to the VTK Toolkit Version 3 copyright.
00017
00018   Program:   Visualization Toolkit
00019   Module:    $RCSfile: vtkImageRGBToYBR.h,v $
00020
00021   Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
00022   All rights reserved.
00023   See Copyright.txt or http://www.kitware.com/Copyright.htm for details.
00024
00025      This software is distributed WITHOUT ANY WARRANTY; without even
00026      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00027      PURPOSE.  See the above copyright notice for more information.
00028
00029 =========================================================================*/
00030 // .NAME vtkImageRGBToYBR - Converts YBR components to RGB.
00031 // .SECTION Description
00032 // For each pixel with hue, saturation and value components this filter
00033 // outputs the color coded as red, green, blue.  Output type must be the same
00034 // as input type.
00035
00036 // .SECTION See Also
00037 // vtkImageRGBToHSV
00038
00039 #ifndef VTKIMAGERGBTOYBR_H
```

```
00040 #define VTKIMAGERGBTOYBR_H
00041
00042 #include "vtkgdcmModule.h"
00043 #include "vtkThreadedImageAlgorithm.h"
00044
00045 class VTKGDCM_EXPORT vtkImageRGBToYBR : public vtkThreadedImageAlgorithm
00046 {
00047 public:
00048   static vtkImageRGBToYBR *New();
00049   vtkTypeMacro(vtkImageRGBToYBR,vtkThreadedImageAlgorithm);
00050
00051   void PrintSelf(ostream& os, vtkIndent indent);
00052
00053 protected:
00054   vtkImageRGBToYBR();
00055   ~vtkImageRGBToYBR() {};
00056
00057   void ThreadedExecute (vtkImageData *inData, vtkImageData *outData,
00058                         int ext[6], int id);
00059 private:
00060   vtkImageRGBToYBR(const vtkImageRGBToYBR&);  // Not implemented.
00061   void operator=(const vtkImageRGBToYBR&);  // Not implemented.
00062 };
00063
00064 #endif
```

13.633 vtkImageYBRToRGB.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkThreadedImageAlgorithm.h"
```

Include dependency graph for vtkImageYBRToRGB.h:



Classes

- class vtkImageYBRToRGB

13.634 vtkImageYBRToRGB.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
```

```
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 /*=========================================================================
00015
00016   Portions of this file are subject to the VTK Toolkit Version 3 copyright.
00017
00018   Program:   Visualization Toolkit
00019   Module:    $RCSfile: vtkImageYBRToRGB.h,v $
00020
00021   Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
00022   All rights reserved.
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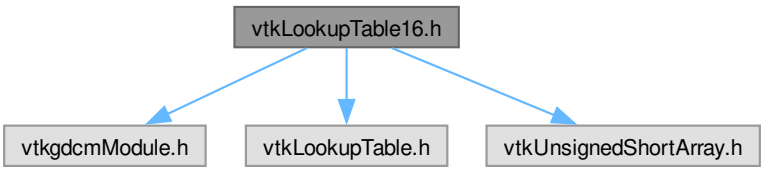
00024
00025      This software is distributed WITHOUT ANY WARRANTY; without even
00026      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00027      PURPOSE.  See the above copyright notice for more information.
00028
00029 =========================================================================*/
00030 // .NAME vtkImageYBRToRGB - Converts YBR components to RGB.
00031 // .SECTION Description
00032 // For each pixel with hue, saturation and value components this filter
00033 // outputs the color coded as red, green, blue.  Output type must be the same
00034 // as input type.
00035
00036 // .SECTION See Also
00037 // vtkImageRGBToHSV
00038
00039 #ifndef VTKIMAGEYBRTORGB_H
00040 #define VTKIMAGEYBRTORGB_H
00041
00042 #include "vtkgdcmModule.h"
00043 #include "vtkThreadedImageAlgorithm.h"
00044
00045 class VTKGDCM_EXPORT vtkImageYBRToRGB : public vtkThreadedImageAlgorithm
00046 {
00047 public:
00048   static vtkImageYBRToRGB *New();
00049   vtkTypeMacro(vtkImageYBRToRGB,vtkThreadedImageAlgorithm);
00050
00051   void PrintSelf(ostream& os, vtkIndent indent);
00052
00053 protected:
00054   vtkImageYBRToRGB();
00055   ~vtkImageYBRToRGB() {};
00056
00057   void ThreadedExecute (vtkImageData *inData, vtkImageData *outData,
00058                         int ext[6], int id);
00059 private:
00060   vtkImageYBRToRGB(const vtkImageYBRToRGB&);  // Not implemented.
00061   void operator=(const vtkImageYBRToRGB&);  // Not implemented.
00062 };
00063
00064 #endif
```

13.635 vtkLookupTable16.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkLookupTable.h"
#include "vtkUnsignedShortArray.h"
```

Include dependency graph for vtkLookupTable16.h:



Classes

- class vtkLookupTable16

13.636 vtkLookupTable16.h

Go to the documentation of this file.

```
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00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 /*=========================================================================
00015
00016   Portions of this file are subject to the VTK Toolkit Version 3 copyright.
00017
00018   Program:   Visualization Toolkit
00019   Module:    $RCSfile: vtkLookupTable16.h,v $
00020
00021   Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
00022   All rights reserved.
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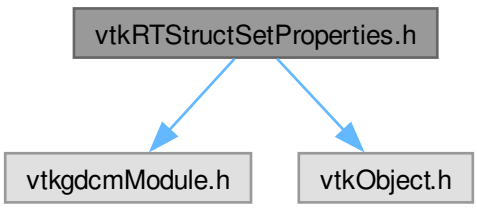
00024
00025      This software is distributed WITHOUT ANY WARRANTY; without even
00026      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00027      PURPOSE.  See the above copyright notice for more information.
00028
00029 =========================================================================*/
00030 // .NAME vtkLookupTable16 -
00031 // .SECTION Description
00032 //
00033 // .SECTION Caveats
00034 //
00035 // .SECTION See Also
00036 // vtkLookupTable
00037
00038 #ifndef VTKLOOKUPTABLE16_H
00039 #define VTKLOOKUPTABLE16_H
00040
00041 #include "vtkgdcmModule.h"
00042 #include "vtkLookupTable.h"
00043 #include "vtkUnsignedShortArray.h"
```

```
00044
00045 class VTKGDCM_EXPORT vtkLookupTable16 : public vtkLookupTable
00046 {
00047 public:
00048   static vtkLookupTable16 *New();
00049
00050   vtkTypeMacro(vtkLookupTable16,vtkLookupTable);
00051   void PrintSelf(ostream& os, vtkIndent indent);
00052
00053   void Build();
00054
00055   void SetNumberOfTableValues(vtkIdType number);
00056
00057   unsigned char *WritePointer(const vtkIdType id, const int number);
00058
00059   unsigned short *GetPointer(const vtkIdType id) {
00060     return this->Table16->GetPointer(4*id); };
00061
00062 protected:
00063   vtkLookupTable16(int sze=256, int ext=256);
00064   ~vtkLookupTable16();
00065
00066   vtkUnsignedShortArray *Table16;
00067
00068 void MapScalarsThroughTable2(void *input,
00069                                            unsigned char *output,
00070                                            int inputDataType,
00071                                            int numberOfValues,
00072                                            int inputIncrement,
00073                                            int outputFormat);
00074
00075 private:
00076   vtkLookupTable16(const vtkLookupTable16&);  // Not implemented.
00077   void operator=(const vtkLookupTable16&);  // Not implemented.
00078 };
00079
00080 //----------------------------------------------------------------------------
00081 inline unsigned char *vtkLookupTable16::WritePointer(const vtkIdType id,
00082                                                      const int number)
00083 {
00084   //this->InsertTime.Modified();
00085   return (unsigned char*)this->Table16->WritePointer(4*id,4*number);
00086 }
00087
00088 #endif
```

13.637 vtkRTStructSetProperties.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkObject.h"
```

Include dependency graph for vtkRTStructSetProperties.h:



Classes

- class vtkRTStructSetProperties

13.638 vtkRTStructSetProperties.h

Go to the documentation of this file.

```
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00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
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00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkRTStructSetProperties - some rtstruct properties.
00015 // .SECTION Description
00016 //
00017 // .SECTION See Also
00018 // vtkGDCMPolyDataReader vtkGDCMPolyDataWriter
00019
00020 #ifndef VTKRTSTRUCTSETPROPERTIES_H
00021 #define VTKRTSTRUCTSETPROPERTIES_H
00022
00023 #include "vtkgdcmModule.h"
00024 #include "vtkObject.h"
00025
00026 class vtkRTStructSetPropertiesInternals;
00027
00028 class VTKGDCM_EXPORT vtkRTStructSetProperties : public vtkObject
00029 {
00030 public:
00031   static vtkRTStructSetProperties *New();
00032   vtkTypeMacro(vtkRTStructSetProperties,vtkObject);
00033   void PrintSelf(ostream& os, vtkIndent indent);
00034
00035   // Description:
00036   // Convenience method to reset all fields to an empty string/value
00037   virtual void Clear();
00038
00039   // Description:
00040   //
00041   vtkSetStringMacro(StructureSetLabel);
00042   vtkGetStringMacro(StructureSetLabel);
00043
00044   vtkSetStringMacro(StructureSetName);
00045   vtkGetStringMacro(StructureSetName);
00046
00047   vtkSetStringMacro(StructureSetDate);
00048   vtkGetStringMacro(StructureSetDate);
00049
00050   vtkSetStringMacro(StructureSetTime);
00051   vtkGetStringMacro(StructureSetTime);
00052
00053   vtkSetStringMacro(SOPInstanceUID);
00054   vtkGetStringMacro(SOPInstanceUID);
00055
00056   vtkSetStringMacro(StudyInstanceUID);
00057   vtkGetStringMacro(StudyInstanceUID);
00058
00059   vtkSetStringMacro(SeriesInstanceUID);
00060   vtkGetStringMacro(SeriesInstanceUID);
00061
00062   vtkSetStringMacro(ReferenceSeriesInstanceUID);
00063   vtkGetStringMacro(ReferenceSeriesInstanceUID);
00064
00065   vtkSetStringMacro(ReferenceFrameOfReferenceUID);
00066   vtkGetStringMacro(ReferenceFrameOfReferenceUID);
```

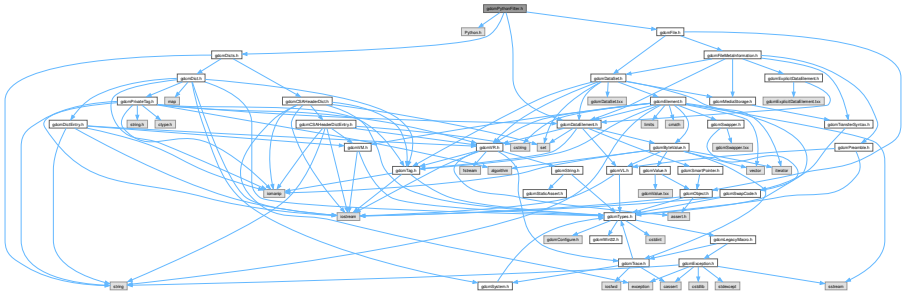
```
00067
00068   // Description:
00069   // Copy the contents of p to this instance.
00070   virtual void DeepCopy(vtkRTStructSetProperties *p);
00071
00072   void AddContourReferencedFrameOfReference( vtkIdType pdnum, const char *classuid , const char *
     instanceuid );
00073   const char *GetContourReferencedFrameOfReferenceClassUID( vtkIdType pdnum, vtkIdType id );
00074   const char *GetContourReferencedFrameOfReferenceInstanceUID( vtkIdType pdnum, vtkIdType id );
00075   vtkIdType GetNumberOfContourReferencedFrameOfReferences();
00076   vtkIdType GetNumberOfContourReferencedFrameOfReferences(vtkIdType pdnum);
00077
00078   void AddReferencedFrameOfReference( const char *classuid , const char * instanceuid );
00079   const char *GetReferencedFrameOfReferenceClassUID( vtkIdType id );
00080   const char *GetReferencedFrameOfReferenceInstanceUID( vtkIdType id );
00081   vtkIdType GetNumberOfReferencedFrameOfReferences();
00082
00083   void AddStructureSetROI( int roinumber,
00084     const char* reframerefuid,
00085     const char* roiname,
00086     const char* ROIGenerationAlgorithm,
00087     const char* ROIDescription = 0
00088   );
00089   void AddStructureSetROIObservation( int refnumber,
00090     int observationnumber,
00091     const char *rtroiinterpretedtype,
00092     const char *roiinterpreter,
00093     const char *roiobservationlabel = 0
00094   );
00095
00096   vtkIdType GetNumberOfStructureSetROIs();
00097   int GetStructureSetObservationNumber(vtkIdType id);
00098   int GetStructureSetROINumber(vtkIdType id);
00099   const char *GetStructureSetROIRefFrameRefUID(vtkIdType);
00100   const char *GetStructureSetROIName(vtkIdType);
00101   const char *GetStructureSetROIGenerationAlgorithm(vtkIdType);
00102   const char *GetStructureSetROIDescription(vtkIdType id);
00103   const char *GetStructureSetRTROIInterpretedType(vtkIdType id);
00104   const char *GetStructureSetROIObservationLabel(vtkIdType id);
00105
00106 protected:
00107   vtkRTStructSetProperties();
00108   ~vtkRTStructSetProperties();
00109
00110   char *StructureSetLabel;
00111   char *StructureSetName;
00112   char *StructureSetDate;
00113   char *StructureSetTime;
00114
00115   char *SOPInstanceUID;
00116   char *StudyInstanceUID;
00117   char *SeriesInstanceUID;
00118
00119   char *ReferenceSeriesInstanceUID;
00120   char *ReferenceFrameOfReferenceUID;
00121
00122   // Description:
00123   // PIMPL Encapsulation for STL containers
00124   //BTX
00125   vtkRTStructSetPropertiesInternals *Internals;
00126   //ETX
00127
00128 private:
00129   vtkRTStructSetProperties(const vtkRTStructSetProperties&); // Not implemented.
00130   void operator=(const vtkRTStructSetProperties&); // Not implemented.
00131 };
00132
00133 #endif
```

13.639 gdcmPythonFilter.h File Reference

```
#include <Python.h>
#include "gdcmDataElement.h"
#include "gdcmDicts.h"
```

```
#include "gdcmFile.h"
```

Include dependency graph for gdcmPythonFilter.h:



Classes

- class gdcm::PythonFilter

  PythonFilter PythonFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language.

Namespaces

- namespace gdcm

13.640 gdcmPythonFilter.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
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00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPYTHONFILTER_H
00015 #define GDCMPYTHONFILTER_H
00016
00017 #include <Python.h>
00018
00019 #include "gdcmDataElement.h"
00020 #include "gdcmDicts.h"
00021 #include "gdcmFile.h"
00022
00023 namespace gdcm
00024 {
00025
00031 class GDCM_EXPORT PythonFilter
00032 {
00033 public:
00034   PythonFilter();
00035   ~PythonFilter();
00036
```

```
00037   void UseDictAlways(bool ) {}
00038
00039   // Allow user to pass in there own dicts
00040   void SetDicts(const Dicts &dicts);
00041
00042   // Convert to string the ByteValue contained in a DataElement
00043   PyObject *ToPyObject(const Tag& t) const;
00044
00045   void SetFile(const File& f);
00046   File &GetFile();
00047   const File &GetFile() const;
00048
00049 private:
00050   SmartPointer<File> F;
00051 };
00052
00053 } // end namespace gdcm
00054
00055 #endif //GDCMPYTHONFILTER_H
```

Chapter 14

Examples

14.1 TestByteSwap.cxx

This is a C++ example on how to use gdcm::ByteSwap

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmTypes.h"
#include "gdcmSwapCode.h"
#include "gdcmByteSwap.h"

#include <cstring> // memcpy

int myfunc()
{
  char vl_str[4];
  const char raw[] = "\000\000\000\004";
  memcpy(vl_str, raw, 4);
  uint32_t vl;
  memcpy(&vl, vl_str, 4);
  gdcm::ByteSwap<uint32_t>::SwapRangeFromSwapCodeIntoSystem(&vl, gdcm::SwapCode::BigEndian, 1);
  if( vl != 0x00000004 )
    {
    std::cerr « std::hex « "vl: " « vl « std::endl;
    return 1;
    }

  gdcm::ByteSwap<uint32_t>::SwapFromSwapCodeIntoSystem(vl, gdcm::SwapCode::LittleEndian);
  if( vl != 0x00000004 )
    {
    std::cerr « std::hex « "vl: " « vl « std::endl;
    return 1;
    }

  gdcm::ByteSwap<uint32_t>::SwapFromSwapCodeIntoSystem(vl, gdcm::SwapCode::BigEndian);
  if( vl != 0x4000000 )
    {
    std::cerr « std::hex « "vl: " « vl « std::endl;
    return 1;
    }

  return 0;
```

```
}

int TestByteSwap(int , char *[])
{
  gdcm::SwapCode sc = gdcm::SwapCode::Unknown;
  if ( gdcm::ByteSwap<uint16_t>::SystemIsBigEndian() )
    {
    sc = gdcm::SwapCode::BigEndian;
    }
  else if ( gdcm::ByteSwap<uint16_t>::SystemIsLittleEndian() )
    {
    sc = gdcm::SwapCode::LittleEndian;
    }
  if( sc == gdcm::SwapCode::Unknown )
    {
    std::cerr << "unk" << std::endl;
    return 1;
    }

  //std::cout << "sc: " << sc << std::endl;

  uint16_t t = 0x1234;
  gdcm::ByteSwap<uint16_t>::SwapFromSwapCodeIntoSystem(t, sc);
  if( sc == gdcm::SwapCode::BigEndian )
    {
    if( t != 0x3412 )
      {
      std::cerr << std::hex << "t: " << t << std::endl;
      return 1;
      }
    // ok test pass rest value to old one
    t = 0x1234;
    }
  else if ( sc == gdcm::SwapCode::LittleEndian )
    {
    if( t != 0x1234 )
      {
      std::cerr << std::hex << "t: " << t << std::endl;
      return 1;
      }
    }

  union { char n[2]; uint16_t tn; } u16;
  memcpy(u16.n, &t, 2 );
  gdcm::ByteSwap<uint16_t>::SwapRangeFromSwapCodeIntoSystem(&u16.tn, sc, 1);
  uint16_t tn = u16.tn;
  if( sc == gdcm::SwapCode::BigEndian )
    {
    if( tn != 0x3412 )
      {
      std::cerr << std::hex << "tn: " << tn << std::endl;
      return 1;
      }
    // ok test pass rest value to old one
    t = 0x1234;
    }
  else if ( sc == gdcm::SwapCode::LittleEndian )
    {
    if( tn != 0x1234 )
      {
      std::cerr << std::hex << "tn: " << tn << std::endl;
      return 1;
      }
    }
  gdcm::ByteSwap<uint16_t>::SwapRangeFromSwapCodeIntoSystem(&u16.tn, gdcm::SwapCode::BigEndian, 1);
  tn = u16.tn;
  if( sc == gdcm::SwapCode::LittleEndian )
    {
    if( tn != 0x3412 )
      {
      std::cerr << std::hex << "tn: " << tn << std::endl;
      return 1;
      }
    }
  else if ( sc == gdcm::SwapCode::BigEndian )
    {
    if( tn != 0x1234 )
      {
      std::cerr << std::hex << "tn: " << tn << std::endl;
      return 1;
      }
```

```
    }

  if( myfunc() )
    {
    return 1;
    }

  uint16_t array[] = { 0x1234 };
  gdcm::ByteSwap<uint16_t>::SwapRangeFromSwapCodeIntoSystem(array,
    gdcm::SwapCode::BigEndian,1);
   if ( array[0] != 0x3412 )
     {
     std::cerr « std::hex « "array: " « array[0] « std::endl;
     return 1;
     }

  return 0;
}
```

14.2 PatchFile.cxx

This is a C++ example on how to use gdcm::Attribute

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * The image was a broken file where the Pixel Data element was 8 times too big
 * Apparently multiplying the BitsAllocated to 4 and multiplying the number of
 * frames by 2 would solve the problem
 *
 * This C++ code can be used to patch the header.
 */

#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmWriter.h"
#include "gdcmDataSet.h"
#include "gdcmAttribute.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    return 1;
    }
  const char *f = argv[1];
  const char *out = argv[2];
  gdcm::Reader r;
  r.SetFileName( f );
  if( !r.Read() )
    {
    return 1;
    }

  gdcm::File &file = r.GetFile();
  gdcm::DataSet& ds = file.GetDataSet();
  // (0028,0100) US 16                                       #   2, 1 BitsAllocated
  // (0028,0101) US 16                                       #   2, 1 BitsStored
  // (0028,0102) US 15                                       #   2, 1 HighBit
  //
    {
    gdcm::Attribute<0x28,0x100> at;
    at.SetFromDataElement( ds.GetDataElement( at.GetTag() ) );
    if( at.GetValue() != 8 )
```

```
      {
      return 1;
      }
    at.SetValue( 32 );
    ds.Replace( at.GetAsDataElement() );
    }
    {
    gdcm::Attribute<0x28,0x101> at;
    at.SetFromDataElement( ds.GetDataElement( at.GetTag() ) );
    if( at.GetValue() != 8 )
      {
      return 1;
      }
    at.SetValue( 32 );
    ds.Replace( at.GetAsDataElement() );
    }
    {
    gdcm::Attribute<0x28,0x102> at;
    at.SetFromDataElement( ds.GetDataElement( at.GetTag() ) );
    if( at.GetValue() != 7 )
      {
      return 1;
      }
    at.SetValue( 31 );
    ds.Replace( at.GetAsDataElement() );
    }
  // (0028,0008) IS [56]                                    #   2, 1 NumberOfFrames

    {
    gdcm::Attribute<0x28,0x8> at;
    at.SetFromDataElement( ds.GetDataElement( at.GetTag() ) );
    at.SetValue( at.GetValue() * 2 );
    ds.Replace( at.GetAsDataElement() );
    }

  gdcm::Writer w;
  w.SetFile( file );
  w.SetCheckFileMetaInformation( false );
  w.SetFileName( out );
  if( !w.Write() )
    {
    return 1;
    }

  // Now let's see if we can read it as an image:
  gdcm::ImageReader ir;
  ir.SetFileName( out );
  if(!ir.Read())
    {
    return 1;
    }
  gdcm::Image &image = ir.GetImage();
  unsigned long len = image.GetBufferLength();
  const gdcm::ByteValue *bv = ir.GetFile().GetDataSet().GetDataElement( gdcm::Tag(0x7fe0,0x0010)
      ).GetByteValue();
  if( !bv || len != bv->GetLength() )
    {
    return 1;
    }
  std::cout « bv->GetLength() « " " « len « std::endl;

  std::cout « "Success to rewrite image !" « std::endl;
  image.Print( std::cout );
  return 0;
}
```

14.3 SimplePrint.cs

This is a C# example on how to use gdcm::SWIGDataSet

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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```

```
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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
  Convertor convertor = new Convertor();
  int a = convertor.Convert<int>( some_int_blob );
  double b = convertor.Convert<double>( some_double_blob );
*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/SimplePrint.exe gdcmData/012345.002.050.dcm
 */
using System;
using gdcm;

public class SimplePrint
{
  public static void RecurseDataSet(File f, DataSet ds, string indent)
    {
    CSharpDataSet cds = new CSharpDataSet(ds);
    while(!cds.IsAtEnd())
      {
      DataElement de = cds.GetCurrent();
      // Compute VR from the toplevel file, and the currently processed dataset:
      VR vr = DataSetHelper.ComputeVR(f, ds, de.GetTag() );

      if( vr.Compatible( new VR(VR.VRType.SQ) ) )
        {
        uint uvl = (uint)de.GetVL(); // Test cast is ok
        System.Console.WriteLine( indent + de.GetTag().toString() + ":" + uvl ); // why not ?
        //SequenceOfItems sq = de.GetSequenceOfItems();
        // GetValueAsSQ handle more cases than GetSequenceOfItems
        SmartPtrSQ sq = de.GetValueAsSQ();
        uint n = sq.GetNumberOfItems();
        for( uint i = 1; i <= n; i++) // item starts at 1, not 0
          {
          Item item = sq.GetItem( i );
          DataSet nested = item.GetNestedDataSet();
          RecurseDataSet( f, nested, indent + "  " );
          }
        }
      else
        {
        System.Console.WriteLine( indent + de.toString() );
        }
      cds.Next();
      }
    }

  public static int Main(string[] args)
    {
    string filename = args[0];
    Reader reader = new Reader();
    reader.SetFileName( filename );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }
    File f = reader.GetFile();
    DataSet ds = f.GetDataSet();

    RecurseDataSet( f, ds, "" );

    return 0;
    }
}
```

14.4 TestReader.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmFileMetaInformation.h"
#include "gdcmFile.h"
#include "gdcmTesting.h"
#include "gdcmMediaStorage.h"

int TestRead(const char* filename, bool verbose = false)
{
  if( verbose )
    std::cout « "TestRead: " « filename « std::endl;

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if ( !reader.Read() )
    {
    std::cerr « "TestReadError: Failed to read: " « filename « std::endl;
    return 1;
    }

//commenting out the fmi and ds to avoid warnings
  //const gdcm::FileMetaInformation &h = reader.GetFile().GetHeader();
  //std::cout « h « std::endl;

  //const gdcm::DataSet &ds = reader.GetFile().GetDataSet();
  //std::cout « ds « std::endl;

  const char *ref = gdcm::Testing::GetMediaStorageFromFile(filename);
  gdcm::MediaStorage ms;
  ms.SetFromFile( reader.GetFile() );
  if( !ref )
    {
    std::cerr « "TestReadError: Missing MediaStorage: " « filename « std::endl;
    std::cerr « "It should be: " « ms « std::endl;
    return 1;
    }

  if( ms.IsUndefined() && ref && *ref != 0 )
    {
    std::cerr « "TestReadError: MediaStorage: " « filename « std::endl;
    std::cerr « "It should be instead: " « ref « std::endl;
    return 1;
    }

  // Make sure it is the right one:

  if( ref && *ref != 0 && ms != gdcm::MediaStorage::GetMSType(ref) )
    {
    std::cerr « "Error: Found MediaStorage: " « ms « " for " « filename « std::endl;
    std::cerr « "It should be instead: " « ref « std::endl;
    return 1;
    }

  return 0;
}

int TestReader(int argc, char *argv[])
{
  if( argc == 2 )
    {
    const char *filename = argv[1];
    return TestRead(filename, true);
    }

  // else
  gdcm::Trace::DebugOff();
```

```
  gdcm::Trace::WarningOff();
  int r = 0, i = 0;
  const char *filename;
  const char * const *filenames = gdcm::Testing::GetFileNames();
  while( (filename = filenames[i]) )
    {
    r += TestRead( filename );
    ++i;
    }

  return r;
}
```

14.5 TestReader.py

This is a C++ example on how to use gdcm::Reader

```
00001
00014
00015 import os,sys
00016 import gdcm
00017
00018 def TestRead(filename, verbose = False):
00019   r = gdcm.Reader()
00020   r.SetFileName( filename )
00021   success = r.Read()
00022   #if verbose: print r.GetFile()
00023   if verbose: print(r.GetFile().GetDataSet())
00024   return success
00025
00026 if __name__ == "__main__":
00027   success = 0
00028   try:
00029     filename = os.sys.argv[1]
00030     success += TestRead( filename, True )
00031   except:
00032     # loop over all files:
00033     gdcm.Trace.DebugOff()
00034     gdcm.Trace.WarningOff()
00035     t = gdcm.Testing()
00036     nfiles = t.GetNumberOfFileNames()
00037     for i in range(0,nfiles):
00038       filename = t.GetFileName(i)
00039       success += TestRead( filename )
00040
00041
00042   # Test succeed ?
00043   sys.exit(success == 0)
```

14.6 DecompressJPEGFile.cs

This is a C# example on how to use gdcm::SequenceOfFragments

```
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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
```

```
 * $ mono bin/DecompressJPEGFile.exe somejpegfile.jpg
 */
using System;
using gdcm;

public class DecompressJPEGFile
{
  public static int Main(string[] args)
    {
    string file1 = args[0];
    System.IO.FileStream infile =
      new System.IO.FileStream(file1, System.IO.FileMode.Open, System.IO.FileAccess.Read);
    uint fsize = gdcm.PosixEmulation.FileSize(file1);

    byte[] jstream  = new byte[fsize];
    infile.Read(jstream, 0 , jstream.Length);

    Trace.DebugOn();
    Image image = new Image();
    image.SetNumberOfDimensions( 2 ); // important for now
    DataElement pixeldata = new DataElement( new gdcm.Tag(0x7fe0,0x0010) );

    // DO NOT set a ByteValue here, JPEG is a particular kind of encapsulated syntax
    // in which can one cannot use a simple byte array for storage. Instead, see
    // gdcm.SequenceOfFragments
    //pixeldata.SetByteValue( jstream, new gdcm.VL( (uint)jstream.Length ) );

    // Create a new SequenceOfFragments C++ object, store it as a SmartPointer :
    SmartPtrFrag sq = SequenceOfFragments.New();
    Fragment frag = new Fragment();
    frag.SetByteValue( jstream, new gdcm.VL( (uint)jstream.Length) );
    // Single file => single fragment
    sq.AddFragment( frag );
    // Pass by reference:
    pixeldata.SetValue( sq.__ref__() );

    // insert:
    image.SetDataElement( pixeldata );

    // JPEG use YBR to achieve better compression ratio by default (not RGB)
    // FIXME hardcoded:
    PhotometricInterpretation pi = new PhotometricInterpretation( PhotometricInterpretation.PIType.YBR_FULL );
    image.SetPhotometricInterpretation( pi );
    // FIXME hardcoded:
    PixelFormat pixeltype = new PixelFormat(3,8,8,7);
    image.SetPixelFormat( pixeltype );

    // FIXME hardcoded:
    image.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.JPEGLosslessProcess14_1 ) );
    image.SetDimension(0, 692);
    image.SetDimension(1, 721);

    // Decompress !
    byte[] decompressedData = new byte[(int)image.GetBufferLength()];
    image.GetBuffer(decompressedData);

    // Write out the decompressed bytes
    System.Console.WriteLine(image.toString());
    using (System.IO.Stream stream =
      System.IO.File.Open(@"/tmp/dd.raw",
        System.IO.FileMode.Create))
      {
      System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
      writer.Write(decompressedData);
      }


    return 0;
    }
}
```

14.7 ManipulateFile.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library
```

```
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=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/ManipulateFile.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
using gdcm;

public class ManipulateFile
{
  public static int Main(string[] args)
    {
    string file1 = args[0];
    string file2 = args[1];
    Reader reader = new Reader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    Anonymizer ano = new Anonymizer();
    ano.SetFile( reader.GetFile() );
    ano.RemovePrivateTags();
    ano.RemoveGroupLength();
    Tag t = new Tag(0x10,0x10);
    ano.Replace( t, "GDCM^Csharp^Test^Hello^World" );

    UIDGenerator g = new UIDGenerator();
    ano.Replace( new Tag(0x0008,0x0018), g.Generate() );
    ano.Replace( new Tag(0x0020,0x000d), g.Generate() );
    ano.Replace( new Tag(0x0020,0x000e), g.Generate() );
    ano.Replace( new Tag(0x0020,0x0052), g.Generate() );

    Writer writer = new Writer();
    writer.SetFileName( file2 );
    writer.SetFile( ano.GetFile() );
    ret = writer.Write();
    if( !ret )
      {
      return 1;
      }

    return 0;
    }
}
```

14.8 ClinicalTrialIdentificationWorkflow.cs

This is a C# example on how to use Anonymizer

```
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  Program: GDCM (Grassroots DICOM). A DICOM library

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```

```
==========================================================================*/

/*
 * Typical usage on UNIX:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/ClinicalTrialIdentificationWorkflow.exe input_dir output_dir
 */
using System;
using gdcm;

public class MyWatcher : SimpleSubjectWatcher
{
  public MyWatcher(Subject s):base(s,"Override String"){}
  protected override void StartFilter() {
    System.Console.WriteLine( "This is my start" );
  }
  protected override void EndFilter(){
    System.Console.WriteLine( "This is my end" );
  }
  protected override void ShowProgress(Subject caller, Event evt){
    ProgressEvent pe = ProgressEvent.Cast(evt);
    System.Console.WriteLine( "This is my progress: " + pe.GetProgress() );
  }
  protected override void ShowIteration(){
    System.Console.WriteLine( "This is my iteration" );
  }
  protected override void ShowAnonymization(Subject caller, Event evt){
/*
 * A couple of explanation are necessary here to understand how SWIG work
 *  http://www.swig.org/Doc1.3/Java.html#adding_downcasts
 *
 *  System.Console.WriteLine( "This is my Anonymization. Type: " + evt.GetEventName() );
 *  System.Type type = evt.GetType();
 *  System.Console.WriteLine( "This is my Anonymization. System.Type: " + type.ToString() );
 *  System.Console.WriteLine( "This is my Anonymization. CheckEvent: " + ae.CheckEvent( evt ) );
 *  System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + ae.GetTag().toString() );
 */
    AnonymizeEvent ae = AnonymizeEvent.Cast(evt);
    if( ae != null )
      {
      Tag t = ae.GetTag();
      System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + t.toString() );
      }
    else
      {
      System.Console.WriteLine( "This is my Anonymization. Unhandled Event type: " + evt.GetEventName() );
      }
  }
  protected override void ShowAbort(){
    System.Console.WriteLine( "This is my abort" );
  }
}

public class ClinicalTrialIdentificationWorkflow
{
  public static bool ProcessOneFile( gdcm.Anonymizer ano , string filename, string outfilename )
    {
    Reader reader = new Reader();
    reader.SetFileName( filename );
    bool ret = reader.Read();
    if( !ret )
      {
      return false;
      }
    // Pass in the file:
    ano.SetFile( reader.GetFile() );

    // First step, let's protect all Patient information as per
    // PS 3.15 / E.1 / Basic Application Level Confidentiality Profile
    if( !ano.BasicApplicationLevelConfidentialityProfile() )
      {
      return false;
      }

    // Now let's pass in all Clinical Trial fields
    // PS 3.3 - 2008 / C.7.1.3 Clinical Trial Subject Module
    /*
    Clinical Trial Sponsor Name (0012,0010) 1 The name of the clinical trial sponsor. See C.7.1.3.1.1.
    Clinical Trial Protocol ID (0012,0020) 1 Identifier for the noted protocol. See C.7.1.3.1.2.
    Clinical Trial Protocol Name (0012,0021) 2 The name of the clinical trial protocol. See C.7.1.3.1.3.
    Clinical Trial Site ID (0012,0030) 2 The identifier of the site responsible for submitting clinical trial
```

```
    data. See C.7.1.3.1.4.
  Clinical Trial Site Name (0012,0031) 2 Name of the site responsible for submitting clinical trial data. See
    C.7.1.3.1.5
  Clinical Trial Subject ID (0012,0040) 1C The assigned identifier for the clinical trial subject. See
    C.7.1.3.1.6. Shall be present if Clinical Trial Subject Reading ID (0012,0042) is absent. May be present
    otherwise.
  Clinical Trial Subject Reading ID (0012,0042) 1C Identifies the subject for blinded evaluations. Shall be
    present if Clinical Trial Subject ID (0012,0040) is absent.  May be present otherwise. See C.7.1.3.1.7.
   */
  ano.Replace( new gdcm.Tag(0x0012,0x0010), "MySponsorName");
  ano.Replace( new gdcm.Tag(0x0012,0x0020), "MyProtocolID");
  ano.Replace( new gdcm.Tag(0x0012,0x0021), "MyProtocolName");
  ano.Replace( new gdcm.Tag(0x0012,0x0030), "MySiteId");
  ano.Replace( new gdcm.Tag(0x0012,0x0031), "MySiteName");
  ano.Replace( new gdcm.Tag(0x0012,0x0040), "MySponsorId");
  ano.Replace( new gdcm.Tag(0x0012,0x0050), "MyTPId");
  ano.Replace( new gdcm.Tag(0x0012,0x0051), "MyTPDescription");

  // The following two are not required as they are guaranteed to be filled in by the
  // Basic Application Level Confidentiality Profile. Only override if you understand what
  // you are doing
  //ano.Replace( new gdcm.Tag(0x0012,0x0062), "YES");
  //ano.Replace( new gdcm.Tag(0x0012,0x0063), "My Super Duper Anonymization Overload");

  // We might be generating a subdirectory. Let's make sure the subdir exist:
  gdcm.Filename fn = new gdcm.Filename( outfilename );
  string subdir = fn.GetPath();
  if( !gdcm.PosixEmulation.MakeDirectory( subdir ) )
    {
    return false;
    }

  gdcm.FileMetaInformation fmi = ano.GetFile().GetHeader();
  // The following three lines make sure to regenerate any value:
  fmi.Remove( new gdcm.Tag(0x0002,0x0012) );
  fmi.Remove( new gdcm.Tag(0x0002,0x0013) );
  fmi.Remove( new gdcm.Tag(0x0002,0x0016) );

  Writer writer = new Writer();
  writer.SetFileName( outfilename );
  writer.SetFile( ano.GetFile() );
  ret = writer.Write();
  if( !ret )
    {
    return false;
    }

  return true;
  }

public static int Main(string[] args)
  {
  gdcm.FileMetaInformation.SetSourceApplicationEntityTitle( "My ClinicalTrial App" );

  // http://www.oid-info.com/get/1.3.6.1.4.17434
  string THERALYS_ORG_ROOT = "1.3.6.1.4.17434";
  gdcm.UIDGenerator.SetRoot( THERALYS_ORG_ROOT );
  System.Console.WriteLine( "Root dir is now: " + gdcm.UIDGenerator.GetRoot() );

  gdcm.Global global = gdcm.Global.GetInstance();
  if( !global.LoadResourcesFiles() )
    {
    System.Console.WriteLine( "Could not LoadResourcesFiles" );
    return 1;
    }

  if( args.Length != 2 )
    {
    System.Console.WriteLine( "Usage:" );
    System.Console.WriteLine( "ClinicalTrialIdentificationWorkflow input_dir output_dir" );
    return 1;
    }
  string dir1 = args[0];
  string dir2 = args[1];

  // Check input is valid:
  if( !gdcm.PosixEmulation.FileIsDirectory(dir1) )
    {
    System.Console.WriteLine( "Input directory: " + dir1 + " does not exist. Sorry" );
    return 1;
    }
```

```
    if( !gdcm.PosixEmulation.FileIsDirectory(dir2) )
      {
      System.Console.WriteLine( "Output directory: " + dir2 + " does not exist. Sorry" );
      return 1;
      }

    // Recursively search all file within this toplevel directory:
    Directory d = new Directory();
    uint nfiles = d.Load( dir1, true );
    if(nfiles == 0) return 1;

    // Let's use the pre-shipped certificate of GDCM.
    string certpath = gdcm.Filename.Join(gdcm.Testing.GetSourceDirectory(),
      "/Testing/Source/Data/certificate.pem" );
    gdcm.CryptoFactory fact = gdcm.CryptoFactory.GetFactoryInstance();
    gdcm.CryptographicMessageSyntax cms = fact.CreateCMSProvider();
    if( !cms.ParseCertificateFile( certpath ) )
      {
      System.Console.WriteLine( "PEM Certificate : " + certpath + " could not be read. Sorry" );
      return 1;
      }

    //Anonymizer ano = new Anonymizer();
    // A reference to an actual C++ instance is required here:
    SmartPtrAno sano = Anonymizer.New();
    Anonymizer ano = sano.__ref__();

    //SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(ano, "Anonymizer");
    MyWatcher watcher = new MyWatcher(ano);

    // Explicitly specify the Cryptographic Message Syntax to use:
    ano.SetCryptographicMessageSyntax( cms );

    // Process all filenames:
    FilenamesType filenames = d.GetFilenames();
    for( uint i = 0; i < nfiles; ++i )
      {
      string filename = filenames[ (int)i ];
      string outfilename = filename.Replace( dir1, dir2 );
      System.Console.WriteLine( "Filename: " + filename );
      System.Console.WriteLine( "Out Filename: " + outfilename );
      if( !ProcessOneFile( ano , filename, outfilename ) )
        {
        System.Console.WriteLine( "Could not process filename: " + filename );
        return 1;
        }
      }

    return 0;
    }
}
```

14.9 GenerateDICOMDIR.cs

This is a C# example on how to use DICOMDIRGenerator

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Simple C# example to show how to use DICOMDIRGenerator
 *
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
```

```
 * $ mono bin/GenerateDICOMDIR.exe path output_filename
 */
using System;
using gdcm;

public class GenerateDICOMDIR
{
  public static int Main(string[] args)
    {
    string directory = args[0];
    string outfilename = args[1];

    Directory d = new Directory();
    uint nfiles = d.Load( directory, true );
    if(nfiles == 0) return 1;
    //System.Console.WriteLine( "Files:\n" + d.toString() );

    // Implement fast path ?
    // Scanner s = new Scanner();

    string descriptor = "My_Descriptor";
    FilenamesType filenames = d.GetFilenames();

    gdcm.DICOMDIRGenerator gen = new DICOMDIRGenerator();
    gen.SetFilenames( filenames );
    gen.SetDescriptor( descriptor );
    if( !gen.Generate() )
      {
      return 1;
      }

    gdcm.FileMetaInformation.SetSourceApplicationEntityTitle( "GenerateDICOMDIR" );
    gdcm.Writer writer = new Writer();
    writer.SetFile( gen.GetFile() );
    writer.SetFileName( outfilename );
    if( !writer.Write() )
      {
      return 1;
      }

    return 0;
    }
}
```

14.10 GenFakeImage.cxx

```
/*=========================================================================

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=========================================================================*/
#include "gdcmImage.h"
#include "gdcmImageWriter.h"
#include "gdcmFileDerivation.h"
#include "gdcmUIDGenerator.h"
//#include "gdcmImageChangePhotometricInterpretation.h"

/*
 * This example shows two things:
 * 1. How to create an image ex-nihilo
 * 2. How to use the gdcm.FileDerivation filter. This filter is meant to create "DERIVED" image
 * object. FileDerivation has a simple API where you can reference *all* the input image that have been
 * used to generate the image. The API also allows user to specify the purpose of reference (see CID 7202,
 * PS 3.16 - 2008), and the image derivation type (CID 7203, PS 3.16 - 2008).
 */
int main(int, char *[])
{
  // Step 1: Fake Image
```

```
gdcm::SmartPointer<gdcm::Image> im = new gdcm::Image;

char * buffer = new char[ 256 * 256 * 3];
char * p = buffer;
int b = 128;
//int ybr[3];
int ybr2[3];
//int rgb[3];

for(int r = 0; r < 256; ++r)
  for(int g = 0; g < 256; ++g)
    //for(int b = 0; b < 256; ++b)
    {
    //rgb[0] = r;
    //rgb[1] = g;
    //rgb[1] = 128;
    //rgb[2] = b;
    //ybr[0] = r;
    //ybr[1] = g;
    //ybr[1] = 128;
    //ybr[2] = b;

    ybr2[0] = r;
    ybr2[1] = g;
    ybr2[1] = 128;
    ybr2[2] = b;
    //gdcm::ImageChangePhotometricInterpretation::YBR2RGB(rgb, ybr);
    //gdcm::ImageChangePhotometricInterpretation::RGB2YBR(ybr2, rgb);
    *p++ = (char)ybr2[0];
    *p++ = (char)ybr2[1];
    *p++ = (char)ybr2[2];
    }

im->SetNumberOfDimensions( 2 );
im->SetDimension(0, 256 );
im->SetDimension(1, 256 );

im->GetPixelFormat().SetSamplesPerPixel(3);
//im->SetPhotometricInterpretation( gdcm::PhotometricInterpretation::RGB );
im->SetPhotometricInterpretation( gdcm::PhotometricInterpretation::YBR_FULL );

unsigned long l = im->GetBufferLength();
if( l != 256 * 256 * 3 )
  {
  return 1;
  }
gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
pixeldata.SetByteValue( buffer, (uint32_t)l );
delete[] buffer;
im->SetDataElement( pixeldata );

gdcm::UIDGenerator uid; // helper for uid generation

gdcm::SmartPointer<gdcm::File> file = new gdcm::File; // empty file

// Step 2: DERIVED object
gdcm::FileDerivation fd;
// For the purpose of this exercise we will pretend that this image is referencing
// two source image (we need to generate fake UID for that).
const char ReferencedSOPClassUID[] = "1.2.840.10008.5.1.4.1.1.7"; // Secondary Capture
fd.AddReference( ReferencedSOPClassUID, uid.Generate() );
fd.AddReference( ReferencedSOPClassUID, uid.Generate() );

// Again for the purpose of the exercise we will pretend that the image is a
// multiplanar reformat (MPR):
// CID 7202 Source Image Purposes of Reference
// {"DCM",121322,"Source image for image processing operation"},
fd.SetPurposeOfReferenceCodeSequenceCodeValue( 121322 );
// CID 7203 Image Derivation
// { "DCM",113072,"Multiplanar reformatting" },
fd.SetDerivationCodeSequenceCodeValue( 113072 );
fd.SetFile( *file );
// If all Code Value are ok the filter will execute properly
if( !fd.Derive() )
  {
  std::cerr « "Sorry could not derive using input info" « std::endl;
  return 1;
  }

// We pass both :
// 1. the fake generated image
```

```
  // 2. the 'DERIVED' dataset object
  // to the writer.
  gdcm::ImageWriter w;
  w.SetImage( *im );
  w.SetFile( fd.GetFile() );

  // Set the filename:
  w.SetFileName( "ybr2.dcm" );
  if( !w.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.11 ReformatFile.cs

This is a C++ example on how to use FileDerivation

```
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=========================================================================*/

/*
 * Simple C# example
 *
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/ReformatFile.exe input.dcm output.dcm
 */
using System;
using gdcm;

public class ReformatFile
{
  public static int Main(string[] args)
    {
    gdcm.FileMetaInformation.SetSourceApplicationEntityTitle( "My Reformat App" );

    // http://www.oid-info.com/get/1.3.6.1.4.17434
    string THERALYS_ORG_ROOT = "1.3.6.1.4.17434";
    gdcm.UIDGenerator.SetRoot( THERALYS_ORG_ROOT );
    System.Console.WriteLine( "Root dir is now: " + gdcm.UIDGenerator.GetRoot() );

    string filename = args[0];
    string outfilename = args[1];

    Reader reader = new Reader();
    reader.SetFileName( filename );
    if( !reader.Read() )
      {
      System.Console.WriteLine( "Could not read: " + filename );
      return 1;
      }

    UIDGenerator uid = new UIDGenerator(); // helper for uid generation
    FileDerivation fd = new FileDerivation();
    // For the purpose of this exercise we will pretend that this image is referencing
    // two source image (we need to generate fake UID for that).
    string ReferencedSOPClassUID = "1.2.840.10008.5.1.4.1.1.7"; // Secondary Capture
    fd.AddReference( ReferencedSOPClassUID, uid.Generate() );
    fd.AddReference( ReferencedSOPClassUID, uid.Generate() );

    // Again for the purpose of the exercise we will pretend that the image is a
```

```
    // multiplanar reformat (MPR):
    // CID 7202 Source Image Purposes of Reference
    // {"DCM",121322,"Source image for image processing operation"},
    fd.SetPurposeOfReferenceCodeSequenceCodeValue( 121322 );
    // CID 7203 Image Derivation
    // { "DCM",113072,"Multiplanar reformatting" },
    fd.SetDerivationCodeSequenceCodeValue( 113072 );
    fd.SetFile( reader.GetFile() );
    // If all Code Value are ok the filter will execute properly
    if( !fd.Derive() )
      {
      return 1;
      }

    gdcm.FileMetaInformation fmi = reader.GetFile().GetHeader();
    // The following three lines make sure to regenerate any value:
    fmi.Remove( new gdcm.Tag(0x0002,0x0012) );
    fmi.Remove( new gdcm.Tag(0x0002,0x0013) );
    fmi.Remove( new gdcm.Tag(0x0002,0x0016) );

    Writer writer = new Writer();
    writer.SetFileName( outfilename );
    writer.SetFile( fd.GetFile() );
    if( !writer.Write() )
      {
      System.Console.WriteLine( "Could not write: " + outfilename );
      return 1;
      }


    return 0;
    }
}
```

14.12 DecompressImage.cs

This is a C# example on how to use Image

```
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=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/DecompressImage.exe gdcmData/012345.002.050.dcm decompress.dcm
 */
using System;
using gdcm;

public class DecompressImage
{
  public static int Main(string[] args)
    {
    string file1 = args[0];
    string file2 = args[1];
    ImageReader reader = new ImageReader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    // check that one can access a Fragment from C#:
```

```
    var de = reader.GetFile().GetDataSet().GetDataElement(new Tag(0x7fe0, 0x0010));
    var sq = de.GetSequenceOfFragments();
    sq.GetFragment(0);

    Image image = new Image();
    Image ir = reader.GetImage();

    image.SetNumberOfDimensions( ir.GetNumberOfDimensions() );

    //Just for fun:
    //int dircos =  ir.GetDirectionCosines();
    //t = gdcm.Orientation.GetType(dircos);
    //int l = gdcm.Orientation.GetLabel(t);
    //System.Console.WriteLine( "Orientation label:" + l );

    // Set the dimensions,
    // 1. either one at a time
    //image.SetDimension(0, ir.GetDimension(0) );
    //image.SetDimension(1, ir.GetDimension(1) );

    // 2. the array at once
    uint[] dims = {0, 0};
    // Just for fun let's invert the dimensions:
    dims[0] = ir.GetDimension(1);
    dims[1] = ir.GetDimension(0);
    ir.SetDimensions( dims );

    PixelFormat pixeltype = ir.GetPixelFormat();
    image.SetPixelFormat( pixeltype );

    PhotometricInterpretation pi = ir.GetPhotometricInterpretation();
    image.SetPhotometricInterpretation( pi );

    DataElement pixeldata = new DataElement( new Tag(0x7fe0,0x0010) );
    byte[] str1 = new byte[ ir.GetBufferLength()];
    ir.GetBuffer( str1 );
    //System.Console.WriteLine( ir.GetBufferLength() );
    pixeldata.SetByteValue( str1, new VL( (uint)str1.Length ) );
    //image.SetDataElement( pixeldata );
    ir.SetDataElement( pixeldata );


    ImageWriter writer = new ImageWriter();
    writer.SetFileName( file2 );
    writer.SetFile( reader.GetFile() );
    writer.SetImage( ir );
    ret = writer.Write();
    if( !ret )
      {
      return 1;
      }

    return 0;
    }
}
```

14.13 StandardizeFiles.cs

This is a C++ example on how to use ImageChangeTransferSyntax

```
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=========================================================================*/

/*
```

```
 * Simple C# example to show how one would 'Standardize' a DICOM File-Set
 *
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/StandardizeFiles.exe input_path output_path
 */
using System;
using gdcm;

public class StandardizeFiles
{
  public static bool ProcessOneFile( string filename, string outfilename )
    {
    PixmapReader reader = new PixmapReader();
    reader.SetFileName( filename );
    if( !reader.Read() )
      {
      System.Console.WriteLine( "Could not read: " + filename );
      return false;
      }

    ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
    change.SetForce( false ); // do we really want to recompress when input is already compressed in same alg ?
    change.SetCompressIconImage( false ); // Keep it simple
    change.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.JPEG2000Lossless ) );
    change.SetInput( reader.GetPixmap() );
    if( !change.Change() )
      {
      System.Console.WriteLine( "Could not change: " + filename );
      return false;
      }

    gdcm.FileMetaInformation fmi = reader.GetFile().GetHeader();
    // The following three lines make sure to regenerate any value:
    fmi.Remove( new gdcm.Tag(0x0002,0x0012) );
    fmi.Remove( new gdcm.Tag(0x0002,0x0013) );
    fmi.Remove( new gdcm.Tag(0x0002,0x0016) );

    PixmapWriter writer = new PixmapWriter();
    writer.SetFileName( outfilename );
    writer.SetFile( reader.GetFile() );
    gdcm.Pixmap pixout = ((PixmapToPixmapFilter)change).GetOutput();

    writer.SetPixmap( pixout );
    if( !writer.Write() )
      {
      System.Console.WriteLine( "Could not write: " + outfilename );
      return false;
      }

    return true;
    }

  public static int Main(string[] args)
    {
    gdcm.FileMetaInformation.SetSourceApplicationEntityTitle( "My Standardize App" );

    // http://www.oid-info.com/get/1.3.6.1.4.17434
    string THERALYS_ORG_ROOT = "1.3.6.1.4.17434";
    gdcm.UIDGenerator.SetRoot( THERALYS_ORG_ROOT );
    System.Console.WriteLine( "Root dir is now: " + gdcm.UIDGenerator.GetRoot() );

    string dir1 = args[0];
    string dir2 = args[1];

    // Check input is valid:
    if( !gdcm.PosixEmulation.FileIsDirectory(dir1) )
      {
      System.Console.WriteLine( "Input directory: " + dir1 + " does not exist. Sorry" );
      return 1;
      }
    if( !gdcm.PosixEmulation.FileIsDirectory(dir2) )
      {
      System.Console.WriteLine( "Output directory: " + dir2 + " does not exist. Sorry" );
      return 1;
      }

    Directory d = new Directory();
    uint nfiles = d.Load( dir1, true );
```

```
    if(nfiles == 0) return 1;

    // Process all filenames:
    FilenamesType filenames = d.GetFilenames();
    for( uint i = 0; i < nfiles; ++i )
      {
      string filename = filenames[ (int)i ];
      string outfilename = filename.Replace( dir1, dir2 );
      System.Console.WriteLine( "Filename: " + filename );
      System.Console.WriteLine( "Out Filename: " + outfilename );
      if( !ProcessOneFile( filename, outfilename ) )
        {
        System.Console.WriteLine( "Could not process filename: " + filename );
        //return 1;
        }
      }


    return 0;
    }
}
```

14.14 ScanDirectory.cs

This is a C# example on how to use Scanner

```
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=========================================================================*/

/*
 * Usage:
 * $ bin/ScanDirectory.exe /path/to/gdcmData/
 */
using System;
using gdcm;

// We will print each filename being processed
public class MyWatcher : SimpleSubjectWatcher
{
  public MyWatcher(Subject s):base(s,"Override String"){}
  protected override void ShowFileName(Subject caller, Event evt){
    FileNameEvent fne = FileNameEvent.Cast(evt);
    if( fne != null )
      {
      string fn = fne.GetFileName();
      System.Console.WriteLine( "This is my Scanner. Processing FileName: " + fn );
      }
    else
      {
      System.Console.WriteLine( "This is my Anonymization. Unhandled Event type: " + evt.GetEventName() );
      }
  }
}

public class ScanDirectory
{
  public static int Main(string[] args)
    {
    string directory = args[0];
    Tag t = new Tag(0x8,0x80);

    Directory d = new Directory();
    uint nfiles = d.Load( directory );
    if(nfiles == 0) return 1;
```

```
    //System.Console.WriteLine( "Files:\n" + d.toString() );

    // Use a StrictScanner, need to use a reference to pass the C++ pointer to
    // MyWatcher implementation
    SmartPtrStrictScan sscan = StrictScanner.New();
    StrictScanner s = sscan.__ref__();
    MyWatcher watcher = new MyWatcher(s);

    s.AddTag( t );
    bool b = s.Scan( d.GetFilenames() );
    if(!b) return 1;

    for(int i = 0; i < (int)nfiles; ++i)
      {
      if( !s.IsKey( d.GetFilenames()[i] ) )
        {
        System.Console.WriteLine( "File is not DICOM or could not be read: " + d.GetFilenames()[i] );
        }
      }

    System.Console.WriteLine( "Scan:\n" + s.toString() );

    System.Console.WriteLine( "success" );
    return 0;
    }
}
```

14.15 BasicAnonymizer.cs

```
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=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/BasicAnonymizer.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
using gdcm;

public class MyWatcher : SimpleSubjectWatcher
{
  public MyWatcher(Subject s):base(s,"Override String"){}
  protected override void StartFilter() {
    System.Console.WriteLine( "This is my start" );
  }
  protected override void EndFilter(){
    System.Console.WriteLine( "This is my end" );
  }
  protected override void ShowProgress(Subject caller, Event evt){
    ProgressEvent pe = ProgressEvent.Cast(evt);
    System.Console.WriteLine( "This is my progress: " + pe.GetProgress() );
  }
  protected override void ShowIteration(){
    System.Console.WriteLine( "This is my iteration" );
  }
  protected override void ShowAnonymization(Subject caller, Event evt){
/*
 * A couple of explanation are necessary here to understand how SWIG work
 *  http://www.swig.org/Doc1.3/Java.html#adding_downcasts
 *
 *  System.Console.WriteLine( "This is my Anonymization. Type: " + evt.GetEventName() );
 *  System.Type type = evt.GetType();
 *  System.Console.WriteLine( "This is my Anonymization. System.Type: " + type.ToString() );
 *  System.Console.WriteLine( "This is my Anonymization. CheckEvent: " + ae.CheckEvent( evt ) );
```

```
 *  System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + ae.GetTag().toString() );
 */
    AnonymizeEvent ae = AnonymizeEvent.Cast(evt);
    if( ae != null )
      {
      Tag t = ae.GetTag();
      System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + t.toString() );
      }
    else
      {
      System.Console.WriteLine( "This is my Anonymization. Unhandled Event type: " + evt.GetEventName() );
      }
  }
  protected override void ShowAbort(){
    System.Console.WriteLine( "This is my abort" );
  }
}

public class BasicAnonymizer
{
  public static int Main(string[] args)
    {
    gdcm.Global global = gdcm.Global.GetInstance();
    if( !global.LoadResourcesFiles() )
      {
      System.Console.WriteLine( "Could not LoadResourcesFiles" );
      return 1;
      }

    string file1 = args[0];
    string file2 = args[1];
    Reader reader = new Reader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    string certpath = gdcm.Filename.Join(gdcm.Testing.GetSourceDirectory(),
      "/Testing/Source/Data/certificate.pem" );
    gdcm.CryptoFactory fact = gdcm.CryptoFactory.GetFactoryInstance();
    gdcm.CryptographicMessageSyntax cms = fact.CreateCMSProvider();
    if( !cms.ParseCertificateFile( certpath ) )
      {
      return 1;
      }

    //Anonymizer ano = new Anonymizer();
    SmartPtrAno sano = Anonymizer.New();
    Anonymizer ano = sano.__ref__();

    //SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(ano, "Anonymizer");
    MyWatcher watcher = new MyWatcher(ano);

    ano.SetFile( reader.GetFile() );
    ano.SetCryptographicMessageSyntax( cms );
    if( !ano.BasicApplicationLevelConfidentialityProfile() )
      {
      return 1;
      }

    Writer writer = new Writer();
    writer.SetFileName( file2 );
    writer.SetFile( ano.GetFile() );
    ret = writer.Write();
    if( !ret )
      {
      return 1;
      }

    return 0;
    }
}
```

14.16 BasicImageAnonymizer.cs

```
/*=========================================================================

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=========================================================================*/

/*
 */
using System;
using gdcm;

public class BasicImageAnonymizer
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    // instantiate the reader:
    gdcm.ImageReader reader = new gdcm.ImageReader();
    reader.SetFileName( filename );

    if (!reader.Read()) return 1;

    Image ir = reader.GetImage();

    uint[] dims = {0, 0, 0};
    dims[0] = ir.GetDimension(0);
    dims[1] = ir.GetDimension(1);
    dims[2] = ir.GetDimension(2);
    System.Console.WriteLine( "Dim:" + dims[0] );
    System.Console.WriteLine( "Dim:" + dims[1] );
    System.Console.WriteLine( "Dim:" + dims[2] );

    // buffer to get the pixels
    byte[] buffer = new byte[ ir.GetBufferLength()];
    System.Console.WriteLine( "Dim:" + ir.GetBufferLength() );
    ir.GetBuffer( buffer );

    for (uint z = 0; z < dims[2]; z++)
      {
      for (uint y = 0; y < dims[1] / 2; y++) // only half Y
        {
        for (uint x = 0; x < dims[0] / 2; x++) // only half X
          {
          buffer[ (z * dims[1] + y) * dims[0] + x ] = 0; // works when pixel type == UINT8
          }
        }
      }

    DataElement pixeldata = new DataElement( new Tag(0x7fe0,0x0010) );
    pixeldata.SetByteValue( buffer, new VL( (uint)buffer.Length ) );
    ir.SetDataElement( pixeldata );
    ir.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.ExplicitVRLittleEndian ) );

    ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
    change.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.JPEGLSLossless ) );
    change.SetInput( ir );
    if( !change.Change() )
      {
      System.Console.WriteLine( "Could not change: " + filename );
      return 1;
      }

    ImageWriter writer = new ImageWriter();
    writer.SetFileName( "out.dcm" );
    writer.SetFile( reader.GetFile() );
    writer.SetImage( change.GetOutput() );
    bool ret = writer.Write();
    if( !ret )
      {
```

```
      return 1;
      }


    return 0;
    }
}
```

14.17 Cleaner.cs

```
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=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/Cleaner.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
using gdcm;

public class MyWatcher : SimpleSubjectWatcher
{
  public MyWatcher(Subject s):base(s,"Override String"){}
  protected override void StartFilter() {
    System.Console.WriteLine( "This is my start" );
  }
  protected override void EndFilter(){
    System.Console.WriteLine( "This is my end" );
  }
  protected override void ShowProgress(Subject caller, Event evt){
    ProgressEvent pe = ProgressEvent.Cast(evt);
    System.Console.WriteLine( "This is my progress: " + pe.GetProgress() );
  }
  protected override void ShowIteration(){
    System.Console.WriteLine( "This is my iteration" );
  }
  protected override void ShowAnonymization(Subject caller, Event evt){
/*
 * A couple of explanation are necessary here to understand how SWIG work
 *  http://www.swig.org/Doc1.3/Java.html#adding_downcasts
 *
 *  System.Console.WriteLine( "This is my Anonymization. Type: " + evt.GetEventName() );
 *  System.Type type = evt.GetType();
 *  System.Console.WriteLine( "This is my Anonymization. System.Type: " + type.ToString() );
 *  System.Console.WriteLine( "This is my Anonymization. CheckEvent: " + ae.CheckEvent( evt ) );
 *  System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + ae.GetTag().toString() );
 */
    AnonymizeEvent ae = AnonymizeEvent.Cast(evt);
    if( ae != null )
      {
      Tag t = ae.GetTag();
      System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + t.toString() );
      }
    else
      {
      System.Console.WriteLine( "This is my Anonymization. Unhandled Event type: " + evt.GetEventName() );
      }
  }
  protected override void ShowAbort(){
    System.Console.WriteLine( "This is my abort" );
  }
}

public class Cleaner
```

```
{
  public static int Main(string[] args)
    {
    gdcm.Global global = gdcm.Global.GetInstance();
    if( !global.LoadResourcesFiles() )
      {
      System.Console.WriteLine( "Could not LoadResourcesFiles" );
      return 1;
      }

    string file1 = args[0];
    string file2 = args[1];
    Reader reader = new Reader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    SmartPtrCleaner scleaner = gdcm.Cleaner.New();
    gdcm.Cleaner cleaner = scleaner.__ref__();

    //SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(cleaner, "Anonymizer");
    MyWatcher watcher = new MyWatcher(cleaner);

    cleaner.SetFile( reader.GetFile() );
    cleaner.Empty( new gdcm.VR(gdcm.VR.VRType.PN) );
    gdcm.DPath dpath = new gdcm.DPath();
    dpath.ConstructFromString( "/0010,0010" );
    cleaner.Preserve( dpath );
    gdcm.Tag t1 = new gdcm.Tag(0x10, 0x30);
    cleaner.Empty( t1 );
    gdcm.PrivateTag pt0 = new gdcm.PrivateTag( new gdcm.Tag(0x29,0x60), "SIEMENS MEDCOM HEADER2" );
    cleaner.Remove( pt0 );
    gdcm.PrivateTag pt1 = new gdcm.PrivateTag( new gdcm.Tag(0x29,0x10), "SIEMENS CSA HEADER" );
    gdcm.PrivateTag pt2 = new gdcm.PrivateTag( new gdcm.Tag(0x29,0x20), "SIEMENS CSA HEADER" );
    cleaner.Scrub( pt1 );
    cleaner.Scrub( pt2 );
    if( !cleaner.Clean() )
      {
      return 1;
      }

    Writer writer = new Writer();
    writer.SetFileName( file2 );
    writer.SetFile( cleaner.GetFile() );
    ret = writer.Write();
    if( !ret )
      {
      return 1;
      }

    return 0;
    }
}
```

14.18 CompressLossyJPEG.cs

```
/*=========================================================================

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=========================================================================*/
/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Perso/gdcm/debug-gcc/bin
 * $ mono bin/CompressLossyJPEG.exe input.dcm output.dcm
```

```
 */

using System;
using gdcm;

public class CompressLossyJPEG
{
  public static int Main(string[] args)
    {
    if( args.Length < 2 )
      {
      System.Console.WriteLine( " input.dcm output.dcm" );
      return 1;
      }
    string filename = args[0];
    string outfilename = args[1];

    ImageReader reader = new ImageReader();
    reader.SetFileName( filename );
    if( !reader.Read() )
      {
      System.Console.WriteLine( "Could not read: " + filename );
      return 1;
      }

    // The output of gdcm::Reader is a gdcm::File
    File file = reader.GetFile();

    // the dataset is the the set of element we are interested in:
    DataSet ds = file.GetDataSet();

    Image image = reader.GetImage();
    //image.Print( cout );

    ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
    TransferSyntax targetts =  new TransferSyntax( TransferSyntax.TSType.JPEGBaselineProcess1 );
    change.SetTransferSyntax( targetts );

    // Setup our JPEGCodec, warning it should be compatible with JPEGBaselineProcess1
    JPEGCodec jpegcodec = new JPEGCodec();
    if( !jpegcodec.CanCode( targetts ) )
      {
      System.Console.WriteLine( "Something went really wrong, JPEGCodec cannot handle JPEGBaselineProcess1" );
      return 1;
      }
    jpegcodec.SetLossless( false );
    jpegcodec.SetQuality( 50 ); // poor quality !
    change.SetUserCodec( jpegcodec ); // specify the codec to use to the ImageChangeTransferSyntax

    change.SetInput( image );
    bool b = change.Change();
    if( !b )
      {
      System.Console.WriteLine( "Could not change the Transfer Syntax" );
      return 1;
      }

    ImageWriter writer = new ImageWriter();
    writer.SetImage( (gdcm.Image)change.GetOutput() );
    writer.SetFile( reader.GetFile() );
    writer.SetFileName( outfilename );
    if( !writer.Write() )
      {
      System.Console.WriteLine( "Could not write: " + outfilename );
      return 1;
      }

    return 0;
    }

}
```

14.19 DecompressImageMultiframe.cs

```
/*=========================================================================
```

```
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=========================================================================*/

/*
$ gdcminfo ~/Desktop/angiogram-06.dcm
MediaStorage is 1.2.840.10008.5.1.4.1.1.12.1 [X-Ray Angiographic Image Storage]
TransferSyntax is 1.2.840.10008.1.2.4.50 [JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8
      Bit Image Compression]
NumberOfDimensions: 3
Dimensions: (512,512,355)
Origin: (0,0,0)
Spacing: (1,1,40)
DirectionCosines: (1,0,0,0,1,0)
Rescale Intercept/Slope: (0,1)
SamplesPerPixel    :1
BitsAllocated      :8
BitsStored         :8
HighBit            :7
PixelRepresentation:0
ScalarType found   :UINT8
PhotometricInterpretation: MONOCHROME2
PlanarConfiguration: 0
TransferSyntax: 1.2.840.10008.1.2.4.50
Orientation Label: AXIAL
*/

/*
 * Description:
 *
 * Assume we have a file angiogram-06.dcm as described above.
 * the following program will decompress directly from the extracted jpeg stream.
 *
 * First step extract the jpeg stream (but not the Basic Offset Table):
 *
 * $ gdcmraw -i angiogram-06.dcm -o /tmp/output/chris --split-frags --pattern %d.jpg
 *
 * Check that indeed there are 355 files, while there are 356 fragments in the original DICOM file, since
 * gdcmraw always skip the first fragment (Basic Offset Table).
 *
 * Now from those individual jpeg stream, recreate a fake gdcm.DataElement...
 *
 * Usage:
 *
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono ./bin/DecompressImageMultiframe.exe /tmp/output
 */
using System;
using gdcm;

public class DecompressImageMultiframe
{
  public static int Main(string[] args)
    {
    string directory = args[0];
    gdcm.Directory dir = new gdcm.Directory();
    uint nfiles = dir.Load(directory);
    //System.Console.WriteLine(dir.toString());
    gdcm.FilenamesType filenames = dir.GetFilenames();

    Image image = new Image();
    image.SetNumberOfDimensions( 3 ); // important for now
    DataElement pixeldata = new DataElement( new gdcm.Tag(0x7fe0,0x0010) );

    // Create a new SequenceOfFragments C++ object, store it as a SmartPointer :
    SmartPtrFrag sq = SequenceOfFragments.New();

    // Yeah, the files are not guaranteed to be in order, please adapt...
    for(uint i = 0; i < nfiles; ++i)
      {
      System.Console.WriteLine( filenames[(int)i] );
      string file = filenames[(int)i];
      System.IO.FileStream infile =
```

```
        new System.IO.FileStream(file, System.IO.FileMode.Open, System.IO.FileAccess.Read);
      uint fsize = gdcm.PosixEmulation.FileSize(file);

      byte[] jstream  = new byte[fsize];
      infile.Read(jstream, 0 , jstream.Length);

      Fragment frag = new Fragment();
      frag.SetByteValue( jstream, new gdcm.VL( (uint)jstream.Length) );
      sq.AddFragment( frag );
      }

    // Pass by reference:
    pixeldata.SetValue( sq.__ref__() );

    // insert:
    image.SetDataElement( pixeldata );

    // JPEG use YBR to achieve better compression ratio by default (not RGB)
    // FIXME hardcoded:
    PhotometricInterpretation pi = new PhotometricInterpretation( PhotometricInterpretation.PIType.MONOCHROME2
      );
    image.SetPhotometricInterpretation( pi );
    // FIXME hardcoded:
    PixelFormat pixeltype = new PixelFormat(1,8,8,7);
    image.SetPixelFormat( pixeltype );

    // FIXME hardcoded:
    image.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.JPEGLosslessProcess14_1 ) );
    image.SetDimension(0, 512);
    image.SetDimension(1, 512);
    image.SetDimension(2, 355);

    // Decompress !
    byte[] decompressedData = new byte[(int)image.GetBufferLength()];
    image.GetBuffer(decompressedData);

    // Write out the decompressed bytes
    System.Console.WriteLine(image.toString());
    using (System.IO.Stream stream =
      System.IO.File.Open(@"/tmp/dd.raw",
        System.IO.FileMode.Create))
      {
      System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
      writer.Write(decompressedData);
      }


    return 0;
    }
}
```

14.20 DumpCSA.cs

```
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=========================================================================*/

/*
 * Usage:
 * $ bin/DumpCSA.exe input.dcm
 */
using System;
using gdcm;

public class DumpCSA
{
```

```
  public static int Main(string[] args)
    {
    string filename = args[0];

    gdcm.Reader reader = new gdcm.Reader();
    reader.SetFileName( filename );
    if (!reader.Read()) return 1;

    gdcm.File f = reader.GetFile();
    gdcm.DataSet ds = f.GetDataSet();

    string[] expectedSiemensTags = new string[] { "B_value" , "AcquisitionMatrixText" };
    using (PrivateTag gtag = CSAHeader.GetCSAImageHeaderInfoTag())
    {
        if (ds.FindDataElement(gtag))
        {
            using (DataElement de = ds.GetDataElement(gtag))
            {
                if (de != null && !de.IsEmpty())
                {
                    using (CSAHeader csa = new CSAHeader())
                    {
                        if (csa.LoadFromDataElement(de))
                        {
                            foreach (string str in expectedSiemensTags)
                            {
                                if (csa.FindCSAElementByName(str))
                                {
                                    using (CSAElement elem = csa.GetCSAElementByName(str))
                                    {
                                        if (elem != null)
                                        {
                                            System.Console.WriteLine( elem.toString() );
                                        }
                                    }
                                }
                            }
                        }
                    }
                }
            }
        }
    }


    return 0;
    }
}
```

14.21 ExtractEncapsulatedFile.cs

```
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=========================================================================*/

/*
 * This example shows how one from C# context can extract a binary blob
 * and write out as a file.
 * This example is meant for pdf encapsulated file, but can be adapted for other type
 * of binary blob.
 *
 * DICOM file is:
 * ...
 * (0042,0010) ST (no value available)                     #   0, 0 DocumentTitle
 * (0042,0011) OB 25\50\44\46\2d\31\2e\32\20\0d\25\e2\e3\cf\d3\20\0d\31\30\20\30\20... # 40718, 1
      EncapsulatedDocument
```

```
 * (0042,0012) LO [application/pdf]                        #  16, 1 MIMETypeOfEncapsulatedDocument
 * ...
 *
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/ExtractEncapsulatedFile.exe some_pdf_encapsulated.dcm
 */
using System;
using gdcm;

public class ExtractEncapsulatedFile
{
  public static int Main(string[] args)
    {
    string file = args[0];
    Reader reader = new Reader();
    reader.SetFileName( file );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    File f = reader.GetFile();
    DataSet ds = f.GetDataSet();
    Tag tencapsulated_stream = new Tag(0x0042,0x0011); // Encapsulated Document
    if( !ds.FindDataElement( tencapsulated_stream ) )
      {
      return 1;
      }
    // else
    DataElement de = ds.GetDataElement( tencapsulated_stream );
    ByteValue bv = de.GetByteValue();
    uint len = bv.GetLength();
    byte[] encapsulated_stream = new byte[len];
    bv.GetBuffer( encapsulated_stream, len );

    // Write out the decompressed bytes
    //System.Console.WriteLine(image.toString());
    using (System.IO.Stream stream =
      System.IO.File.Open(@"/tmp/dd.pdf",
        System.IO.FileMode.Create))
      {
      System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
      writer.Write( encapsulated_stream );
      }


    return 0;
    }
}
```

14.22 ExtractImageRegion.cs

```
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=========================================================================*/

/*
 * This small code shows how to use the gdcm.ImageRegionReader API
 * In this example we are taking each frame by frame and dump them to
 * /tmp/frame.raw.
 *
 * Usage:
 * $ bin/ExtractImageRegion.exe input.dcm
 *
```

```
 * Example:
 * $ bin/ExtractImageRegion.exe gdcmData/012345.002.050.dcm
 * $ md5sum /tmp/frame.raw
 * d594a5e2fde12f32b6633ca859b4d4a6  /tmp/frame.raw
 * $ gdcminfo --md5sum gdcmData/012345.002.050.dcm
 * [...]
 * md5sum: d594a5e2fde12f32b6633ca859b4d4a6
 */
using System;
using gdcm;

public class ExtractImageRegion
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    uint file_size = gdcm.PosixEmulation.FileSize(filename);

    // instantiate the reader:
    gdcm.ImageRegionReader reader = new gdcm.ImageRegionReader();
    reader.SetFileName( filename );

    // pull DICOM info:
    if (!reader.ReadInformation()) return 1;

    // store current offset:
    uint cur_pos = reader.GetStreamCurrentPosition();

    uint remaining = file_size - cur_pos;

    Console.WriteLine("Remaining bytes to read (Pixel Data): " + remaining.ToString() );

    // Get file infos
    gdcm.File f = reader.GetFile();

    // get some info about image
    UIntArrayType dims = ImageHelper.GetDimensionsValue(f);
    PixelFormat pf = ImageHelper.GetPixelFormatValue (f);
    int pixelsize = pf.GetPixelSize();
    PhotometricInterpretation pi = ImageHelper.GetPhotometricInterpretationValue(f);
    Console.WriteLine( pi.toString() );

    // buffer to get the pixels
    byte[] buffer = new byte[ dims[0] * dims[1] * pixelsize ];

    // define a simple box region.
    BoxRegion box = new BoxRegion();
    for (uint z = 0; z < dims[2]; z++)
      {
      // Define that I want the image 0, full size (dimx x dimy pixels)
      // and do that for each z:
      box.SetDomain(0, dims[0] - 1, 0, dims[1] - 1, z, z);
      //System.Console.WriteLine( box.toString() );
      reader.SetRegion( box );

      // reader will try to load the uncompressed image region into buffer.
      // the call returns an error when buffer.Length is too small. For instance
      // one can call:
      // uint buf_len = reader.ComputeBufferLength(); // take into account pixel size
      // to get the exact size of minimum buffer
      if (reader.ReadIntoBuffer(buffer, (uint)buffer.Length))
        {
        using (System.IO.Stream stream =
          System.IO.File.Open(@"/tmp/frame.raw",
            System.IO.FileMode.Create))
          {
          System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
          writer.Write(buffer);
          }
        }
      else
        {
        throw new Exception("can't read pixels error");
        }
      }

    return 0;
    }
}
```

14.23 ExtractImageRegionWithLUT.cs

```
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=========================================================================*/

/*
 * This small code shows how to use the gdcm.ImageRegionReader API
 * In this example we are taking each frame by frame and dump them to
 * /tmp/frame.raw.
 * Furthermore we are applying the LUT on this image.
 * Special care should be taken in case the image is not PALETTE COLOR
 *
 * Usage:
 * $ bin/ExtractImageRegionWithLUT.exe input.dcm
 *
 * Example:
 * $ bin/ExtractImageRegionWithLUT.exe gdcmData/rle16loo.dcm
 * $ md5sum /tmp/frame_rgb.raw
 * 73bf61325fdb6e2830244a2b7b0c4ae2  /tmp/frame_rgb.raw
 * $ gdcmimg --depth 16 --spp 3 --size 600,430 /tmp/frame_rgb.raw rgb.dcm
 * $ gdcmviewer rgb.dcm
 */
using System;
using gdcm;

public class ExtractImageRegion
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    // instantiate the reader:
    gdcm.ImageRegionReader reader = new gdcm.ImageRegionReader();
    reader.SetFileName( filename );

    // pull DICOM info:
    if (!reader.ReadInformation()) return 1;
    // Get file infos
    gdcm.File f = reader.GetFile();

    gdcm.LookupTable lut = reader.GetImage().GetLUT();

    // get some info about image
    UIntArrayType dims = ImageHelper.GetDimensionsValue(f);
    PixelFormat pf = ImageHelper.GetPixelFormatValue (f);
    int pixelsize = pf.GetPixelSize();

    // buffer to get the pixels
    byte[] buffer = new byte[ dims[0] * dims[1] * pixelsize ];

    // output buffer for the RGB decoded image:
    byte[] buffer2 = new byte[ dims[0] * dims[1] * pixelsize * 3 ];

    // define a simple box region.
    BoxRegion box = new BoxRegion();
    for (uint z = 0; z < dims[2]; z++)
      {
      // Define that I want the image 0, full size (dimx x dimy pixels)
      // and do that for each z:
      box.SetDomain(0, dims[0] - 1, 0, dims[1] - 1, z, z);
      //System.Console.WriteLine( box.toString() );
      reader.SetRegion( box );

      // reader will try to load the uncompressed image region into buffer.
      // the call returns an error when buffer.Length is too small. For instance
      // one can call:
      // uint buf_len = reader.ComputeBufferLength(); // take into account pixel size
      // to get the exact size of minimum buffer
      if (reader.ReadIntoBuffer(buffer, (uint)buffer.Length))
```

```
        {
        if( !lut.Decode( buffer2, (uint)buffer2.Length, buffer, (uint)buffer.Length ) )
          {
          throw new Exception("can't decode");
          }

        using (System.IO.Stream stream =
          System.IO.File.Open(@"/tmp/frame_rgb.raw",
            System.IO.FileMode.Create))
          {
          System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
          writer.Write(buffer2);
          }
        }
      else
        {
        throw new Exception("can't read pixels error");
        }
      }

    return 0;
    }
}
```

14.24 ExtractOneFrame.cs

```
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=========================================================================*/

/*
 * This small code shows how to use the gdcm.StreamImageReader API
 * to read a single (whole) frame at a time
 * The API allow extracting a smaller extent of the frame of course.
 * It will write out the extracted frame in /tmp/frame.raw
 *
 * Usage:
 * $ bin/ExtractOneFrame.exe input.dcm
 */
using System;
using gdcm;

public class ExtractOneFrame
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    gdcm.StreamImageReader reader = new gdcm.StreamImageReader();

    reader.SetFileName( filename );

    if (!reader.ReadImageInformation()) return 1;
    // Get file infos
    gdcm.File f = reader.GetFile();

    // get some info about image
    UIntArrayType extent = ImageHelper.GetDimensionsValue(f);
    //System.Console.WriteLine( extent[0] );
    uint dimx = extent[0];
    //System.Console.WriteLine( extent[1] );
    uint dimy = extent[1];
    //System.Console.WriteLine( extent[2] );
    uint dimz = extent[2];
    PixelFormat pf = ImageHelper.GetPixelFormatValue (f);
    int pixelsize = pf.GetPixelSize();
```

```
    //System.Console.WriteLine( pixelsize );

    // buffer to get the pixels
    byte[] buffer = new byte[ dimx * dimy * pixelsize ];

    for (int i = 0; i < dimz; i++)
      {
      // Define that I want the image 0, full size (dimx x dimy pixels)
      reader.DefinePixelExtent(0, (ushort)dimx, 0, (ushort)dimy, (ushort)i, (ushort)(i+1));
      uint buf_len = reader.DefineProperBufferLength(); // take into account pixel size
      //System.Console.WriteLine( buf_len );
      if( buf_len > buffer.Length )
        {
        throw new Exception("buffer is too small for target");
        }

      if (reader.Read(buffer, (uint)buffer.Length))
        {
        using (System.IO.Stream stream =
          System.IO.File.Open(@"/tmp/frame.raw",
            System.IO.FileMode.Create))
          {
          System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
          writer.Write(buffer);
          }
        }
      else
        {
        throw new Exception("can't read pixels error");
        }
      }

    return 0;
    }
}
```

14.25 FileAnonymize.cs

```
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=========================================================================*/

/*
 * Simple C# example
 *
 * Usage:
 * $ mono bin/FileAnonymize.exe input.dcm output.dcm
 */
using System;
using gdcm;

public class FileAnonymize
{
  public static int Main(string[] args)
    {
    string filename = args[0];
    string outfilename = args[1];

    gdcm.FileAnonymizer fa = new gdcm.FileAnonymizer();
    fa.SetInputFileName( filename );
    fa.SetOutputFileName( outfilename );

    // Empty Operations
    // It will create elements, since those tags are non-registered public elements (2011):
    fa.Empty( new Tag(0x0008,0x1313) );
    fa.Empty( new Tag(0x0008,0x1317) );
```

```
    // Remove Operations
    // The following Tag are actually carefully chosen, since they refer to SQ:
    fa.Remove( new Tag(0x0008,0x2112) );
    fa.Remove( new Tag(0x0008,0x9215) );
    // Replace Operations
    // do not call replace operation on SQ attribute !
    fa.Replace( new Tag(0x0018,0x5100), "MYVALUE " );
    fa.Replace( new Tag(0x0008,0x1160), "MYOTHERVAL" );

    if( !fa.Write() )
      {
      System.Console.WriteLine( "Could not write" );
      return 1;
      }

    return 0;
    }
}
```

14.26 FileChangeTS.cs

```
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=========================================================================*/

/*
 * Simple C# example
 *
 * Shows multiple steps:
 * Steps 1.
 * Create a fake (dummy) DICOM file, with size 512 x 512 x 2 We use a small
 * image to be able to create the volume in memory Of course you can use any
 * existing DICOM instead
 *
 * Step 2.
 * Hack the DICOM file to pretend the number of frames is 1000 (instead of 2)
 * At this point in time this makes the DICOM file invalid (truncated). But the
 * next step will fix this.
 *
 * Step 3.
 * Use C# to create a binary data which will represent our source object for
 * image.
 *
 * Step 4.
 * We use gdcm.FileStreamer to merge the template DICOM file from Step 2, with
 * the binary data from Step 3. We decide to read a scanline at a time, but
 * this can be read with any number of bytes. AppendToDataElement() will always
 * do the proper computation.
 *
 * Step 5.
 * We compress this gigantic file, into [JPEG Lossless, Non-Hierarchical,
 * First-Order Prediction (Process 14 [Selection Value 1])]
 *
 * Usage:
 * $ mono bin/FileChangeTS.exe small.dcm big.dcm raw.data merge.dcm jpeg.dcm
 */
using System;
using System.IO;
using gdcm;

public class FileChangeTS
{
  public static byte[] StrToByteArray(string str)
    {
    System.Text.ASCIIEncoding  encoding=new System.Text.ASCIIEncoding();
    return encoding.GetBytes(str);
```

```
  }
// Create a 256 x 256 Secondary Capture Image Storage
static private void CreateSmallDICOM(string fileName)
  {
  using( var writer = new gdcm.PixmapWriter() )
    {
    gdcm.Pixmap img = writer.GetImage();
    img.SetNumberOfDimensions( 3 );
    img.SetDimension(0, 512 );
    img.SetDimension(1, 512 );
    img.SetDimension(2, 2 ); // fake a 3d volume
    PhotometricInterpretation pi = new PhotometricInterpretation( PhotometricInterpretation.PIType.MONOCHROME2
    );
    img.SetPhotometricInterpretation( pi );
    gdcm.DataElement pixeldata = new gdcm.DataElement( new gdcm.Tag(0x7fe0,0x0010) );
    byte[] buffer = new byte[ 512 * 512 * 2 ];
    pixeldata.SetByteValue( buffer, new gdcm.VL((uint)buffer.Length) );
    img.SetDataElement( pixeldata );

    gdcm.File file = writer.GetFile();
    gdcm.DataSet ds = file.GetDataSet();
    gdcm.DataElement ms = new gdcm.DataElement(new gdcm.Tag(0x0008,0x0016));
    string mediastorage = "1.2.840.10008.5.1.4.1.1.7.2"; // Multi-frame Grayscale Byte Secondary Capture Image
    Storage
    byte[] val = StrToByteArray(mediastorage);
    ms.SetByteValue( val, new gdcm.VL( (uint)val.Length) );
    ds.Insert( ms );

    writer.SetFileName( fileName );
    writer.Write();
    }
  }
static private void CreateBigDICOM(string fileName, string outfilename)
  {
  using( var ano = new gdcm.FileAnonymizer() )
    {
    // The following is somewhat dangerous, do not try at home:
    string nframes = "1000";
    ano.Replace( new gdcm.Tag(0x0028,0x0008), nframes );
    ano.SetInputFileName(fileName);
    ano.SetOutputFileName(outfilename);
    ano.Write(); // at this point the DICOM is invalid !
    }
  }
static private void CreateDummyFile(string fileName, long length)
  {
  using (var fileStream = new FileStream(fileName, FileMode.Create, FileAccess.Write, FileShare.None))
    {
    // Looks like C# always init to 0 (fallocate ?)
    // For the purpose of the test we could add some random noise
    fileStream.SetLength(length);
    }
  }
static private void ReadBytesIntoArray( byte[] array, FileStream source )
  {
  int numBytesToRead = array.Length;
  int numBytesRead = 0;
  while (numBytesToRead > 0)
    {
    // According to spec: Read() may return anything from 0 to numBytesToRead.
    int n = source.Read(array, numBytesRead, numBytesToRead);

    // Break when the end of the file is reached.
    if (n == 0)
      break;

    numBytesRead += n;
    numBytesToRead -= n;
    }
  }
static private void AssembleDICOMAndRaw(string dicomfn, string rawdata, string outfn)
  {
  using ( var fs = new gdcm.FileStreamer() )
    {
    fs.SetTemplateFileName(dicomfn);
    fs.SetOutputFileName(outfn);
    gdcm.Tag pixeldata = new gdcm.Tag(0x7fe0, 0x0010);
    // FileStreamer support automatic checking of pixel data length
    // based on DICOM attributes, only if we say so:
    fs.CheckDataElement( pixeldata );
    // Declare we are working on Pixel Data attribute:
```

```
      fs.StartDataElement( pixeldata );
      using (FileStream rawSource = new FileStream(rawdata,
          FileMode.Open, FileAccess.Read))
        {
        byte[] bytes = new byte[512];
        // Only read one scanline at a time
        // We could have been reading more at once, if this is more efficient,
        // AppendToDataElement will do the logic in all cases.
        for( int i = 0; i < 512 * 1000; ++i )
          {
          // Read the source file into a byte array.
          ReadBytesIntoArray( bytes, rawSource );
          fs.AppendToDataElement( pixeldata, bytes, (uint)bytes.Length );
          }
        }
      if( !fs.StopDataElement( pixeldata ) )
        {
        // Most likely an issue with Pixel Data Length computation:
        throw new Exception("StopDataElement failed");
        }
      }
    }
  static private void CompressIntoJPEG(string rawdicom, string jpegdicom)
    {
    using( var sfcts = FileChangeTransferSyntax.New() )
      {
      // Need to retrieve the actual C++ reference, to pass to
      // SimpleSubjectWatcher:
      FileChangeTransferSyntax fcts = sfcts.__ref__();
      SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(fcts, "FileChangeTransferSyntax");
      gdcm.TransferSyntax ts = new TransferSyntax( TransferSyntax.TSType.JPEGLosslessProcess14_1 );
      fcts.SetTransferSyntax( ts );
      fcts.SetInputFileName( rawdicom );
      fcts.SetOutputFileName( jpegdicom );
      fcts.Change();
      }
    }
  public static int Main(string[] args)
    {
    string filename = args[0];
    string outfilename = args[1];
    string rawfilename = args[2];
    string mergefn = args[3];
    string jpegfn = args[4];

    CreateSmallDICOM(filename);
    CreateBigDICOM(filename, outfilename);
    CreateDummyFile(rawfilename, 512 * 512 * 1000 );
    AssembleDICOMAndRaw(outfilename, rawfilename, mergefn);
    CompressIntoJPEG(mergefn, jpegfn);

    return 0;
    }
}
```

14.27 FileChangeTSLossy.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/

/*
 * Simple C# example
 *
 * Shows multiple steps:
 * Steps 1.
```

```
 * Create a fake (dummy) DICOM file, with size 512 x 512 x 2 We use a small
 * image to be able to create the volume in memory Of course you can use any
 * existing DICOM instead
 *
 * Step 2.
 * Hack the DICOM file to pretend the number of frames is 1000 (instead of 2)
 * At this point in time this makes the DICOM file invalid (truncated). But the
 * next step will fix this.
 *
 * Step 3.
 * Use C# to create a binary data which will represent our source object for
 * image.
 *
 * Step 4.
 * We use gdcm.FileStreamer to merge the template DICOM file from Step 2, with
 * the binary data from Step 3. We decide to read a scanline at a time, but
 * this can be read with any number of bytes. AppendToDataElement() will always
 * do the proper computation.
 *
 * Step 5.
 * We compress this gigantic file, into [JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8 Bit
    Image Compression]
 *
 * Usage:
 * $ bin/FileChangeTSLossy.exe small.dcm big.dcm raw.data merge.dcm jpeg.dcm
 */
using System;
using System.IO;
using gdcm;

public class FileChangeTS
{
  public static byte[] StrToByteArray(string str)
    {
    System.Text.ASCIIEncoding  encoding=new System.Text.ASCIIEncoding();
    return encoding.GetBytes(str);
    }
  // Create a 256 x 256 Secondary Capture Image Storage
  static private void CreateSmallDICOM(string fileName)
    {
    using( var writer = new gdcm.PixmapWriter() )
      {
      gdcm.Pixmap img = writer.GetImage();
      img.SetNumberOfDimensions( 3 );
      img.SetDimension(0, 512 );
      img.SetDimension(1, 512 );
      img.SetDimension(2, 2 ); // fake a 3d volume
      PhotometricInterpretation pi = new PhotometricInterpretation( PhotometricInterpretation.PIType.MONOCHROME2
      );
      img.SetPhotometricInterpretation( pi );
      gdcm.DataElement pixeldata = new gdcm.DataElement( new gdcm.Tag(0x7fe0,0x0010) );
      byte[] buffer = new byte[ 512 * 512 * 2 ];
      pixeldata.SetByteValue( buffer, new gdcm.VL((uint)buffer.Length) );
      img.SetDataElement( pixeldata );

      gdcm.File file = writer.GetFile();
      gdcm.DataSet ds = file.GetDataSet();
      gdcm.DataElement ms = new gdcm.DataElement(new gdcm.Tag(0x0008,0x0016));
      string mediastorage = "1.2.840.10008.5.1.4.1.1.7.2"; // Multi-frame Grayscale Byte Secondary Capture Image
      Storage
      byte[] val = StrToByteArray(mediastorage);
      ms.SetByteValue( val, new gdcm.VL( (uint)val.Length) );
      ds.Insert( ms );

      writer.SetFileName( fileName );
      writer.Write();
      }
    }
  static private void CreateBigDICOM(string fileName, string outfilename)
    {
    using( var ano = new gdcm.FileAnonymizer() )
      {
      // The following is somewhat dangerous, do not try at home:
      string nframes = "1000";
      ano.Replace( new gdcm.Tag(0x0028,0x0008), nframes );
      ano.SetInputFileName(fileName);
      ano.SetOutputFileName(outfilename);
      ano.Write(); // at this point the DICOM is invalid !
      }
    }
  static private void CreateDummyFile(string fileName, long length)
```

```
  {
  using (var fileStream = new FileStream(fileName, FileMode.Create, FileAccess.Write, FileShare.None))
    {
    // Looks like C# always init to 0 (fallocate ?)
    // For the purpose of the test we could add some random noise
    fileStream.SetLength(length);
    }
  }
static private void ReadBytesIntoArray( byte[] array, FileStream source )
  {
  int numBytesToRead = array.Length;
  int numBytesRead = 0;
  while (numBytesToRead > 0)
    {
    // According to spec: Read() may return anything from 0 to numBytesToRead.
    int n = source.Read(array, numBytesRead, numBytesToRead);

    // Break when the end of the file is reached.
    if (n == 0)
      break;

    numBytesRead += n;
    numBytesToRead -= n;
    }
  }
static private void AssembleDICOMAndRaw(string dicomfn, string rawdata, string outfn)
  {
  using ( var fs = new gdcm.FileStreamer() )
    {
    fs.SetTemplateFileName(dicomfn);
    fs.SetOutputFileName(outfn);
    gdcm.Tag pixeldata = new gdcm.Tag(0x7fe0, 0x0010);
    // FileStreamer support automatic checking of pixel data length
    // based on DICOM attributes, only if we say so:
    fs.CheckDataElement( pixeldata );
    // Declare we are working on Pixel Data attribute:
    fs.StartDataElement( pixeldata );
    using (FileStream rawSource = new FileStream(rawdata,
        FileMode.Open, FileAccess.Read))
      {
      byte[] bytes = new byte[512];
      // Only read one scanline at a time
      // We could have been reading more at once, if this is more efficient,
      // AppendToDataElement will do the logic in all cases.
      for( int i = 0; i < 512 * 1000; ++i )
        {
        // Read the source file into a byte array.
        ReadBytesIntoArray( bytes, rawSource );
        fs.AppendToDataElement( pixeldata, bytes, (uint)bytes.Length );
        }
      }
    if( !fs.StopDataElement( pixeldata ) )
      {
      // Most likely an issue with Pixel Data Length computation:
      throw new Exception("StopDataElement failed");
      }
    }
  }
static private void CompressIntoJPEG(string rawdicom, string jpegdicom)
  {
  using( var sfcts = FileChangeTransferSyntax.New() )
    {
    // Need to retrieve the actual C++ reference, to pass to
    // SimpleSubjectWatcher:
    FileChangeTransferSyntax fcts = sfcts.__ref__();
    SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(fcts, "FileChangeTransferSyntax");
    gdcm.TransferSyntax ts = new TransferSyntax( TransferSyntax.TSType.JPEGBaselineProcess1 );
    fcts.SetTransferSyntax( ts );
    ImageCodec ic = fcts.GetCodec();
    JPEGCodec jpeg = JPEGCodec.Cast( ic );
    jpeg.SetLossless( false );
    jpeg.SetQuality( 50 ); // poor quality !

    fcts.SetInputFileName( rawdicom );
    fcts.SetOutputFileName( jpegdicom );
    fcts.Change();
    }
  }
public static int Main(string[] args)
  {
  string filename = args[0];
```

```
    string outfilename = args[1];
    string rawfilename = args[2];
    string mergefn = args[3];
    string jpegfn = args[4];

    CreateSmallDICOM(filename);
    CreateBigDICOM(filename, outfilename);
    CreateDummyFile(rawfilename, 512 * 512 * 1000 );
    AssembleDICOMAndRaw(outfilename, rawfilename, mergefn);
    CompressIntoJPEG(mergefn, jpegfn);

    return 0;
    }
}
```

14.28 FileStreaming.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/

/*
 * Simple C# example
 *
 * Usage:
 * $ mono bin/FileStreaming.exe gdcmData/CT_16b_signed-UsedBits13.dcm output.dcm
 *
 * The class will take care of group handling and will use the first available group:
 * (0009,0012) ?? (LO) [MYTEST]                          # 6,1 Private Creator
 */
using System;
using gdcm;

public class FileStreaming
{
  public static int Main(string[] args)
    {
    string filename = args[0];
    string outfilename = args[1];

    gdcm.PrivateTag pt = new gdcm.PrivateTag( new gdcm.Tag(0x9,0x10), "MYTEST" );

    gdcm.FileStreamer fs = new gdcm.FileStreamer();
    fs.SetTemplateFileName( filename );
    fs.SetOutputFileName( outfilename );

    byte[] buffer = new byte[ 8192 ];
    uint len = (uint)buffer.Length;

    // In this example, we want that each newly created Private Attribute
    // contains at most 1000 bytes of incoming dataset.
    // We are also calling the function twice to check that appending mode is
    // working from one call to the other. The last element will have a length
    // of (2 * 8192) % 1000 = 384
    if( !fs.StartGroupDataElement( pt, 1000, 1 )
      || !fs.AppendToGroupDataElement( pt, buffer, len )
      || !fs.AppendToGroupDataElement( pt, buffer, len )
      || !fs.StopGroupDataElement( pt ) )
      {
      System.Console.WriteLine( "Could not change private group" );
      return 1;
      }

    return 0;
    }
}
```

14.29 GetArray.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/GetArray.exe gdcmData/012345.002.050.dcm
 */
using System;
using gdcm;

public class GetArray
{
  public static int Main(string[] args)
    {
    string file1 = args[0];
    ImageReader reader = new ImageReader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    Image image = reader.GetImage();

    PixelFormat pixeltype = image.GetPixelFormat();

    if( image.GetNumberOfDimensions() != 2 )
      {
      // For the purpose of the test, exit early on
      return 1;
      }
    uint dimx = image.GetDimension(0);
    uint dimy = image.GetDimension(1);
    uint npixels = dimx * dimy;
    //LookupTable lut = image.GetLUT();
    //uint rl = lut.GetLUTLength( LookupTable.LookupTableType.RED );
    //byte[] rbuf = new byte[ rl ];
    //uint rl2 = lut.GetLUT( LookupTable.LookupTableType.RED, rbuf );
    //assert rl == rl2;

    //byte[] str1 = new byte[ image.GetBufferLength()];
    //image.GetBuffer( str1 );
    if( pixeltype.GetScalarType() == PixelFormat.ScalarType.UINT8 )
      {
      System.Console.WriteLine( "Processing UINT8 image type" );
      byte[] str1 = new byte[ npixels ];
      image.GetArray( str1 );
      }
    else if( pixeltype.GetScalarType() == PixelFormat.ScalarType.INT16 )
      {
      System.Console.WriteLine( "Processing INT16 image type" );
      short[] str1 = new short[ npixels ];
      image.GetArray( str1 );
      }
    else if( pixeltype.GetScalarType() == PixelFormat.ScalarType.UINT16 )
      {
      System.Console.WriteLine( "Processing UINT16 image type" );
      ushort[] str1 = new ushort[ npixels ];
      image.GetArray( str1 );
      }
    else
      {
      //System.Console.WriteLine( "Default (unhandled pixel format): " + pixeltype.toString() );
      System.Console.WriteLine( "Default (unhandled pixel format): " + pixeltype.GetScalarTypeAsString() );
      // Get bytes
```

```
      byte[] str1 = new byte[ image.GetBufferLength()];
      image.GetBuffer( str1 );
      }

    return 0;
    }
}
```

14.30 MpegVideoInfo.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This examples takes in a MPEG2 and write out a Video Endoscopic Imagae Storage
 * encoded using MPEG2 @ Main Profile
 * ref: http://chrisa.wordpress.com/2007/11/21/decoding-mpeg2-information/
 * See also:
 * http://dvd.sourceforge.net/dvdinfo/mpeghdrs.html#gop
 * http://cvs.linux.hr/cgi-bin/viewcvs.cgi/mpeg_mod/README.infompeg?view=markup
 * http://www.guru-group.fi/~too/sw/m2vmp2cut/mpeg2info.c
 */

/*
 * Provides information about an MPEG2 file, including the duration, frame rate, aspect
 * ratio, and resolution.  Good information about the MPEG2 file structure that helps
 * explain parts of the code can be found here:
 * http://dvd.sourceforge.net/dvdinfo/mpeghdrs.html#gop
 *
 * Copyright (c) 2007 Chris Anderson (chrisa@wordpress.com)
 *
 * This library is free software; you can redistribute it and/or
 * modify it under the terms of the GNU Lesser General Public
 * License as published by the Free Software Foundation; either
 * version 2 of the License, or (at your option) any later version.
 *
 * This library is distributed in the hope that it will be useful,
 * but WITHOUT ANY WARRANTY; without even the implied warranty of
 * MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.  See the GNU
 * Lesser General Public License for more details.
 */
using System;
using System.IO;
using gdcm;

public class Mpeg2VideoInfo
{
    #region Member Variables
    private TimeSpan        m_startTime     = TimeSpan.Zero;
    private TimeSpan        m_endTime       = TimeSpan.Zero;
    private TimeSpan        m_duration      = TimeSpan.Zero;
    private eAspectRatios   m_aspectRatio   = eAspectRatios.Invalid;
    private eFrameRates     m_frameRate     = 0;
    private int             m_pictureWidth  = 0;
    private int             m_pictureHeight = 0;
    #endregion

    #region Constants
    private const byte PADDING_PACKET = 0xBE;
    private const byte VIDEO_PACKET = 0xE0;
    private const byte AUDIO_PACKET = 0xC0;
    private const byte SYSTEM_PACKET = 0xBB;
    private const byte TIMESTAMP_PACKET = 0xB8;
```

```
private const byte HEADER_PACKET = 0xB3;

private const int BUFFER_SIZE = 8162; // 8K buffer

private readonly static TimeSpan EMPTY_TIMESPAN = new TimeSpan(0, 0, -1);
#endregion

#region Enumerations
public enum eFrameRates
{
    Invalid,
    PulldownNTSC,           // 24000d/1001d = 23.976 Hz
    Film,                   // 24 Hz
    PAL,                    // 25 Hz
    NTSC,                   // 30000d/1001d = 29.97 Hz
    DropFrameNTSC,          // 30 Hz
    DoubleRatePAL,          // 50 Hz
    DoubleRateNTSC,         // 59.97 Hz
    DoubleRateDropFrameNTSC // 60 Hz
}

public enum eAspectRatios
{
    Invalid,
    VGA,        // 1/1
    StandardTV, // 4/3
    LargeTV,    // 16/9
    Cinema      // 2.21/1
}
#endregion

#region Constructor
public Mpeg2VideoInfo(string file)
{
    ParseMpeg(file);
}
#endregion

#region Public Properties
public TimeSpan StartTime
{
    get { return m_startTime; }
}

public TimeSpan EndTime
{
    get { return m_endTime; }
}

public TimeSpan Duration
{
    get { return m_duration; }
}

public eAspectRatios AspectRatio
{
    get { return m_aspectRatio; }
}

public eFrameRates FrameRate
{
    get { return m_frameRate; }
}

public int PictureWidth
{
    get { return m_pictureWidth; }
}

public int PictureHeight
{
    get { return m_pictureHeight; }
}
#endregion

#region Private Functions
private void ParseMpeg(string file)
{
    FileStream fs = new FileStream(file, FileMode.Open, FileAccess.Read, FileShare.ReadWrite);
```

```
        BinaryReader br = new BinaryReader(fs);

        m_startTime = GetStartTimeStampInfo(br);
        m_endTime = GetEndTimeStampInfo(br);

        m_duration = m_endTime.Subtract(m_startTime);

        GetHeaderInfo(br);

        br.Close();
        fs.Close();
    }

    private TimeSpan GetStartTimeStampInfo(BinaryReader br)
    {
        TimeSpan startTime = EMPTY_TIMESPAN;
        byte[] buffer = new byte[BUFFER_SIZE];

        br.BaseStream.Seek(0, SeekOrigin.Begin);

        while (startTime == EMPTY_TIMESPAN && br.BaseStream.Position < br.BaseStream.Length)
        {
            int readBytes = br.Read(buffer, 0, BUFFER_SIZE);

            for (int offset = 0; offset < readBytes - 8; offset++)
            {
                if (IsStreamMarker(ref buffer, offset, TIMESTAMP_PACKET))
                {
                    offset += 4; // Move to the data position which follows the stream header
                    uint timeStampEncoded = GetData(ref buffer, offset);
                    startTime = DecodeTimeStamp(timeStampEncoded);

                    if (startTime != EMPTY_TIMESPAN)
                        break;
                }
            }
        }

        return startTime;
    }

    private TimeSpan GetEndTimeStampInfo(BinaryReader br)
    {
        TimeSpan endTime = EMPTY_TIMESPAN;
        byte[] buffer = new byte[BUFFER_SIZE];

        br.BaseStream.Seek(-BUFFER_SIZE, SeekOrigin.End);

        while (endTime == EMPTY_TIMESPAN && br.BaseStream.Position > BUFFER_SIZE)
        {
            int readBytes = br.Read(buffer, 0, BUFFER_SIZE);

            for (int offset = readBytes - 8; offset >= 0; offset--)
            {
                if (IsStreamMarker(ref buffer, offset, TIMESTAMP_PACKET))
                {
                    offset += 4; // Move to the data position which follows the stream header
                    uint timeStampEncoded = GetData(ref buffer, offset);
                    endTime = DecodeTimeStamp(timeStampEncoded);

                    if (endTime != EMPTY_TIMESPAN)
                        break;
                }
            }

            br.BaseStream.Seek(-BUFFER_SIZE * 2, SeekOrigin.Current);
        }

        return endTime;
    }

    private TimeSpan DecodeTimeStamp(uint timeStampEncoded)
    {
        TimeSpan timeStamp = EMPTY_TIMESPAN;

        // Mask out the bits containing the property we are after, then
        // shift the data to the right to get its value
        int hour = (int)(timeStampEncoded & 0x7C000000) >> 26;   // Bits 31 -> 27
        int minute = (int)(timeStampEncoded & 0x03F00000) >> 20; // Bits 26 -> 21
        int second = (int)(timeStampEncoded & 0x0007E000) >> 13; // Bits 19 -> 14
        int frame = (int)(timeStampEncoded & 0x00001F80) >> 7;   // Bits 13 -> 8 - not used, but included for
```

```
      completeness

        timeStamp = new TimeSpan(hour, minute, second);
        return timeStamp;
    }

    private void GetHeaderInfo(BinaryReader br)
    {
        byte[] buffer = new byte[BUFFER_SIZE];

        br.BaseStream.Seek(0, SeekOrigin.Begin);
        br.Read(buffer, 0, BUFFER_SIZE);

        for (int offset = 0; offset < buffer.Length - 4; offset++)
        {
            if (IsStreamMarker(ref buffer, offset, HEADER_PACKET))
            {
                offset += 4; // Move to the data position which follows the stream header
                uint headerData = GetData(ref buffer, offset);

                // Mask out the bits containing the property we are after, then
                // shift the data to the right to get its value
                m_pictureWidth = (int)(headerData & 0xFFF00000) » 20;
                m_pictureHeight = (int)(headerData & 0x000FFF00) » 8;

                uint aspectRatioIndex = (headerData & 0x000000F0) » 4;
                uint fpsIndex = headerData & 0x0000000F;

                m_aspectRatio = (eAspectRatios)fpsIndex;
                m_frameRate = (eFrameRates)fpsIndex;

                break;
            }
        }
    }

    private uint GetData(ref byte[] buffer, int offset)
    {
        return (uint)  ((buffer[offset] « 24) |
                        (buffer[offset + 1] « 16) |
                        (buffer[offset + 2] « 8) |
                        (buffer[offset + 3]));
    }

    private bool IsStreamMarker(ref byte[] buffer, int offset, byte markerType)
    {
        return (buffer[offset] == 0x00 &&
                buffer[offset + 1] == 0x00 &&
                buffer[offset + 2] == 0x01 &&
                buffer[offset + 3] == markerType);
    }
    #endregion
  public static int Main(string[] args)
    {
    string file1 = args[0];
    Mpeg2VideoInfo info = new Mpeg2VideoInfo(file1);
    System.Console.WriteLine( info.StartTime );
    System.Console.WriteLine( info.EndTime );
    System.Console.WriteLine( info.Duration );
    System.Console.WriteLine( info.AspectRatio );
    System.Console.WriteLine( info.FrameRate );
    System.Console.WriteLine( info.PictureWidth );
    System.Console.WriteLine( info.PictureHeight );

    ImageReader r = new ImageReader();
    //Image image = new Image();
    Image image = r.GetImage();
    image.SetNumberOfDimensions( 3 );
    DataElement pixeldata = new DataElement( new gdcm.Tag(0x7fe0,0x0010) );

    System.IO.FileStream infile =
      new System.IO.FileStream(file1, System.IO.FileMode.Open, System.IO.FileAccess.Read);
    uint fsize = gdcm.PosixEmulation.FileSize(file1);

    byte[] jstream  = new byte[fsize];
    infile.Read(jstream, 0 , jstream.Length);

    SmartPtrFrag sq = SequenceOfFragments.New();
    Fragment frag = new Fragment();
    frag.SetByteValue( jstream, new gdcm.VL( (uint)jstream.Length) );
    sq.AddFragment( frag );
```

```
    pixeldata.SetValue( sq.__ref__() );

    // insert:
    image.SetDataElement( pixeldata );

    PhotometricInterpretation pi = new PhotometricInterpretation(
      PhotometricInterpretation.PIType.YBR_PARTIAL_420 );
    image.SetPhotometricInterpretation( pi );
    // FIXME hardcoded:
    PixelFormat pixeltype = new PixelFormat(3,8,8,7);
    image.SetPixelFormat( pixeltype );

    // FIXME hardcoded:
    TransferSyntax ts = new TransferSyntax( TransferSyntax.TSType.MPEG2MainProfile);
    image.SetTransferSyntax( ts );

    image.SetDimension(0, (uint)info.PictureWidth);
    image.SetDimension(1, (uint)info.PictureHeight);
    image.SetDimension(2, 721);

    ImageWriter writer = new ImageWriter();
    gdcm.File file = writer.GetFile();
    file.GetHeader().SetDataSetTransferSyntax( ts );
    Anonymizer anon = new Anonymizer();
    anon.SetFile( file );

    MediaStorage ms = new MediaStorage( MediaStorage.MSType.VideoEndoscopicImageStorage);

    UIDGenerator gen = new UIDGenerator();
    anon.Replace( new Tag(0x0008,0x16), ms.GetString() );
    anon.Replace( new Tag(0x0018,0x40), "25" );
    anon.Replace( new Tag(0x0018,0x1063), "40.000000" );
    anon.Replace( new Tag(0x0028,0x34), "4\\3" );
    anon.Replace( new Tag(0x0028,0x2110), "01" );

    writer.SetImage( image );
    writer.SetFileName( "dummy.dcm" );
    if( !writer.Write() )
      {
      System.Console.WriteLine( "Could not write" );
      return 1;
      }

    return 0;
    }
}
```

14.31 NewSequence.cs

```
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=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/NewSequence.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
//using gdcm;

public class NewSequence
{
  public static byte[] StrToByteArray(string str)
    {
    System.Text.ASCIIEncoding  encoding=new System.Text.ASCIIEncoding();
```

```
    return encoding.GetBytes(str);
    }

  public static int Main(string[] argv)
    {
    string file1 = argv[0];
    string file2 = argv[1];

    gdcm.Reader r = new gdcm.Reader();
    r.SetFileName( file1 );
    if ( ! r.Read() )
      {
      return 1;
      }

    gdcm.File f = r.GetFile();
    gdcm.DataSet ds = f.GetDataSet();
    // tsis = gdcm.Tag(0x0008,0x2112) # SourceImageSequence

    // Create a dataelement
    gdcm.DataElement de = new gdcm.DataElement(new gdcm.Tag(0x0010, 0x2180));
    string occ = "Occupation";
    de.SetByteValue( StrToByteArray(occ), new gdcm.VL((uint)occ.Length));
    de.SetVR(new gdcm.VR(gdcm.VR.VRType.SH));

    // Create an item
    gdcm.Item it = new gdcm.Item();
    it.SetVLToUndefined();      // Needed to not popup error message
    //it.InsertDataElement(de)
    gdcm.DataSet nds = it.GetNestedDataSet();
    nds.Insert(de);

    // Create a Sequence
    gdcm.SmartPtrSQ sq = gdcm.SequenceOfItems.New();
    sq.SetLengthToUndefined();
    sq.AddItem(it);

    // Insert sequence into data set
    gdcm.DataElement des = new gdcm.DataElement(new gdcm.Tag(0x0400,0x0550));
    des.SetVR(new gdcm.VR(gdcm.VR.VRType.SQ));
    des.SetValue(sq.__ref__());
    des.SetVLToUndefined();

    ds.Insert(des);

    gdcm.Writer w = new gdcm.Writer();
    w.SetFile( f );
    w.SetFileName( file2 );
    if ( !w.Write() )
      return 1;

    return 0;
    }
}
```

14.32 RescaleImage.cs

```
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=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/DecompressImage.exe gdcmData/012345.002.050.dcm rescaled.dcm
 */
```

```
using System;
using gdcm;

public class DecompressImage
{
  public static int Main(string[] args)
    {
    string file1 = args[0];
    ImageReader reader = new ImageReader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    Image image = reader.GetImage();
    PixelFormat pixeltype = image.GetPixelFormat();

    Rescaler r = new Rescaler();
    r.SetIntercept( 0 );
    r.SetSlope( 1.2 );
    r.SetPixelFormat( pixeltype );
    PixelFormat outputpt = new PixelFormat( r.ComputeInterceptSlopePixelType() );

    System.Console.WriteLine( "pixeltype" );
    System.Console.WriteLine( pixeltype.toString() );
    System.Console.WriteLine( "outputpt" );
    System.Console.WriteLine( outputpt.toString() );

    uint len = image.GetBufferLength();
    short[] input = new short[ len / 2 ]; // sizeof(short) == 2
    image.GetArray( input );

    double[] output = new double[ len / 2 ];
    r.Rescale( output, input, len );

    // First Pixel is:
    System.Console.WriteLine( "Input:" );
    System.Console.WriteLine( input[0] );

    System.Console.WriteLine( "Output:" );
    System.Console.WriteLine( output[0] );

    return 0;
    }
}
```

14.33 SendFileSCU.cs

```
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=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Perso/gdcm-gcc/bin
 * $ mono bin/SendFileSCU.exe server port input.dcm
 */
using System;
using gdcm;

public class SendFileSCU
{
  public static int Main(string[] args)
    {
```

```
    string server = args[0];
    ushort port = ushort.Parse(args[1]);
    string filename = args[2];

    bool b = CompositeNetworkFunctions.CEcho( server, port );
    if( !b ) return 1;

    FilenamesType files = new FilenamesType();
    files.Add( filename );
    b = CompositeNetworkFunctions.CStore( server, port, files );
    if( !b ) return 1;

    return 0;
    }
}
```

14.34 SimplePrintPatientName.cs

```
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=========================================================================*/
/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Perso/gdcm/debug-gcc/bin
 * $ mono bin/SimplePrintPatientName.exe gdcmData/012345.002.050.dcm
 */
/*
 This example was provided by Jonathan Morra /jonmorra gmail com/
 on the gdcm mailing list (Fri, 28 May 2010)
*/
using System;
using gdcm;

namespace GDCMTest
{
  class SimplePrintPatientName
    {
    static int Main(string[] args)
      {
      if (args.Length != 1)
        {
        Console.WriteLine("This program prints the patient name of a dicom file with gdcm");
        Console.WriteLine("Usage: [input.dcm]");
        return 1;
        }

      gdcm.Reader reader = new gdcm.Reader();
      reader.SetFileName(args[0]);
      bool ret = reader.Read();
      //TagSetType tst = new TagSetType();
      //tst.Add( new Tag(0x7fe0,0x10) );
      //bool ret = reader.ReadUpToTag( new Tag(0x88,0x200), tst );
      if( !ret )
        {
        return 1;
        }

      gdcm.File file = reader.GetFile();

      gdcm.StringFilter filter = new gdcm.StringFilter();
      filter.SetFile(file);
      string value = filter.ToString(new gdcm.Tag(0x0010, 0x0010));

      Console.WriteLine("Patient Name: " + value);
      return 0;
      }
```

```
    }
}
```

14.35 SortImage2.cs

```
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=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/SortImage.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
using gdcm;

public class SortImage2
{
  bool mysort(DataSet ds1, DataSet ds2)
    {
    return false;
    }

  public static int Main(string[] args)
    {
    Sorter sorter = new Sorter();
    sorter.SetSortFunction( mysort );

    return 0;
    }
}
```

14.36 CStoreQtProgress.cxx

```
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=========================================================================*/
/*
 * This small example show how one can use the virtual function
 * mechanism of the SimpleSubjectWatcher class to redirect progress
 * report to a custom Qt classes
 *
 * http://doc.qt.nokia.com/latest/qprogressdialog.html
 *
 * Usage:
 * CStoreQtProgress dicom.example.com 11112 gdcmData/MR_Spectroscopy_SIEMENS_OF.dcm
 *
 */

#include "gdcmServiceClassUser.h"
#include "gdcmSimpleSubjectWatcher.h"
```

```
#include "gdcmProgressEvent.h"
#include "gdcmDirectory.h"
#include "gdcmPresentationContextGenerator.h"

#include <QApplication>
#include <QProgressDialog>
#include <QVBoxLayout>

namespace gdcm {
/*
 * This class is a little more complicated than what this example demonstrate
 * This watcher is capable of handling nested progress. Since the Progress
 * grows from [0 to 1] on a per file basis and we only have one instance of a
 * watcher per association, we need some calculation to compute the global
 * (total) progress
 * In fact we simply divide the per-file progress by the number of files.
 *
 * This QtWatcher class will then update the progress bar according to the
 * progress.
 */
class MyQtWatcher : public SimpleSubjectWatcher
{
  size_t nfiles;
  double progress;
  size_t index;
  double refprogress;
  QWidget* win;
  QProgressDialog* qtprogress;
public:
  MyQtWatcher(Subject * s, const char *comment = "", QWidget *w = NULL, QProgressDialog* p = NULL, size_t n =
      1):
    SimpleSubjectWatcher(s,comment),nfiles(n),progress(0),index(0),refprogress(0),win(w),qtprogress(p){}
  void ShowIteration()
    {
    index++;
    assert( index <= nfiles );
    // update refprogess (we are moving to the next file)
    refprogress = progress;
    }
  void ShowProgress(Subject *, const Event &evt)
    {
    // Retrieve the ProgressEvent:
    const ProgressEvent &pe = dynamic_cast<const ProgressEvent&>(evt);
    // compute global progress:
    progress = refprogress + (1. / (double)nfiles ) * pe.GetProgress();
    // Print Global and local progress to stdout:
    std::cout « "Global Progress: " « progress « " per file progress " « pe.GetProgress() « std::endl;
    //set progress value in the QtProgress bar
    int i = (int)(progress * 100 + 0.5); // round to next int
    qtprogress->setValue(i);
    win->show();
    }
  virtual void ShowDataSet(Subject *caller, const Event &evt)
    {
    (void)caller;
    (void)evt;
    }
};
} // end namespace gdcm

int main(int argc, char *argv[])
{
  if( argc < 4 )
    {
    std::cerr « argv[0] « " remote_server port filename" « std::endl;
    return 1;
    }
  QApplication a(argc, argv);

  std::ostringstream error_log;
  gdcm::Trace::SetErrorStream( error_log );

  const char *remote = argv[1];
  int portno = atoi(argv[2]);
  const char *filename = argv[3];

  QVBoxLayout* layout = new QVBoxLayout;
  QWidget*  win = new QWidget;

  QProgressDialog* progress = new QProgressDialog("Sending data...", "Cancel", 0, 100);
```

```
  progress->setWindowModality(Qt::WindowModal);

  layout->addWidget(progress,Qt::AlignCenter);
  win->setLayout(layout);

  gdcm::SmartPointer<gdcm::ServiceClassUser> scup = new gdcm::ServiceClassUser;
  gdcm::ServiceClassUser &scu = *scup;
  //gdcm::SimpleSubjectWatcher w( &scu, "TestServiceClassUser" );
  // let's use a more complicated progress reported in this example
  gdcm::MyQtWatcher w( &scu, "QtWatcher", win, progress );

  scu.SetHostname( remote );
  scu.SetPort( (uint16_t)portno );
  scu.SetTimeout( 1000 );
  scu.SetCalledAETitle( "GDCM_STORE" );

  if( !scu.InitializeConnection() )
    {
    std::cerr << "Could not InitializeConnection" << std::endl;
    return 1;
    }

  gdcm::Directory::FilenamesType filenames;
  filenames.push_back( filename );

  // setup the PC(s) based on the filenames:
  gdcm::PresentationContextGenerator generator;
  if( !generator.GenerateFromFilenames(filenames) )
    {
    std::cerr << "Could not GenerateFromFilenames" << std::endl;
    return 1;
    }

  // Setup PresentationContext(s)
  scu.SetPresentationContexts( generator.GetPresentationContexts() );

  // Start ASSOCIATION
  if( !scu.StartAssociation() )
    {
    std::cerr << "Could not Start" << std::endl;
    return 1;
    }

  // Send C-STORE
  if( !scu.SendStore( filename ) )
    {
    std::cerr << "Could not Store" << std::endl;
    std::cerr << "Error log is:" << std::endl;
    std::cerr << error_log.str() << std::endl;
    return 1;
    }

  // Stop ASSOCIATION
  if( !scu.StopAssociation() )
    {
    std::cerr << "Could not Stop" << std::endl;
    return 1;
    }

  win->show();

  return a.exec();
}
```

14.37 ChangePrivateTags.cxx

```
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```

```
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=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmPrivateTag.h"

int main(int argc, char* argv[] )
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " path/to/05148044-mr-siemens-avanto-syngo.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if (! reader.Read() )
    {
    return 1;
    }

  // (0029,0010) LO [SIEMENS CSA HEADER]                                  # 18,1 Private Creator
  // (0029,0011) LO [SIEMENS MEDCOM HEADER ]                              # 22,1 Private Creator
  // (0029,0012) LO [SIEMENS MEDCOM HEADER2]                              # 22,1 Private Creator
  // [...]
  // (0029,1018) CS [MR]                                                  # 2,1 CSA Series Header Type
  // (0029,1134) CS [DB TO DICOM ]                                        # 12,1 PMTF Information 4
  // (0029,1260) LO [com ]                                                # 4,1 Series Workflow Status

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  // Declare private tag we need to find:
  gdcm::PrivateTag pt1( 0x29,0x18, "SIEMENS CSA HEADER" );
  gdcm::PrivateTag pt2( 0x29,0x34, "SIEMENS MEDCOM HEADER" );
  gdcm::PrivateTag pt3( 0x29,0x60, "SIEMENS MEDCOM HEADER2" );

  const char str1[] = "GDCM was here 3!";
  if( !ds.FindDataElement( pt1 ) ) return 1;
  gdcm::DataElement de1 = ds.GetDataElement( pt1 ); // Convert Private tag, into actual DataElement
  std::cout « de1 « std::endl;
  de1.SetByteValue( str1, (uint32_t)strlen(str1) );
  ds.Replace( de1 );

  const char str2[] = "GDCM was here 2!";
  if( !ds.FindDataElement( pt2 ) ) return 1;
  gdcm::DataElement de2 = ds.GetDataElement( pt2 );
  std::cout « de2 « std::endl;
  de2.SetByteValue( str2, (uint32_t)strlen(str2) );
  ds.Replace( de2 );

  const char str3[] = "GDCM was here 3!";
  if( !ds.FindDataElement( pt3 ) ) return 1;
  gdcm::DataElement de3 = ds.GetDataElement( pt3 );
  std::cout « de3 « std::endl;
  de3.SetByteValue( str3, (uint32_t)strlen(str3) );
  ds.Replace( de3 );

  gdcm::Writer writer;
  writer.SetFile( file );
  writer.SetFileName( outfilename );
  if ( !writer.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.38 ChangeSequenceUltrasound.cxx

```
/*=========================================================================
```

```
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=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmSmartPointer.h"
#include "gdcmDataSetHelper.h"

/*
 ./ChangeSequenceUltrasound gdcmData/D_CLUNIE_CT1_J2KI.dcm myoutput.dcm

 This is the exact C++ translation of the original python example: ManipulateSequence.py
 */

int main(int argc, char* argv[] )
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if (! reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();
  gdcm::Tag tsis(0x0008,0x2112); // SourceImageSequence
  if ( ds.FindDataElement( tsis ) )
    {
    const gdcm::DataElement &sis = ds.GetDataElement( tsis );
    gdcm::SmartPointer<gdcm::SequenceOfItems> sqsis = sis.GetValueAsSQ();
    if ( sqsis && sqsis->GetNumberOfItems() )
      {
      gdcm::Item &item1 = sqsis->GetItem(1);
      gdcm::DataSet &nestedds = item1.GetNestedDataSet();
      gdcm::Tag tprcs(0x0040,0xa170); // PurposeOfReferenceCodeSequence
      if( nestedds.FindDataElement( tprcs ) )
        {
        const gdcm::DataElement &prcs = nestedds.GetDataElement( tprcs );
        gdcm::SmartPointer<gdcm::SequenceOfItems> sqprcs = prcs.GetValueAsSQ();
        if ( sqprcs && sqprcs->GetNumberOfItems() )
          {
          gdcm::Item &item2 = sqprcs->GetItem(1);
          gdcm::DataSet &nestedds2 = item2.GetNestedDataSet();
          // (0008,0104) LO [Uncompressed predecessor]               #  24, 1 CodeMeaning
          gdcm::Tag tcm(0x0008,0x0104);
          if( nestedds2.FindDataElement( tcm ) )
            {
            gdcm::DataElement cm = nestedds2.GetDataElement( tcm );
            std::string mystr = "GDCM was here";
            cm.SetByteValue( mystr.c_str(), (uint32_t)mystr.size() );
            nestedds2.Replace( cm );
            }
          }
        }
      }
    }

  gdcm::Writer writer;
  writer.SetFile( file );
  writer.SetFileName( outfilename );
  if ( !writer.Write() )
    {
    return 1;
```

```
    }

  return 0;
}
```

14.39 CheckBigEndianBug.cxx

```
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=========================================================================*/
/*
 * WARNING: This is a dev tool, do not use !
 *
 * Usage: after a gdcmconv, you would like to know if the conversion process is acceptable
 * sometime a vbindiff is acceptable, sometime it is not. In the case of the famous Philips
 * Little/Big Endian Explicit Transfer Syntax it is not easy to compare two files. However
 * this only impact byte ordering, thus we can compute byte-indenpendant information to still
 * compare the files.
 */

#include "gdcmImageReader.h"
#include "gdcmImage.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"
#include "gdcmSystem.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input1.dcm input2.dcm" « std::endl;
    return 1;
    }
  const char *filename1 = argv[1];
  const char *filename2 = argv[2];

  gdcm::ImageReader reader1;
  reader1.SetFileName( filename1 );
  if( !reader1.Read() )
    {
    std::cerr « "Could not read: " « filename1 « std::endl;
    return 1;
    }

  gdcm::ImageReader reader2;
  reader2.SetFileName( filename2 );
  if( !reader2.Read() )
    {
    std::cerr « "Could not read: " « filename2 « std::endl;
    return 1;
    }

  // TODO: need a DataSet== operator implementation

  std::cout « "Both files can be read and looks like DICOM" « std::endl;

  size_t s1 = gdcm::System::FileSize(filename1);
  size_t s2 = gdcm::System::FileSize(filename2);

  if( s1 != s2 )
    {
    std::cout « "Size mismatch: " « s1 « " != " « s2 « std::endl;
    return 1;
```

```
    }
  else
    {
    std::cout « "Size match: " « s1 « " = " « s2 « std::endl;
    }

  std::ifstream is1( filename1, std::ios::binary );
  char *buffer1 = new char[s1];
  is1.read(buffer1, s1);

  std::ifstream is2( filename2, std::ios::binary );
  char *buffer2 = new char[s2];
  is2.read(buffer2, s2);

  assert( s1 == s2 );
  if( memcmp(buffer1, buffer2, s1 ) == 0 )
    {
    std::cout « "memcmp succeed ! File are bit identical" « std::endl;
    }
  else
    {
    std::cout « "memcmp failed!" « std::endl;
    }

  // Hum...memcmp failed, for big endian/ little endian inversion the histogram of bytes
  // should still be the same. So let's compute it
  // buffer2[0] = 1; // let's make the test fail
  std::multiset<char> set1( buffer1, buffer1 + s1 );
  std::multiset<char> set2( buffer2, buffer2 + s2 );


  if( set1 == set2 )
    {
    std::cout « "set1 == set2. Byte histogram seems valid" « std::endl;
    }
  else
    {
    std::cout « "set1 != set2" « std::endl;
    }
  delete[] buffer1;
  delete[] buffer2;


  return 0;
}
```

14.40 ClinicalTrialAnnotate.cxx

```
/*=========================================================================

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=========================================================================*/
/*
 * Dummy implementation of C.7.1.3 Clinical Trial Subject Module
 *
 * Usage:
 *  ClinicalTrialAnnotate gdcmData/012345.002.050.dcm out.dcm
 */

#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAnonymizer.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
```

```
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }

  // The output of gdcm::Reader is a gdcm::File
  //gdcm::File &file = reader.GetFile();

  // the dataset is the the set of element we are interested in:
  //gdcm::DataSet &ds = file.GetDataSet();

  gdcm::Anonymizer ano;
  ano.SetFile( reader.GetFile() );
  ano.RemoveGroupLength();
  ano.RemovePrivateTags();

  // PS 3.3 - 2008
  // C.7.1.3 Clinical Trial Subject Module
  // <entry group="0012" element="0010" vr="LO" vm="1" name="Clinical Trial Sponsor Name"/>
  ano.Replace( gdcm::Tag(0x12,0x10), "BigCompany name" );
  // <entry group="0012" element="0020" vr="LO" vm="1" name="Clinical Trial Protocol ID"/>
  ano.Replace( gdcm::Tag(0x12,0x20), "My Clinical Trial Protocol ID" );
  // <entry group="0012" element="0021" vr="LO" vm="1" name="Clinical Trial Protocol Name"/>
  ano.Replace( gdcm::Tag(0x12,0x21), "My Clinical Trial Protocol Name" );
  // <entry group="0012" element="0030" vr="LO" vm="1" name="Clinical Trial Site ID"/>
  ano.Replace( gdcm::Tag(0x12,0x30), "My Clinical Trial Site ID" );
  // <entry group="0012" element="0031" vr="LO" vm="1" name="Clinical Trial Site Name"/>
  ano.Replace( gdcm::Tag(0x12,0x31), "My Clinical Trial Site Name" );
  // <entry group="0012" element="0040" vr="LO" vm="1" name="Clinical Trial Subject ID"/>
  ano.Replace( gdcm::Tag(0x12,0x40), "My Clinical Trial Subject ID" );
  // <entry group="0012" element="0042" vr="LO" vm="1" name="Clinical Trial Subject Reading ID"/>
  ano.Replace( gdcm::Tag(0x12,0x42), "My Clinical Trial Subject Reading ID" );


  gdcm::Writer writer;
  writer.SetFile( reader.GetFile() );
  writer.SetFileName( outfilename );
  if( !writer.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.41 CompressImage.cxx

```
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=========================================================================*/
/*
 *
 */

#include "gdcmImageReader.h"
#include "gdcmImage.h"
#include "gdcmWriter.h"
```

```
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"
#include "gdcmImageChangeTransferSyntax.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }

  // The output of gdcm::Reader is a gdcm::File
  //gdcm::File &file = reader.GetFile();

  // the dataset is the the set of element we are interested in:
  //gdcm::DataSet &ds = file.GetDataSet();

  gdcm::Image &image = reader.GetImage();
  // image.SetSpacing(0, 0.1);
  // image.SetSpacing(1, 0.2);
  image.Print( std::cout );

  gdcm::ImageChangeTransferSyntax change;
  change.SetTransferSyntax( gdcm::TransferSyntax::JPEG2000Lossless );
  change.SetTransferSyntax( gdcm::TransferSyntax::JPEGLosslessProcess14_1 );
  //change.SetTransferSyntax( gdcm::TransferSyntax::JPEGBaselineProcess1 );
  //change.SetTransferSyntax( image.GetTransferSyntax() );
  change.SetInput( image );
  bool b = change.Change();
  if( !b )
    {
    std::cerr « "Could not change the Transfer Syntax" « std::endl;
    return 1;
    }

  //std::ofstream out( outfilename, std::ios::binary );
  //image.GetBuffer2(out);
  //out.close();
  gdcm::ImageWriter writer;
  writer.SetImage( change.GetOutput() );
  writer.SetFile( reader.GetFile() );
  writer.SetFileName( outfilename );
  if( !writer.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.42 ConvertToQImage.cxx

```
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```

```
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=========================================================================*/
/*
 * This example shows how to setup the pipeline from a gdcm::ImageReader into a
 * Qt QImage data structure.
 * It only handles 2D image.
 *
 * Ref:
 * http://doc.trolltech.com/4.5/qimage.html
 *
 * Usage:
 *  ConvertToQImage gdcmData/012345.002.050.dcm output.png

 * Thanks:
 *   Sylvain ADAM (sylvain51 hotmail com) for contributing this example
 */

#include "gdcmImageReader.h"
#include <QImage>
#include <QImageWriter>

bool ConvertToFormat_RGB888(gdcm::Image const & gimage, char *buffer, QImage* &imageQt)
{
  const unsigned int* dimension = gimage.GetDimensions();

  unsigned int dimX = dimension[0];
  unsigned int dimY = dimension[1];

  gimage.GetBuffer(buffer);

  // Let's start with the easy case:
  if( gimage.GetPhotometricInterpretation() == gdcm::PhotometricInterpretation::RGB )
    {
    if( gimage.GetPixelFormat() != gdcm::PixelFormat::UINT8 )
      {
      return false;
      }
    unsigned char *ubuffer = (unsigned char*)buffer;
    // QImage::Format_RGB888  13  The image is stored using a 24-bit RGB format (8-8-8).
    imageQt = new QImage((unsigned char *)ubuffer, dimX, dimY, 3*dimX, QImage::Format_RGB888);
    }
  else if( gimage.GetPhotometricInterpretation() == gdcm::PhotometricInterpretation::MONOCHROME2 )
    {
    if( gimage.GetPixelFormat() == gdcm::PixelFormat::UINT8 )
      {
      // We need to copy each individual 8bits into R / G and B:
      unsigned char *ubuffer = new unsigned char[dimX*dimY*3];
      unsigned char *pubuffer = ubuffer;
      for(unsigned int i = 0; i < dimX*dimY; i++)
        {
        *pubuffer++ = *buffer;
        *pubuffer++ = *buffer;
        *pubuffer++ = *buffer++;
        }

      imageQt = new QImage(ubuffer, dimX, dimY, QImage::Format_RGB888);
      }
    else if( gimage.GetPixelFormat() == gdcm::PixelFormat::INT16 )
      {
      // We need to copy each individual 16bits into R / G and B (truncate value)
      short *buffer16 = (short*)buffer;
      unsigned char *ubuffer = new unsigned char[dimX*dimY*3];
      unsigned char *pubuffer = ubuffer;
      for(unsigned int i = 0; i < dimX*dimY; i++)
        {
        // Scalar Range of gdcmData/012345.002.050.dcm is [0,192], we could simply do:
        // *pubuffer++ = *buffer16;
        // *pubuffer++ = *buffer16;
        // *pubuffer++ = *buffer16;
        // instead do it right:
        *pubuffer++ = (unsigned char)std::min(255, (32768 + *buffer16) / 255);
        *pubuffer++ = (unsigned char)std::min(255, (32768 + *buffer16) / 255);
        *pubuffer++ = (unsigned char)std::min(255, (32768 + *buffer16) / 255);
        buffer16++;
        }

      imageQt = new QImage(ubuffer, dimX, dimY, QImage::Format_RGB888);
      }
    else
      {
```

```
      std::cerr « "Pixel Format is: " « gimage.GetPixelFormat() « std::endl;
      return false;
      }
    }
  else
    {
    std::cerr « "Unhandled PhotometricInterpretation: " « gimage.GetPhotometricInterpretation() « std::endl;
    return false;
    }

  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::ImageReader ir;
  ir.SetFileName( filename );
  if(!ir.Read())
    {
    //Read failed
    return 1;
    }

  std::cout«"Getting image from ImageReader..."«std::endl;

  const gdcm::Image &gimage = ir.GetImage();
  std::vector<char> vbuffer;
  vbuffer.resize( gimage.GetBufferLength() );
  char *buffer = &vbuffer[0];

  QImage *imageQt = NULL;
  if( !ConvertToFormat_RGB888( gimage, buffer, imageQt ) )
    {
    return 1;
    }

  QImageWriter writer;
  writer.setFormat("png");
  writer.setFileName( outfilename );
  if( !writer.write( *imageQt ) )
    {
    return 1;
    }

  return 0;
}
```

14.43 CreateARGBImage.cxx

```
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=========================================================================*/
/*
 * http://www.w3.org/Graphics/PNG/inline-alpha.html
 * alphatest.png: PNG image data, 380 x 287, 8-bit/color RGBA, non-interlaced
 *
 * $ convert alphatest.png alphatest.rgba
 */

#include "gdcmImageReader.h"
```

```
#include "gdcmSequenceOfFragments.h"
#include "gdcmSystem.h"
#include "gdcmImageWriter.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.rgba output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  size_t len = gdcm::System::FileSize(filename);
  std::ifstream is(filename, std::ios::binary);

  char * buf = new char[len];
  is.read(buf, len);

  gdcm::ImageWriter writer;
  gdcm::Image &image = writer.GetImage();
  image.SetNumberOfDimensions( 2 );
  unsigned int dims[3] = {};
  dims[0] = 380;
  dims[1] = 287;
  image.SetDimensions( dims );
  gdcm::PixelFormat pf = gdcm::PixelFormat::UINT8;
  pf.SetSamplesPerPixel( 4 );
  image.SetPixelFormat( pf );
  gdcm::PhotometricInterpretation pi = gdcm::PhotometricInterpretation::ARGB;
  image.SetPhotometricInterpretation( pi );
  image.SetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
  pixeldata.SetByteValue( buf, (uint32_t)len );
  image.SetDataElement( pixeldata );

  writer.SetFileName( outfilename );
  if( !writer.Write() )
    {
    return 1;
    }
  delete[] buf;


  return 0;
}
```

14.44 CreateCMYKImage.cxx

```
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=========================================================================*/
/*
 * http://www.w3.org/Graphics/PNG/inline-alpha.html
 * alphatest.png: PNG image data, 380 x 287, 8-bit/color RGBA, non-interlaced
 *
 * $ convert alphatest.png alphatest.cmyk
 */

#include "gdcmImageReader.h"
#include "gdcmSequenceOfFragments.h"
```

```
#include "gdcmSystem.h"
#include "gdcmImageWriter.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.cmyk output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  size_t len = gdcm::System::FileSize(filename);
  std::ifstream is(filename, std::ios::binary);

  char * buf = new char[len];
  is.read(buf, len);

  gdcm::ImageWriter writer;
  gdcm::Image &image = writer.GetImage();
  image.SetNumberOfDimensions( 2 );
  unsigned int dims[3] = {};
  dims[0] = 380;
  dims[1] = 287;
  image.SetDimensions( dims );
  gdcm::PixelFormat pf = gdcm::PixelFormat::UINT8;
  pf.SetSamplesPerPixel( 4 );
  image.SetPixelFormat( pf );
  gdcm::PhotometricInterpretation pi = gdcm::PhotometricInterpretation::CMYK;
  image.SetPhotometricInterpretation( pi );
  image.SetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
  pixeldata.SetByteValue( buf, (uint32_t)len );
  image.SetDataElement( pixeldata );

  writer.SetFileName( outfilename );
  if( !writer.Write() )
    {
    return 1;
    }
  delete[] buf;

  return 0;
}
```

14.45 CreateJPIPDataSet.cxx

```
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=========================================================================*/
/*
 * This example was created during the GSOC 2011 project for
 * JPIP
 */
#include "gdcmAnonymizer.h"
#include "gdcmWriter.h"
#include "gdcmUIDGenerator.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmSystem.h"
```

```
#include "gdcmAttribute.h"

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " output.dcm" « std::endl;
    return 1;
    }
  const char *outfilename = argv[1];

  gdcm::Writer w;
  gdcm::File &file = w.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();
  //w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );

  file.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::JPIPReferenced );

  gdcm::Anonymizer anon;
  anon.SetFile( file );

  gdcm::MediaStorage ms = gdcm::MediaStorage::SecondaryCaptureImageStorage;

  gdcm::UIDGenerator gen;
  anon.Replace( gdcm::Tag(0x0008,0x16), ms.GetString() );
  std::cout « ms.GetString() « std::endl;
  anon.Replace( gdcm::Tag(0x0008,0x18), gen.Generate() );
  //
  anon.Replace( gdcm::Tag(0x0010,0x10), "JPIP^EXAMPLE" );
  anon.Replace( gdcm::Tag(0x0010,0x20), "012345" );
  anon.Empty( gdcm::Tag(0x0010,0x30) );
  anon.Empty( gdcm::Tag(0x0010,0x40) );
  anon.Empty( gdcm::Tag(0x0008,0x20) );
  anon.Empty( gdcm::Tag(0x0008,0x30) );
  anon.Empty( gdcm::Tag(0x0008,0x90) );
  anon.Empty( gdcm::Tag(0x0020,0x10) );
  anon.Empty( gdcm::Tag(0x0020,0x11) );
  anon.Empty( gdcm::Tag(0x0008,0x50) );
  anon.Empty( gdcm::Tag(0x0020,0x0013) );
  anon.Replace( gdcm::Tag(0x0020,0xd), gen.Generate() );
  anon.Replace( gdcm::Tag(0x0020,0xe), gen.Generate() );
  anon.Replace( gdcm::Tag(0x0008,0x64), "WSD " );
  anon.Replace( gdcm::Tag(0x0008,0x60), "OT" );

  gdcm::Attribute<0x0028,0x7FE0> at;
  at.SetValue( "http://dicom.example.com/jpipserver.cgi?target=img.jp2" );
  ds.Insert( at.GetAsDataElement() );

  // Need to retrieve the PixelFormat information from the given file

  if (!w.Write() )
    {
    std::cerr « "Could not write: " « outfilename « std::endl;
    return 1;
    }

  return 0;
}
```

14.46 DeriveSeries.cxx

```
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=========================================================================*/
#include "gdcmReader.h"
```

```
#include "gdcmWriter.h"
#include "gdcmAttribute.h"
#include "gdcmFileDerivation.h"
#include "gdcmUIDGenerator.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
  {
    return 1;
  }
  const char * ref = argv[1];
  const char * in  = argv[2];

  gdcm::Reader r1;
  r1.SetFileName( ref );
  if( !r1.Read() ) return 1;

  gdcm::Reader r2;
  r2.SetFileName( in );
  if( !r2.Read() ) return 1;


  // Fix Spatial info:
  gdcm::DataSet & ds1 = r1.GetFile().GetDataSet();
  gdcm::File & file2 = r2.GetFile();
  gdcm::DataSet & ds2 = file2.GetDataSet();
  //gdcm::Attribute<0x8,0x8> img_type = { "ORIGINAL", "PRIMARY" };
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0008,0x0008) ));
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0020,0x0032) ));
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0020,0x0037) ));
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0018,0x0088) )); // Spacing between slices
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0020,0x0013) )); // Instance Number
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0018,0x5100) )); // Patient Position
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0018,0x0050) )); // Slice Thickness
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0008,0x0070) )); // Manufacturer
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0018,0x0081) )); // Echo Time
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0020,0x1041) )); // Slice Location

  gdcm::Attribute<0x8,0x16> sopclassuid;
  sopclassuid.SetFromDataSet( ds1 );
  gdcm::Attribute<0x8,0x18> sopinstanceuid;
  sopinstanceuid.SetFromDataSet( ds1 );

  // Step 2: DERIVED object
  gdcm::FileDerivation fd;
  fd.AddReference( sopclassuid.GetValue(), sopinstanceuid.GetValue() );

  // http://dicom.nema.org/MEDICAL/dicom/current/output/chtml/part16/chapter_D.html#DCM_121321
  // CID 7202 "Source Image Purposes of Reference"
  // DCM 121321 "Mask image for image processing operation"
  fd.SetPurposeOfReferenceCodeSequenceCodeValue( 121321 );
  // CID 7203 "Image Derivation"
  // DCM 113047 "Pixel by pixel mask"
  fd.SetDerivationCodeSequenceCodeValue( 113047 );
  fd.SetFile( file2 );
  // If all Code Value are ok the filter will execute properly
  if( !fd.Derive() )
    {
    std::cerr « "Sorry could not derive using input info" « std::endl;
    return 1;
    }

  gdcm::Writer w;
  w.SetFile( r2.GetFile() );
  w.SetFileName( "derived.dcm" );
  if( !w.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.47 DiffFile.cxx

```
/*=========================================================================
```

```
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=========================================================================*/
#include "gdcmReader.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr << argv[0] << " input1.dcm input2.dcm" << std::endl;
    return 1;
    }
  const char *filename1 = argv[1];
  const char *filename2 = argv[2];

  gdcm::Reader reader1;
  reader1.SetFileName( filename1 );
  if( !reader1.Read() )
    {
    return 1;
    }

  gdcm::Reader reader2;
  reader2.SetFileName( filename2 );
  if( !reader2.Read() )
    {
    return 1;
    }

  const gdcm::File &file1 = reader1.GetFile();
  const gdcm::File &file2 = reader2.GetFile();

  const gdcm::DataSet &ds1 = file1.GetDataSet();
  const gdcm::DataSet &ds2 = file2.GetDataSet();

  gdcm::DataSet::ConstIterator it1 = ds1.Begin();
  gdcm::DataSet::ConstIterator it2 = ds2.Begin();

  const gdcm::DataElement &de1 = *it1;
  const gdcm::DataElement &de2 = *it2;
  if( de1 == de2 )
    {
    }
  while( it1 != ds1.End() && it2 != ds2.End() && *it1 == *it2 )
    {
    ++it1;
    ++it2;
    }

  if( it1 != ds1.End() || it2 != ds2.End() )
    {
    std::cerr << "Problem with:" << std::endl;
    if( it1 != ds1.End() )
      {
      std::cerr << "ds1: " << *it1 << std::endl;
      }
    if( it2 != ds2.End() )
      {
      std::cerr << "ds2: " << *it2 << std::endl;
      }
    return 1;
    }

  return 0;
}
```

14.48 DiscriminateVolume.cxx

```
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=========================================================================*/
#include "gdcmScanner.h"
#include "gdcmTesting.h"
#include "gdcmIPPSorter.h"
#include "gdcmDirectionCosines.h"
#include <cmath>

/*
 * The following example is a basic sorted which should work in generic cases.
 * It sort files based on:
 * Study Instance UID
 *   Series Instance UID
 *     Frame of Reference UID
 *       Image Orientation (Patient)
 *         Image Position (Patient) (Sorting based on IPP + IOP)
 */

namespace gdcm {
  const Tag t1(0x0020,0x000d); // Study Instance UID
  const Tag t2(0x0020,0x000e); // Series Instance UID
  const Tag t3(0x0020,0x0052); // Frame of Reference UID
  const Tag t4(0x0020,0x0037); // Image Orientation (Patient)

class DiscriminateVolume
{
private:
  std::vector< Directory::FilenamesType > SortedFiles;
  std::vector< Directory::FilenamesType > UnsortedFiles;

  Directory::FilenamesType GetAllFilenamesFromTagToValue(
    Scanner const & s, Directory::FilenamesType const &filesubset, Tag const &t, const char *valueref)
{
  Directory::FilenamesType theReturn;
  if( valueref )
    {
    size_t len = strlen( valueref );
    Directory::FilenamesType::const_iterator file = filesubset.begin();
    for(; file != filesubset.end(); ++file)
      {
      const char *filename = file->c_str();
      const char * value = s.GetValue(filename, t);
      if( value && strncmp(value, valueref, len ) == 0 )
        {
        theReturn.push_back( filename );
        }
      }
    }
  return theReturn;
}

void ProcessAIOP(Scanner const & , Directory::FilenamesType const & subset, const char *iopval)
{
  std::cout « "IOP: " « iopval « std::endl;
  IPPSorter ipp;
  ipp.SetComputeZSpacing( true );
  ipp.SetZSpacingTolerance( 1e-3 ); // ??
  bool b = ipp.Sort( subset );
  if( !b )
    {
    // If you reach here this means you need one more parameter to discriminiat this
    // series. Eg. T1 / T2 intertwinted. Multiple Echo (0018,0081)
    std::cerr « "Failed to sort: " « subset.begin()->c_str() « std::endl;
    for(
      Directory::FilenamesType::const_iterator file = subset.begin();
      file != subset.end(); ++file)
      {
```

```
      std::cerr « *file « std::endl;
      }
    UnsortedFiles.push_back( subset );
    return ;
    }
  ipp.Print( std::cout );
  SortedFiles.push_back( ipp.GetFilenames() );
}

void ProcessAFrameOfRef(Scanner const & s, Directory::FilenamesType const & subset, const char * frameuid)
{
  // In this subset of files (belonging to same series), let's find those
  // belonging to the same Frame ref UID:
  Directory::FilenamesType files = GetAllFilenamesFromTagToValue(
    s, subset, t3, frameuid);

  std::set< std::string > iopset;

  for(
    Directory::FilenamesType::const_iterator file = files.begin();
    file != files.end(); ++file)
    {
    //std::cout « *file « std::endl;
    const char * value = s.GetValue(file->c_str(), gdcm::t4 );
    assert( value );
    iopset.insert( value );
    }
  size_t n = iopset.size();
  if ( n == 0 )
    {
    assert( files.empty() );
    return;
    }

  std::cout « "Frame of Ref: " « frameuid « std::endl;
  if ( n == 1 )
    {
    ProcessAIOP(s, files, iopset.begin()->c_str() );
    }
  else
    {
    const char *f = files.begin()->c_str();
    std::cerr « "More than one IOP: " « f « std::endl;
    // Make sure that there is actually 'n' different IOP
    gdcm::DirectionCosines ref;
    gdcm::DirectionCosines dc;
    for(
      std::set< std::string >::const_iterator it = iopset.begin();
      it != iopset.end(); ++it )
      {
      ref.SetFromString( it->c_str() );
      for(
        Directory::FilenamesType::const_iterator file = files.begin();
        file != files.end(); ++file)
        {
        std::string value = s.GetValue(file->c_str(), gdcm::t4 );
        if( value != it->c_str() )
          {
          dc.SetFromString( value.c_str() );
          const double crossdot = ref.CrossDot(dc);
          const double eps = std::fabs( 1. - crossdot );
          if( eps < 1e-6 )
            {
            std::cerr « "Problem with IOP discrimination: " « file->c_str()
              « " " « it->c_str() « std::endl;
            return;
            }
          }
        }
      }
      // If we reach here this means there is actually 'n' different IOP
    for(
      std::set< std::string >::const_iterator it = iopset.begin();
      it != iopset.end(); ++it )
      {
      const char *iopvalue = it->c_str();
      Directory::FilenamesType iopfiles = GetAllFilenamesFromTagToValue(
        s, files, t4, iopvalue );
      ProcessAIOP(s, iopfiles, iopvalue );
      }
    }
```

```
}

void ProcessASeries(Scanner const & s, const char * seriesuid)
{
  std::cout « "Series: " « seriesuid « std::endl;
  // let's find all files belonging to this series:
  Directory::FilenamesType seriesfiles = GetAllFilenamesFromTagToValue(
    s, s.GetFilenames(), t2, seriesuid);

  gdcm::Scanner::ValuesType vt3 = s.GetValues(t3);
  for(
    gdcm::Scanner::ValuesType::const_iterator it = vt3.begin()
    ; it != vt3.end(); ++it )
    {
    ProcessAFrameOfRef(s, seriesfiles, it->c_str());
    }
}

void ProcessAStudy(Scanner const & s, const char * studyuid)
{
  std::cout « "Study: " « studyuid « std::endl;
  gdcm::Scanner::ValuesType vt2 = s.GetValues(t2);
  for(
    gdcm::Scanner::ValuesType::const_iterator it = vt2.begin()
    ; it != vt2.end(); ++it )
    {
    ProcessASeries(s, it->c_str());
    }
}
public:

void Print( std::ostream & os )
{
  os « "Sorted Files: " « std::endl;
  for(
    std::vector< Directory::FilenamesType >::const_iterator it = SortedFiles.begin();
    it != SortedFiles.end(); ++it )
    {
    os « "Group: " « std::endl;
    for(
      Directory::FilenamesType::const_iterator file = it->begin();
      file != it->end(); ++file)
      {
      os « *file « std::endl;
      }
    }
  os « "Unsorted Files: " « std::endl;
  for(
    std::vector< Directory::FilenamesType >::const_iterator it = UnsortedFiles.begin();
    it != UnsortedFiles.end(); ++it )
    {
    os « "Group: " « std::endl;
    for(
      Directory::FilenamesType::const_iterator file = it->begin();
      file != it->end(); ++file)
      {
      os « *file « std::endl;
      }
    }

}

  std::vector< Directory::FilenamesType > const & GetSortedFiles() const { return SortedFiles; }
  std::vector< Directory::FilenamesType > const & GetUnsortedFiles() const { return UnsortedFiles; }

void ProcessIntoVolume( Scanner const & s )
{
  gdcm::Scanner::ValuesType vt1 = s.GetValues( gdcm::t1 );
  for(
    gdcm::Scanner::ValuesType::const_iterator it = vt1.begin()
    ; it != vt1.end(); ++it )
    {
    ProcessAStudy( s, it->c_str() );
```

```
    }

}

};

} // namespace gdcm

int main(int argc, char *argv[])
{
  std::string dir1;
  if( argc < 2 )
    {
    const char *extradataroot = nullptr;
#ifdef GDCM_BUILD_TESTING
    extradataroot = gdcm::Testing::GetDataExtraRoot();
#endif
    if( !extradataroot )
      {
      return 1;
      }
    dir1 = extradataroot;
    dir1 += "/gdcmSampleData/ForSeriesTesting/VariousIncidences/ST1";
    }
  else
    {
    dir1 = argv[1];
    }

  gdcm::Directory d;
  d.Load( dir1, true ); // recursive !

  gdcm::Scanner s;
  s.AddTag( gdcm::t1 );
  s.AddTag( gdcm::t2 );
  s.AddTag( gdcm::t3 );
  s.AddTag( gdcm::t4 );
  bool b = s.Scan( d.GetFilenames() );
  if( !b )
    {
    std::cerr « "Scanner failed" « std::endl;
    return 1;
    }

  gdcm::DiscriminateVolume dv;
  dv.ProcessIntoVolume( s );
  dv.Print( std::cout );

  return 0;
}
```

14.49 DumpADAC.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * the goal of this example is to mimic the behavior of disp_img_header
 * see http://www.gmecorp-usa.com/IM/NM/GC/ADAC/SV/adactechtips/Released_01Q3.pdf
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"

#include <iostream>
```

```
#include <fstream>
#include <vector>

#include <string.h>
#include <assert.h>
#include <stdint.h>

struct dict
{
  uint16_t key;
  const char *name;
};

dict Array[] = {
  { 0x01, "Patient name" },
  { 0x02, "Patient ID" },
  { 0x03, "Patient sex" },
  { 0x04, "Patient age" },
  { 0x05, "Patient height" },
  { 0x06, "Patient weight" },
  { 0x07, "Exam date" },
  { 0x08, "Dose admin. time" },
  { 0x09, "Unique exam key" },
  { 0x0a, "Exam procedure" },
  { 0x0b, "Referring physician" },
  { 0x0c, "Attending physician" },
  { 0x0d, "Imaging modality" },
  { 0x0e, "Hospital ID" },
  { 0x0f, "Histogram crv file" },
  { 0x10, "Acq. start time" },
  { 0x11, "Object data type" },
  { 0x12, "Image viewid" },
  { 0x13, "Imaging device name" },
  { 0x14, "Device serial number" },
  { 0x15, "Collimator" },
  { 0x16, "Software version" },
  { 0x17, "Radiopharmaceutical #1" },
  { 0x18, "Energy window #1 center" },
  { 0x19, "Radiopharmaceutical #2" },
  { 0x1a, "Energy window #1 width" },
  { 0x1b, "Isotope imaging mode" },
  { 0x1c, "Energy window #2 center" },
  { 0x1d, "Energy window #2 width" },
  { 0x1e, "Energy window #3 center" },
  { 0x1f, "Energy window #3 width" },
  { 0x20, "Energy window #4 center" },
  { 0x21, "Energy window #4 width" },
  { 0x22, "??Energy window #5 center" },
  { 0x23, "??Energy window #5 width" },
  { 0x24, "Patient orientation" },
  { 0x25, "Spatial resolution" },
  { 0x26, "Slice thickness" },
  { 0x27, "Image X dimension" },
  { 0x28, "Image Y dimension" },
  { 0x29, "Image Z dimension" },
  { 0x2a, "Image pixel width" },
  { 0x2b, "Uniformity corr. file" },
  { 0x2c, "Acquisition zoom factor" },
  { 0x2d, "Total counts in set" },
  { 0x2e, "Time / frame" },
  { 0x2f, "Total acq. time" },
  { 0x30, "Maximum pixel value" },
  { 0x31, "Minimum pixel value" },
  { 0x32, "R-R interval time" },
  { 0x33, "Percent of cycle imaged" },
  { 0x34, "# of cycles accepted" },
  { 0x35, "# of cycles rejected" },
  { 0x36, "Approximate ED frame" },
  { 0x37, "Approximate ES frame" },
  { 0x38, "Approximate EF" },
  { 0x39, "Starting angle" },
  { 0x3a, "Degrees of rotation" },
  { 0x3b, "Direction of rotation" },
  { 0x3c, "Cont. or step/shoot" },
  { 0x3d, "Lim recon start frame" },
  { 0x3e, "Upper window grey shade" },
  { 0x3f, "Lower lvl grey shade" },
  { 0x40, "Associated color map" },
  { 0x41, "Custom color map file" },
  { 0x42, "Manipulated image" },
  { 0x43, "Axis of rotation corr." },
```

```
  { 0x44, "Reorientation azimuth" },
  { 0x45, "Reorientation elevation" },
  { 0x46, "Filter type" },
  { 0x47, "Filter order" },
  { 0x48, "Filter cutoff frequency" },
  { 0x49, "Reconstruction type" },
  { 0x4a, "Attenuation coefficient" },
  { 0x4b, "Associated parent file" },
  { 0x4c, "Unique patient key" },
  { 0x52, "Normalization crv file" },
  { 0x53, "Unique object key" },
  { 0x54, "This phase of VFR is" },
  { 0x55, "True color value" },
  { 0x56, "# of sets of x,y,z grps" },
  { 0x57, "Scale factor of set" },
  { 0x6d, "Date of birth" },
  { 0x6e, "Directional orientation" },
  { 0x6f, "Number of VFR studies" },
  { 0x70, "R-R low tolerance" },
  { 0x71, "R-R high tolerance" },
  { 0x72, "Prog specific results:" },

  { 0x99, nullptr }
};

void printname( int , int , uint16_t v )
{
  if( v == 0x1 )
    {
    std::cout « "DATABASE PARAMETERS" « std::endl;
    std::cout « "____________________" « std::endl;
    }
  else if( v == 0x27 )
    {
    std::cout « "IMAGE PARAMETERS" « std::endl;
    std::cout « "________________" « std::endl;
    }
  else if( v == 0x13 )
    {
    std::cout « "EXTRA PARAMETERS" « std::endl;
    std::cout « "________________" « std::endl;
    }
  else if( v == 0x2e )
    {
    std::cout « "*** NOT CURRENTLY USED :" « std::endl;
    }
  static const unsigned int n = sizeof( Array ) / sizeof( *Array ) - 1;
  for( unsigned int i = 0; i < n; ++i )
    {
    if( v == Array[i].key )
      {
      std::cout « /*"" « std::dec « len « "," « mult « " " « */ Array[i].name;
      std::cout « " : ";
      return;
      }
    }
  std::cout « /*"\t# " « std::dec « len « "," « mult « */ std::hex « v « "\t: ";
}

uint16_t readint16(std::istream &is )
{
  uint16_t val;
  is.read( (char*)&val, sizeof( val ));
  return (uint16_t)((val»8) | (val«8));
}

uint32_t readint32(std::istream &is )
{
  uint32_t val;
  is.read( (char*)&val, sizeof( val ));
  val= ((val«8)&0xFF00FF00) | ((val»8)&0x00FF00FF);
  return (val»16) | (val«16);
}

float readfloat32(std::istream &is )
{
  union { uint32_t val; float f;} dual;
  dual.val = readint32(is);
  return dual.f;
```

```
}

struct el
{
  uint16_t v1;
  uint16_t v2;
  uint16_t v3;
  void read( std::istream & is )
    {
    v1 = readint16(is);
    v2 = readint16(is);
    v3 = readint16(is);
    }
  void print( std::ostream & os )
    {
    os « std::hex « v1 « "\t" « v2 « "\t" « v3 « std::endl;
    }
};

std::vector<el> Vel;

void readelement( std::istream & is )
{
  el e;
  e.read( is );
  Vel.push_back( e );
}

void printascii( uint16_t tag, const char *buffer, size_t len )
{
  std::ostream & os = std::cout;
  if( tag == 0x72 )
    {
    os « "\n  ";
    for(size_t i = 0; i < len; ++i)
      {
      const char &c = buffer[i];
      if( c == 0x0 ) os « "!";
      else if( c == 0x0f ) os « " ";
      else if( c == 0x17 ) os « ":";
      else if( c == 0x14 ) os « ":";
      else if( c == 0x10 ) os « ":";
      else if( c == 0x16 ) os « ":";
      else if( c == 0x08 ) os « ":";
      else if( c == 0x0b ) os « ":";
      else if( c == 0x0e ) os « ":";
      else if( c == 0x07 ) os « ":";
      else os « c;
      }
    os « "";
    }
  else
    {
    (void)len;
    os « "" « buffer « "";
    }
}

bool DumpADAC( std::istream & is )
{
  std::ostream &os = std::cout;

  char magic[6 + 1];
  magic[6] = 0;
  is.read( magic, 6);
//  std::cout « magic « " ";
  assert( strcmp( magic, "adac01" ) == 0 );
  int c = is.get();
  assert( c == 0 ); (void)c;
  c = is.get();
  assert( c == 'X' );

  uint16_t v;
  v = readint16(is);
//  std::cout « v « std::endl;
  assert( v == 512 ); (void)v; // ??

  int nel = 87;
  for (int i = 0; i <= nel; ++i )
    {
    readelement( is );
```

```
    }

  char buffer[512];
  for( int i = 0; i <= nel; ++i )
    {
    const el &e = Vel[i];
    int diff;
    if( i == nel )
      {
      diff = 2048 - e.v3;
      if( diff > 512 ) diff = 512;
      }
    else
      {
      const el &enext = Vel[i+1];
      diff = enext.v3 - e.v3;
      }
    is.seekg( e.v3, std::ios::beg );
    //std::cout « "(" « std::hex « std::setw( 2 ) « std::setfill( '0' ) « e.v1 « ") " « std::hex « std::setw( 3
      ) « std::setfill( '0' ) « e.v2 « " ";
    printname( diff, 0, e.v1 );
    int mult = 1;
    if( e.v2 == 0 )
      {
      is.read( buffer, diff);
      buffer[ diff ] = 0;
      printascii( e.v1, buffer, diff);
      }
    else if( e.v2 == 0x100 )
      {
      mult = diff / 2;
      assert( diff == 2 * mult );
      for ( int ii = 0; ii < mult; ++ii )
        {
        if ( ii ) os « "\\";
        uint16_t val = readint16(is);
        os « "" « std::dec « val « "";
        }
      }
    else if( e.v2 == 0x200 )
      {
      assert( diff == 4 );
      uint32_t val = readint32(is);
      os « "" « std::dec « val « "";
      }
    else if( e.v2 == 0x300 )
      {
      assert( diff == 4 );
      float val = readfloat32(is);
      os « "" « std::dec « val « "";
      }
    else
      {
      assert( 0 );
      }
    os « std::endl;
    }
  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  // (0019,1061) UN (OB) 61\64\61\63\30         # 2048,1 Ver200 ADAC Pegasys Headers
  const gdcm::PrivateTag tver200adacpegasysheaders(0x0019,0x61,"ADAC_IMG");
  if( !ds.FindDataElement( tver200adacpegasysheaders ) ) return 1;
  const gdcm::DataElement& ver200adacpegasysheaders = ds.GetDataElement( tver200adacpegasysheaders );
  if ( ver200adacpegasysheaders.IsEmpty() ) return 1;
  const gdcm::ByteValue * bv = ver200adacpegasysheaders.GetByteValue();

  // (0019,1021) US 1               # 2,1 Ver200 Number of ADAC Headers
```

```
  // TODO

  // (0019,1041) IS [2048\221184 ]  # 12,1-n Ver200 ADAC Header/Image Size
  if( bv->GetLength() != 2048 ) return 1;

  gdcm::Element<gdcm::VR::IS,gdcm::VM::VM2> el;
  const gdcm::PrivateTag tver200adacheaderimagesize(0x0019,0x41,"ADAC_IMG");
  if( !ds.FindDataElement( tver200adacheaderimagesize ) ) return 1;
  const gdcm::DataElement& ver200adacheaderimagesize = ds.GetDataElement( tver200adacheaderimagesize );
  el.SetFromDataElement( ver200adacheaderimagesize );
  if( el.GetValue(0) != 2048 ) return 1;

  std::istringstream is;
  std::string dup( bv->GetPointer(), bv->GetLength() );
  is.str( dup );
  bool b = DumpADAC( is );
  if( !b ) return 1;



  return 0;
}
```

14.50 DumpExamCard.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*

  Try to extract contents of Philips RAW storage class:

(0002,0002) UI [1.2.840.10008.5.1.4.1.1.66]                       # 26,1 Media Storage SOP Class UID
(0002,0003) UI [1.3.46.670589.11.17240.5.23.4.1.3012.20100324094825680018]         # 56,1 Media Storage SOP
      Instance UID
(0002,0010) UI [1.2.840.10008.1.2.1]                              # 20,1 Transfer Syntax UID
(0002,0012) UI [1.3.46.670589.11.0.0.51.4.4.1]                    # 30,1 Implementation Class UID
(0002,0013) SH [MR DICOM 4.1]                                     # 12,1 Implementation Version Name

 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Special thanks to:
 * Triplett,William T for bringing to your attention on this ExamCard stuff
 */
#include "gdcmReader.h"
#include "gdcmDataSet.h"
#include "gdcmPrivateTag.h"
#include "gdcmBase64.h"

#include <iomanip>

static bool compfn(const char *s1, const char *s2)
{
  return strcmp(s1,s2) < 0 ? true : false;
}

static const char *PDFStrings[] = { // Keep me ordered please
  "COILSTATE", // series of string ?
  "HARDWARE_CONFIG", // series of number ?
```

```
  "PDF_CONTROL_GEN_PARS",
  "PDF_CONTROL_PREP_PARS",
  "PDF_CONTROL_RECON_PARS",
  "PDF_CONTROL_SCAN_PARS",
  "PDF_EXAM_PARS",
  "PDF_HARDWARE_PARS",
  "PDF_PREP_PARS",
  "PDF_PRESCAN_COIL_PARS",
  "PDF_SPT_PARS",
};

static bool isvalidpdfstring( const char *pdfstring )
{
  assert( pdfstring );
  static const size_t n = sizeof( PDFStrings ) / sizeof( *PDFStrings );
  static const char **begin = PDFStrings;
  static const char **end = begin + n;
  return std::binary_search(begin, end, pdfstring, compfn);
}

typedef enum
{
  param_float = 0,
  param_integer = 1, // 1 « 0
  param_string = 2, // 1 « 1
  param_3, // ??
  param_enum = 4  // 1 « 2
} param_type;

static const char *gettypenamefromtype( int i)
{
  const char *ret = nullptr;
  param_type e = (param_type)i;
  switch( e )
    {
  case param_float:
    ret = "float";
    break;
  case param_integer:
    ret = "int";
    break;
  case param_string:
    ret = "string";
    break;
  case param_3:
    ret = "??";
    break;
  case param_enum:
    ret = "enum";
    break;
    }
  assert( ret );
  return ret;
}

struct header
{
/*
 * TODO:
 * Looks as if we could read all int*, float* and string* at once...
 */
  int32_t v1; // offset to int pointer array ?
  uint16_t nints; // number of ints (max number?)
  uint16_t v3; // always 0 ?
  int32_t v4; // offset to float pointer array ?
  uint32_t nfloats;
  int32_t v6; // offset to string pointer array ?
  uint32_t nstrings;
  int32_t v8; // always 8 ??
  uint32_t numparams;
  uint32_t getnints() const { return nints; }
  uint32_t getnfloats() const { return nfloats; }
  uint32_t getnstrings() const { return nstrings; }
  uint32_t getnparams() const { return numparams; }
  void read( std::istream & is )
    {
    is.read( (char*)&v1,sizeof(v1));
    if( v1 == 0x01 ) {
      // direct (FIXME how should we detect this, much like TIFF ???)
      nints = 0;
      v3 = 0;
```

```
      v4 = 0;
      nfloats = 0;
      v6 = 0;
      nstrings = 0;
      v8 = 0;
      numparams = 0;
      uint32_t bla;
      is.read( (char*)&bla, sizeof(bla) );
      assert( bla == 0x2 || bla == 0x3 );
      nstrings = 1;
      numparams = 1;
    } else {
      // indirect
      is.read( (char*)&nints,sizeof(nints));
      is.read( (char*)&v3,sizeof(v3));
      assert( v3 == 0 ); // looks like this is always 0
      is.read( (char*)&v4,sizeof(v4));
      is.read( (char*)&nfloats,sizeof(nfloats));
      is.read( (char*)&v6,sizeof(v6));
      is.read( (char*)&nstrings,sizeof(nstrings));
      is.read( (char*)&v8,sizeof(v8));
      assert( v8 == 8 );
      is.read( (char*)&numparams,sizeof(numparams));
    }
    }
  void print( std::ostream & os )
    {
    os « v1 « ",";
    os « nints « ",";
    os « v3 « ",";
    os « v4 « ",";
    os « nfloats « ",";
    os « v6 « ",";
    os « nstrings « ",";
    os « v8 « ",";
    os « numparams « std::endl;
    }
};

struct param
{
  char name[32+1];
  uint8_t boolean;
  int32_t type;
  uint32_t dim;
  union {
  uint32_t val;
  char * ptr; } v4;
  int32_t /*std::streamoff*/ offset;
  param_type gettype() const { return (param_type)type; }
  uint32_t getdim() const { return dim; }
  void read_direct_int( std::istream & is ) {
    uint32_t bla;
    int max = 9;
    std::vector<uint32_t> v;
    for( int i = 0; i < max; ++i ) {
      is.read( (char*)&bla, sizeof(bla) );
      v.push_back( bla );
    }
    is.read( (char*)&bla, sizeof(bla) );
    char name0[32];
    memset(name0,0,sizeof(name0));
    assert( bla < sizeof(name0) );
    is.read( name0, bla);
    size_t l = strlen(name0);
    assert( l == bla ); (void)l;
    char * ptr = strdup( name0 );
    v4.ptr = ptr;
    type = param_string;
    dim = 1;
    offset = 0; // important !
  }
  void read_direct_string( std::istream & is ) {
    uint32_t bla;
    is.read( (char*)&bla, sizeof(bla) );
    char name0[32];
    memset(name0,0,sizeof(name0));
    assert( bla < sizeof(name0) );
    is.read( name0, bla);
    size_t l = strlen(name0);
    assert( l == bla ); (void)l;
```

```
  memcpy( this->name, name0, bla );
  is.read( (char*)&bla, sizeof(bla) );
  assert( bla == 0x1 );
  is.read( (char*)&bla, sizeof(bla) );
  char value[32];
  memset(value,0,sizeof(value));
  assert( bla < sizeof(value) );
  is.read( value, bla);
  is.read( (char*)&bla, sizeof(bla) );
  assert( bla == 0 ); // trailing stuff ?
  is.read( (char*)&bla, sizeof(bla) );
  assert( bla == 0 ); // trailing stuff ?
  const uint32_t cur = (uint32_t)is.tellg();
  std::cerr « "offset:" « cur « std::endl;
  if( cur == 65 )
    is.read( (char*)&bla, 1 );
  else if( cur == 66 )
    is.read( (char*)&bla, 1 );
  else if( cur == 122 )
    is.read( (char*)&bla, 2 );
  else
    assert(0);
  type = param_string;
  dim = 1;
  // FIXME: store the value in v4 for now:
  char * ptr = strdup( value );
  v4.ptr = ptr;
  offset = 0; // important !
}
void read( std::istream & is )
  {
  is.read( name, 32 + 1);
  // This is always the same issue the string can contains garbage from previous run,
  // we need to print only until the first \0 character:
  assert( strlen( name ) <= 32 );
  is.read( (char*)&boolean,1);
  assert( boolean == 0 || boolean == 1 || boolean == 0x69 ); // some kind of bool, or digital trash ?
  is.read( (char*)&type, sizeof( type ) );
  assert( gettypenamefromtype( type ) );
  is.read( (char*)&dim, sizeof( dim ) ); // number of elements
  is.read( (char*)&v4.val, sizeof( v4.val ) );
  //assert( v4.val == 0 ); // always 0 ? sometimes not...
  const uint32_t cur = (uint32_t)is.tellg();
  is.read( (char*)&offset, sizeof( offset ) );
  assert( offset != 0 );
  offset += cur;
  }

void print( std::ostream & os ) const
  {
  os « name « ",";
  os « (int)boolean « ",";
  os « type « ",";
  os « dim « ",";
  os « v4.val « ",";
  os « offset « std::endl;
  }
void printvalue( std::ostream & os, std::istream & is ) const
  {
  if( offset ) {
  is.seekg( offset );
  switch( type )
    {
  case param_float:
      {
      os.precision(2);
      os « std::fixed;
      for( uint32_t idx = 0; idx < dim; ++idx )
        {
        if( idx ) os « ",";
        float v;
        is.read( (char*)&v, sizeof(v) );
        os « v; // what if the string contains \0 ?
        }
      }
    break;
  case param_integer:
      {
      int32_t v;
      for( uint32_t idx = 0; idx < dim; ++idx )
        {
```

```
          if( idx ) os « ",";
          is.read( (char*)&v, sizeof(v) );
          os « v;
          }
        }
      break;
    case param_string:
        {
        int size = 81;
        std::string v;
        v.resize( size );
        for( uint32_t idx = 0; idx < dim; ++idx )
          {
          if( idx ) os « ";";
          is.read( &v[0], size );
          os « v.c_str();
          }
        }
      break;
    case param_enum:
        {
        int32_t v;
        for( uint32_t idx = 0; idx < dim; ++idx )
          {
          if( idx ) os « ",";
          is.read( (char*)&v, sizeof(v) );
          os « v;
          }
        }
      break;
      }
    } else {
#if 1
      // direct
      assert ( type == param_string );
      char * ptr = v4.ptr;
        //std::string v;
        //v.resize( dim );
        //is.read( &v[0], dim );
        os « ptr;
#endif
    }

    }
  void printxml( std::ostream & os, std::istream & is ) const
    {
    // <Attribute Name="CGEN_force_par_mode" Type="enum">0</Attribute>
    os « "  <Attribute";
    os « " Name=\"" « name « "\"";
    os « " Type=\"" « gettypenamefromtype(type) « "\"";
    if( dim != 1 )
      {
      os « " ArraySize=\"" « dim « "\"";
      }
    os « ">";
    printvalue( os, is );
    os « "</Attribute>\n";
    }
  void printcsv( std::ostream & os, std::istream & is ) const
    {
    os « std::setw(32) « std::left « name « ",";
    os « std::setw(7) « std::right « gettypenamefromtype(type) « ",";
    os « std::setw(4) « dim « ",";
    os « " ";
    printvalue( os, is );
    os « ",\n";
    }
};

static bool ProcessNested( gdcm::DataSet & ds )
{
  /*
  TODO:
   Looks like the real length of the blob is stored here:
(2005,1132) SQ                                          # u/l,1 ?
  (fffe,e000) na (Item with undefined length)
    (2005,0011) LO [Philips MR Imaging DD 002 ]         # 26,1 Private Creator
    (2005,1143) SL 3103                                 # 4,1 ?

Wotsit ?
(2005,1132) SQ                                          # u/l,1 ?
```

```
  (fffe,e000) na (Item with undefined length)
    (2005,0011) LO [Philips MR Imaging DD 002 ]                  # 26,1 Private Creator
    (2005,1147) CS [Y ]                                          # 2,1 ?
  */
  bool ret = false;

  //  (2005,1137) PN (LO) [PDF_CONTROL_GEN_PARS]                   # 20,1 Protocol Data Name
  const gdcm::PrivateTag pt0(0x2005,0x37,"Philips MR Imaging DD 002");
  if( !ds.FindDataElement( pt0 ) ) return false;
  const gdcm::DataElement &de0 = ds.GetDataElement( pt0 );
  if( de0.IsEmpty() ) return false;
  const gdcm::ByteValue * bv0 = de0.GetByteValue();
  std::string s0( bv0->GetPointer() , bv0->GetLength() );

  // (2005,1139) LO [IEEE_PDF]                                    # 8,1 Protocol Data Type
  const gdcm::PrivateTag pt1(0x2005,0x39,"Philips MR Imaging DD 002");
  if( !ds.FindDataElement( pt1 ) ) return false;
  const gdcm::DataElement &de1 = ds.GetDataElement( pt1 );

  // (2005,1143) SL 53                                            # 4,1 Protocol Data Block Length (non-padded)
  const gdcm::PrivateTag pt2(0x2005,0x43,"Philips MR Imaging DD 002");
  if( !ds.FindDataElement( pt2 ) ) return false;
  const gdcm::DataElement &de2 = ds.GetDataElement( pt2 );

  // (2005,1147) CS [Y ]                                          # 2,1 Protocol Data Boolean
  const gdcm::PrivateTag pt3(0x2005,0x47,"Philips MR Imaging DD 002");
  if( !ds.FindDataElement( pt3 ) ) return false;
  const gdcm::DataElement &de3 = ds.GetDataElement( pt3 );
  (void)de3;

  // (2005,1144) OW 00\00\00\00\05\00\00\00\35\2e\31\2e\37\00       # 54,1 Protocol Data Block
  const gdcm::PrivateTag pt(0x2005,0x44,"Philips MR Imaging DD 002");
  if( !ds.FindDataElement( pt ) ) return false;
  const gdcm::DataElement &de = ds.GetDataElement( pt );
  if( de.IsEmpty() ) return false;
  const gdcm::ByteValue * bv = de.GetByteValue();

  if( s0 == "ExamCardBlob" )
    {
    assert( de1.IsEmpty() );

    std::string fn = gdcm::LOComp::Trim( s0.c_str() ); // remove trailing space
    fn += ".xml";
    std::ofstream out( fn.c_str() );

    // remove trailing \0
    size_t len = strlen( bv->GetPointer() );
    out.write( bv->GetPointer() , len );
    out.close();

    // Extract binary64 thingy (this is a ugly hack, better use an XML parser)
    std::string dup( bv->GetPointer(), len );
    std::string::size_type pos1 = dup.find( "<ExamCardBlob>" );
    std::string::size_type pos2 = dup.find( "</ExamCardBlob>" );

    std::string b64( bv->GetPointer() + pos1 + 14, pos2 - (pos1 + 14) );

    // ulgy hack to remove \r\n from input base64:
    std::string::iterator r_pos = std::remove(b64.begin(), b64.end(), '\r');
    b64.erase(r_pos, b64.end());
    std::string::iterator n_pos = std::remove(b64.begin(), b64.end(), '\n');
    b64.erase(n_pos, b64.end());
#if 0
    std::ofstream out2( "debug" );
    out2.write( b64.c_str(), b64.size() );
    out2.close();
#endif

    const size_t dlen = gdcm::Base64::GetDecodeLength(b64.c_str(), b64.size() );

    std::string decoded;
    decoded.resize( dlen );
    gdcm::Base64::Decode( &decoded[0], decoded.size(), b64.c_str(), b64.size() );

    std::ofstream f64( "soap.xml" );
    f64.write( decoded.c_str(), decoded.size() );
    f64.close();

    ret = true;
    }
  else
```

```
    {
    if( de1.IsEmpty() ) return false;
    const gdcm::ByteValue * bv1 = de1.GetByteValue();
    gdcm::Element<gdcm::VR::SL,gdcm::VM::VM1> dlen = {{0L}};
    dlen.SetFromDataElement( de2 );
    std::string s1( bv1->GetPointer() , bv1->GetLength() );

    if( s1 == "IEEE_PDF" )
      {

      std::istringstream is;
      assert( bv->GetLength() == (size_t)dlen.GetValue() || bv->GetLength() == (size_t)(dlen.GetValue() + 1) );
      std::string dup( bv->GetPointer(), dlen.GetValue() /*bv->GetLength()*/ );
      is.str( dup );

      header h;
      h.read( is );
      //assert( is.peek() && is.eof() );
#if 1
      static int c = 0;
      std::string fn0 = gdcm::LOComp::Trim( s1.c_str() ); // remove trailing space
      std::stringstream ss;
      ss « fn0 « "_" « c++;
      if( h.v1 == 0x01 )
        ss « ".direct";
      else
        ss « ".indirect";
      std::cout « "fn0=" « ss.str() « " Len= " « bv->GetLength() « std::endl;
      std::ofstream out( ss.str().c_str() );
      out.write( bv->GetPointer(), bv->GetLength() );
      out.close();
#endif
#if 1
      std::cout « dup.c_str() « std::endl;
      h.print( std::cout );
#endif

      std::vector< param > params;
      if( h.v1 == 0x01 ) {
        for( uint32_t i = 0; i < 1 /* h.getnparams()*/; ++i ) {
          param p;
          if( s0 == "HARDWARE_CONFIG " )
            {
            p.read_direct_int( is );
            }
          else if( s0 == "COILSTATE " )
            {
            p.read_direct_string( is );
            }
          else
            {
            assert(0);
            }
          params.push_back( p );
        }
      } else {
        assert( is.tellg() == std::streampos(0x20) );
        is.seekg( 0x20 );

        param p;
        for( uint32_t i = 0; i < h.getnparams(); ++i )
          {
          p.read( is );
          //p.print( std::cout );
          params.push_back( p );
          }
      }

      std::string fn = gdcm::LOComp::Trim( s0.c_str() ); // remove trailing space
      bool b1 = isvalidpdfstring( fn.c_str() );
      assert( b1 ); (void)b1;
      fn += ".csv";
      //fn += ".xml";
      std::ofstream csv( fn.c_str() );

      // let's do some bookkeeping:
      uint32_t nfloats = 0;
      uint32_t nints = 0;
      uint32_t nstrings = 0;
      for( std::vector<param>::const_iterator it = params.begin();
        it != params.end(); ++it )
```

```
        {
        param_type type = it->gettype();
        switch( type )
          {
        case param_float:
          nfloats += it->getdim();
          break;
        case param_integer:
          nints += it->getdim();
          break;
        case param_string:
          nstrings += it->getdim();
          break;
        default:
          ;
          }
        }
#if 0
      std::cout « "Stats:" « std::endl;
      std::cout « "nfloats:" « nfloats « std::endl;
      std::cout « "nints:" « nints « std::endl;
      std::cout « "nstrings:" « nstrings « std::endl;
#endif
      assert( h.getnints() >= nints );
      assert( h.getnfloats() >= nfloats );
      assert( h.getnstrings() >= nstrings);

      for( uint32_t i = 0; i < h.getnparams(); ++i )
        {
        params[i].printcsv( csv, is );
        //params[i].printxml( csv, is );
        }
      csv.close();
      ret = true;
      }
    else if( s1 == "ASCII " )
      {
#if 0
      std::cerr « "ASCII is not handled" « std::endl;
      std::string fn = gdcm::LOComp::Trim( s0.c_str() ); // remove trailing space
      fn += ".asc";
      std::ofstream out( fn.c_str() );
      out.write( bv->GetPointer() , bv->GetLength() );
      out.close();
#endif
      std::string fn = gdcm::LOComp::Trim( s0.c_str() ); // remove trailing space
      fn += ".sin";
      std::ofstream sin( fn.c_str() );

      const char *beg = bv->GetPointer();
      const char *end = beg + bv->GetLength();
      assert( *beg == 0 );
      const char *p = beg + 1; // skip first \0
      size_t prev = 0;
      for( ; p != end; ++p )
        {
        if( *p == 0 )
          {
          const char *s = beg + prev + 1;
          if( *s )
            {
            sin « s « std::endl;
            }
          else
            {
            sin « std::endl;
            }
          prev = p - beg;
          }
        }
      sin.close();

      ret = true;
      }
    else if( s1 == "BINARY" )
      {
      std::cerr « "BINARY is not handled" « std::endl;
      std::string fn = gdcm::LOComp::Trim( s0.c_str() ); // remove trailing space
      fn += ".bin";
      std::ofstream out( fn.c_str() );
      //out.write( bv->GetPointer() + 512, bv->GetLength() - 512);
```

```
      out.write( bv->GetPointer() , bv->GetLength() );
      out.close();

#if 0
      int array[ 128 ];
      memcpy( array, bv->GetPointer(), 512 );
      for( int i = 0; i < 14; ++i )
        {
        std::cout « array[i] « std::endl;
        }
#endif

      ret = true;
      }
    }
  // else -> ret == false
  assert( ret );

  return ret;
}

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();
/*
(2005,1132) SQ                                          # u/l,1 ?
  (fffe,e000) na (Item with undefined length)
    (2005,0011) LO [Philips MR Imaging DD 002 ]         # 26,1 Private Creator
    (2005,1137) PN (LO) [PDF_CONTROL_GEN_PARS]          # 20,1 ?
    (2005,1138) PN (LO) (no value)                      # 0,1 ?
    (2005,1139) PN (LO) [IEEE_PDF]                      # 8,1 ?
    (2005,1140) PN (LO) (no value)                      # 0,1 ?
    (2005,1141) PN (LO) (no value)                      # 0,1 ?
    (2005,1143) SL 3103                                 # 4,1 ?
    (2005,1144) OW
      66\05\00\00\3b\01\00\00\4a\0a\00\00\0e\00\00\00\7a\0a\00\00\95\01\00\00\08\00\00\00\1b\00\00\00\43\47\45\4e\5f\75\73\65\72\5
      # 3104,1 ?
    (2005,1147) CS [Y ]                                 # 2,1 ?
  (fffe,e00d)
*/
  const gdcm::PrivateTag pt(0x2005,0x32,"Philips MR Imaging DD 002");
  if( !ds.FindDataElement( pt ) ) return 1;
  const gdcm::DataElement &de = ds.GetDataElement( pt );
  if( de.IsEmpty() ) return 1;

  gdcm::SequenceOfItems *sqi = de.GetValueAsSQ();
  if ( !sqi ) return 1;
  gdcm::SequenceOfItems::SizeType s = sqi->GetNumberOfItems();
  for( gdcm::SequenceOfItems::SizeType i = 1; i <= s; ++i )
    {
    gdcm::Item &item = sqi->GetItem(i);

    gdcm::DataSet &nestedds = item.GetNestedDataSet();

    if( !ProcessNested( nestedds ) ) {
      std::cerr « "Error processing Item #" « i « std::endl;
    }
    }

  return 0;
}
```

14.51 DumpGEMSMovieGroup.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library
```

```
  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmImage.h"
#include "gdcmImageWriter.h"
#include "gdcmDataElement.h"
#include "gdcmPrivateTag.h"
#include "gdcmUIDGenerator.h"

#include <iostream>
#include <string>

#include <map>

bool PrintNameValueMapping( gdcm::SequenceOfItems *sqi_values,
gdcm::SequenceOfItems *sqi_names, std::string const & indent )
{
  using namespace gdcm;
  // prepare names mapping:
  typedef VRToType<VR::UL>::Type UL;
  std::map< UL, std::string > names;
  assert( sqi_names );
  assert( sqi_values );
  SequenceOfItems::SizeType s = sqi_names->GetNumberOfItems();
  PrivateTag tindex(0x7fe1,0x71,"GEMS_Ultrasound_MovieGroup_001");
  PrivateTag tname (0x7fe1,0x72,"GEMS_Ultrasound_MovieGroup_001");
  // First sequence contains all possible names (this is a dict)
  for( SequenceOfItems::SizeType i = 1; i <= s; ++i )
    {
    const Item & item = sqi_names->GetItem( i );
    const DataSet & ds = item.GetNestedDataSet();
    if( !ds.FindDataElement( tindex )
      || !ds.FindDataElement( tname ) )
      {
      assert( 0 );
      return false;
      }
    const DataElement & index = ds.GetDataElement( tindex );
    const DataElement & name = ds.GetDataElement( tname );
    if( index.IsEmpty() || name.IsEmpty() )
      {
      assert( 0 );
      return false;
      }
    gdcm::Element<VR::UL, VM::VM1> el1;
    el1.SetFromDataElement( index );

    gdcm::Element<VR::LO, VM::VM1> el2;
    el2.SetFromDataElement( name );
//    std::cout « el1.GetValue() « " " « el2.GetValue() « std::endl;
    names.insert( std::make_pair( el1.GetValue(), el2.GetValue() ) );
    }

  SequenceOfItems::SizeType s2 = sqi_values->GetNumberOfItems();
  assert( s2 <= s );
  PrivateTag tindex2(0x7fe1,0x48,"GEMS_Ultrasound_MovieGroup_001");
  for( SequenceOfItems::SizeType i = 1; i <= s2; ++i )
    {
    const Item & item = sqi_values->GetItem( i );
    const DataSet & ds = item.GetNestedDataSet();
    if( !ds.FindDataElement( tindex2 ) )
      {
      assert( 0 );
      return false;
      }
    const DataElement & index2 = ds.GetDataElement( tindex2 );
    if( index2.IsEmpty() )
      {
      assert( 0 );
      return false;
      }
    gdcm::Element<VR::FD, VM::VM1_2> el1;
```

```
    el1.SetFromDataElement( index2 );

    UL copy = (UL)el1.GetValue();
#if 1
    std::cout « indent;
    std::cout « "( " « names[ copy ];
#endif
    // (7fe1,1052) FD 1560                                    # 8,1 ?
    // (7fe1,1057) LT [MscSkelSup]                            # 10,1 ?
    //PrivateTag tvalue(0x7fe1,0x52,"GEMS_Ultrasound_MovieGroup_001");
    PrivateTag tvalueint(0x7fe1,0x49,"GEMS_Ultrasound_MovieGroup_001"); // UL
    PrivateTag tvaluefloat1(0x7fe1,0x51,"GEMS_Ultrasound_MovieGroup_001"); // FL
    PrivateTag tvaluefloat(0x7fe1,0x52,"GEMS_Ultrasound_MovieGroup_001"); // FD
    PrivateTag tvalueul(0x7fe1,0x53,"GEMS_Ultrasound_MovieGroup_001"); // UL
    PrivateTag tvaluesl(0x7fe1,0x54,"GEMS_Ultrasound_MovieGroup_001"); // SL
    PrivateTag tvalueob(0x7fe1,0x55,"GEMS_Ultrasound_MovieGroup_001"); // OB
    PrivateTag tvaluetext(0x7fe1,0x57,"GEMS_Ultrasound_MovieGroup_001");  // LT
    PrivateTag tvaluefd(0x7fe1,0x77,"GEMS_Ultrasound_MovieGroup_001");  // FD / 1-N
    PrivateTag tvaluesl3(0x7fe1,0x79,"GEMS_Ultrasound_MovieGroup_001");  // SL / 1-N
    PrivateTag tvaluesl2(0x7fe1,0x86,"GEMS_Ultrasound_MovieGroup_001");  // SL ??
    PrivateTag tvaluefd1(0x7fe1,0x87,"GEMS_Ultrasound_MovieGroup_001");  // FD / 1-N
    PrivateTag tvaluefloat2(0x7fe1,0x88,"GEMS_Ultrasound_MovieGroup_001");  // FD ??
#if 1
    std::cout « " ) = ";
#endif
    if( ds.FindDataElement( tvalueint ) )
      {
      const DataElement & value = ds.GetDataElement( tvalueint );
      gdcm::Element<VR::UL,VM::VM1> el2;
      el2.SetFromDataElement( value );
      std::cout « el2.GetValue() « std::endl;
      }
    else if( ds.FindDataElement( tvaluefloat1 ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluefloat1 );
      gdcm::Element<VR::FL,VM::VM1> el2;
      el2.SetFromDataElement( value );
      std::cout « el2.GetValue() « std::endl;
      }
    else if( ds.FindDataElement( tvaluefloat ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluefloat );
      gdcm::Element<VR::FD,VM::VM1> el2;
      el2.SetFromDataElement( value );
      std::cout « el2.GetValue() « std::endl;
      }
    else if( ds.FindDataElement( tvaluesl ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluesl );
      gdcm::Element<VR::SL,VM::VM1> el2;
      el2.SetFromDataElement( value );
      std::cout « el2.GetValue() « std::endl;
      }
    else if( ds.FindDataElement( tvalueul ) )
      {
      const DataElement & value = ds.GetDataElement( tvalueul );
      gdcm::Element<VR::UL,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
      assert( el2.GetLength() == 1 );
      std::cout « el2.GetValue() « std::endl;
      }
    else if( ds.FindDataElement( tvalueob ) )
      {
      const DataElement & value = ds.GetDataElement( tvalueob );
//      gdcm::Element<VR::SL,VM::VM1> el2;
//      el2.SetFromDataElement( value );
//      std::cout « el2.GetValue() « std::endl;
      std::cout « value « std::endl;
      }
    else if( ds.FindDataElement( tvaluetext ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluetext );
      gdcm::Element<VR::LT,VM::VM1> el2;
      el2.SetFromDataElement( value );
      std::cout « el2.GetValue() « std::endl;
      }
    else if( ds.FindDataElement( tvaluesl2 ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluesl2 );
      gdcm::Element<VR::SL,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
```

```
      el2.Print( std::cout );
      assert( el2.GetLength() == 4 );
      std::cout « std::endl;
      }
    else if( ds.FindDataElement( tvalues13 ) )
      {
      const DataElement & value = ds.GetDataElement( tvalues13 );
      gdcm::Element<VR::SL,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
      el2.Print( std::cout );
//      assert( el2.GetLength() == 4 );
      std::cout « std::endl;
      }
    else if( ds.FindDataElement( tvaluefd ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluefd );
      gdcm::Element<VR::FD,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
      el2.Print( std::cout );
//      assert( el2.GetLength() == 4 || el2.GetLength() == 3 || el2.GetLength() == 8 );
      std::cout « std::endl;
      }
    else if( ds.FindDataElement( tvaluefloat2 ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluefloat2 );
      gdcm::Element<VR::FD,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
      el2.Print( std::cout );
      assert( el2.GetLength() == 2 );
      std::cout « std::endl;
      }
    else if( ds.FindDataElement( tvaluefd1 ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluefd1 );
      gdcm::Element<VR::FD,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
      el2.Print( std::cout );
      assert( el2.GetLength() == 4 );
      std::cout « std::endl;
      }
    else
      {
      std::cout « "(no value)" « std::endl;
//      std::cout « ds « std::endl;
      assert( ds.Size() == 2 );
      }
    }
  return true;
}

bool PrintNameValueMapping2( gdcm::PrivateTag const & privtag, const gdcm::DataSet & ds ,
  gdcm::SequenceOfItems *sqi_names, std::string const & indent )
{
  if( !ds.FindDataElement( privtag ) ) return false;
  const gdcm::DataElement& seq_values = ds.GetDataElement( privtag );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi = seq_values.GetValueAsSQ();

  return PrintNameValueMapping( sqi, sqi_names, indent);
}

bool PrintNameValueMapping3( gdcm::PrivateTag const & privtag1, gdcm::PrivateTag const & privtag2, const
      gdcm::DataSet & ds ,
gdcm::SequenceOfItems *sqi_names, std::string const & indent )
{
  if( !ds.FindDataElement( privtag1 ) )
    {
    assert( 0 );
    return false;
    }
  const gdcm::DataElement& values10name = ds.GetDataElement( privtag1 );
  gdcm::Element<gdcm::VR::LO,gdcm::VM::VM1> el;
  el.SetFromDataElement( values10name );
  std::cout « std::endl;
  std::cout « " <" « el.GetValue().c_str() « ">" « std::endl;

  return PrintNameValueMapping2( privtag2, ds, sqi_names, indent);
}

bool print73( gdcm::DataSet const & ds10, gdcm::SequenceOfItems *sqi_dict, std::string const & indent )
{
  const gdcm::PrivateTag tseq_values73(0x7fe1,0x73,"GEMS_Ultrasound_MovieGroup_001");
```

```
  if( !ds10.FindDataElement( tseq_values73 ) )
    {
    std::cout « indent « "No group 73" « std::endl;
    return false;
    }
  const gdcm::DataElement& seq_values73 = ds10.GetDataElement( tseq_values73 );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values73 = seq_values73.GetValueAsSQ();

  size_t ni3 = sqi_values73->GetNumberOfItems();
  for( size_t i3 = 1; i3 <= ni3; ++i3 )
    {
    gdcm::Item &item_73 = sqi_values73->GetItem(i3);
    gdcm::DataSet &ds73 = item_73.GetNestedDataSet();
    assert( ds73.Size() == 3 );

    const gdcm::PrivateTag tseq_values74name(0x7fe1,0x74,"GEMS_Ultrasound_MovieGroup_001");
    const gdcm::PrivateTag tseq_values75(0x7fe1,0x75,"GEMS_Ultrasound_MovieGroup_001");
    PrintNameValueMapping3( tseq_values74name, tseq_values75, ds73, sqi_dict, indent);
    std::cout « std::endl;
    }
  return true;
}

bool print36( gdcm::DataSet const & ds10, gdcm::SequenceOfItems *sqi_dict, std::string const & indent )
{
  (void)sqi_dict;
  const gdcm::PrivateTag tseq_values36(0x7fe1,0x36,"GEMS_Ultrasound_MovieGroup_001");
  if( !ds10.FindDataElement( tseq_values36 ) )
    {
    std::cout « indent « "No group 36" « std::endl;
    return false;
    }
  const gdcm::DataElement& seq_values36 = ds10.GetDataElement( tseq_values36 );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values36 = seq_values36.GetValueAsSQ();

  size_t ni3 = sqi_values36->GetNumberOfItems();
  assert( ni3 >= 1 );
  for( size_t i3 = 1; i3 <= ni3; ++i3 )
    {
    gdcm::Item &item_36 = sqi_values36->GetItem(i3);
    gdcm::DataSet &ds36 = item_36.GetNestedDataSet();
    assert( ds36.Size() == 4 );

    // (7fe1,1037) UL 47  # 4,1 US MovieGroup Number of Frames
    // (7fe1,1043) OB 40\00\1c\c4\67\2f\0b\11\40         # 376,1 ?
    // (7fe1,1060) OB 4e\4e\49\4f\4e\47\46\43\2a         # 4562714,1 US MovieGroup Image Data
    //
    const gdcm::PrivateTag timagedata(0x7fe1,0x60,"GEMS_Ultrasound_MovieGroup_001");
    assert( ds36.FindDataElement( timagedata ) );
    gdcm::DataElement const & imagedata = ds36.GetDataElement( timagedata );

      const gdcm::ByteValue * bv = imagedata.GetByteValue();
  assert( bv );
      static int c = 0;
      std::stringstream ss;
      ss « "/tmp/debug";
      ss « c++;
      std::ofstream os( ss.str().c_str(), std::ios::binary );
      os.write( bv->GetPointer(), bv->GetLength() );
      os.close();

    //const gdcm::PrivateTag tseq_values85(0x7fe1,0x85,"GEMS_Ultrasound_MovieGroup_001");
    //PrintNameValueMapping3( tseq_values84name, tseq_values85, ds83, sqi_dict, indent);
    //std::cout « std::endl;
    }
  return true;
}
bool print83( gdcm::DataSet const & ds10, gdcm::SequenceOfItems *sqi_dict, std::string const & indent )
{
  const gdcm::PrivateTag tseq_values83(0x7fe1,0x83,"GEMS_Ultrasound_MovieGroup_001");
  if( !ds10.FindDataElement( tseq_values83 ) )
    {
    std::cout « indent « "No group 83" « std::endl;
    return false;
    }
  const gdcm::DataElement& seq_values83 = ds10.GetDataElement( tseq_values83 );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values83 = seq_values83.GetValueAsSQ();

  size_t ni3 = sqi_values83->GetNumberOfItems();
  for( size_t i3 = 1; i3 <= ni3; ++i3 )
    {
```

```
    gdcm::Item &item_83 = sqi_values83->GetItem(i3);
    gdcm::DataSet &ds83 = item_83.GetNestedDataSet();
    assert( ds83.Size() == 3 );

    const gdcm::PrivateTag tseq_values84name(0x7fe1,0x84,"GEMS_Ultrasound_MovieGroup_001");
    const gdcm::PrivateTag tseq_values85(0x7fe1,0x85,"GEMS_Ultrasound_MovieGroup_001");
    PrintNameValueMapping3( tseq_values84name, tseq_values85, ds83, sqi_dict, indent);
    std::cout « std::endl;
    }
  return true;
}

bool PrintNameValueMapping4( gdcm::PrivateTag const & privtag0, const gdcm::DataSet & subds, gdcm::PrivateTag
      const & privtag1, gdcm::PrivateTag const & privtag2,
gdcm::SequenceOfItems *sqi_dict, std::string const & indent )
{
  (void)indent;
  if( !subds.FindDataElement( privtag0 ) )
    {
    assert( 0 );
    return false;
    }
  const gdcm::DataElement& seq_values10 = subds.GetDataElement( privtag0 );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values10 = seq_values10.GetValueAsSQ();

  size_t ni1 = sqi_values10->GetNumberOfItems();
//  assert( ni1 == 1 );
  for( size_t i1 = 1; i1 <= ni1; ++i1 )
    {
    gdcm::Item &item_10 = sqi_values10->GetItem(i1);
    gdcm::DataSet &ds10 = item_10.GetNestedDataSet();
    assert( ds10.Size() == 2 + 3 );
    // (7fe1,0010)
    // (7fe1,1012)
    // (7fe1,1018)
    // (7fe1,1020)
    // (7fe1,1083)

    PrintNameValueMapping3( privtag1, privtag2, ds10, sqi_dict, "  " );
    std::cout « std::endl;

    const gdcm::PrivateTag tseq_values20(0x7fe1,0x20,"GEMS_Ultrasound_MovieGroup_001");
    if( !ds10.FindDataElement( tseq_values20 ) )
      {
      assert( 0 );
      return false;
      }
    const gdcm::DataElement& seq_values20 = ds10.GetDataElement( tseq_values20 );
    gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values20 = seq_values20.GetValueAsSQ();

    size_t ni2 = sqi_values20->GetNumberOfItems();
    //assert( ni == 1 );
    for( size_t i2 = 1; i2 <= ni2; ++i2 )
      {
      gdcm::Item &item_20 = sqi_values20->GetItem(i2);
      gdcm::DataSet &ds20 = item_20.GetNestedDataSet();
      size_t count = ds20.Size(); (void)count;
      assert( ds20.Size() == 2 + 3 || ds20.Size() == 2 + 2 );
      // (7fe1,0010)
      // (7fe1,1024)
      // (7fe1,1026)
      // (7fe1,1036)
      // (7fe1,103a)
      // (7fe1,1083) (*)

      const gdcm::PrivateTag tseq_values20name(0x7fe1,0x24,"GEMS_Ultrasound_MovieGroup_001");
      const gdcm::PrivateTag tseq_values26(0x7fe1,0x26,"GEMS_Ultrasound_MovieGroup_001");
      PrintNameValueMapping3( tseq_values20name, tseq_values26, ds20, sqi_dict, "   ");
      std::cout « std::endl;

      print36(ds20, sqi_dict, "    ");
      print83(ds20, sqi_dict, "    ");
      }

    print83(ds10, sqi_dict, "   ");
    }
  return true;
}

int main(int argc, char *argv[])
{
```

```
  if( argc < 2 ) return 1;
  using namespace gdcm;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() ) return 1;

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();
  const PrivateTag tseq(0x7fe1,0x1,"GEMS_Ultrasound_MovieGroup_001");

  if( !ds.FindDataElement( tseq ) ) return 1;
  const DataElement& seq = ds.GetDataElement( tseq );

  SmartPointer<SequenceOfItems> sqi = seq.GetValueAsSQ();
  assert( sqi->GetNumberOfItems() == 1 );

  Item &item = sqi->GetItem(1);
  DataSet &subds = item.GetNestedDataSet();

  const PrivateTag tseq_dict(0x7fe1,0x70,"GEMS_Ultrasound_MovieGroup_001");
  if( !subds.FindDataElement( tseq_dict ) ) return 1;
  const DataElement& seq_dict = subds.GetDataElement( tseq_dict );
  SmartPointer<SequenceOfItems> sqi_dict = seq_dict.GetValueAsSQ();

  const PrivateTag tseq_values8(0x7fe1,0x8,"GEMS_Ultrasound_MovieGroup_001");
  if( !subds.FindDataElement( tseq_values8 ) ) return 1;
  const DataElement& seq_values8 = subds.GetDataElement( tseq_values8 );
  SmartPointer<SequenceOfItems> sqi_values8 = seq_values8.GetValueAsSQ();

  const PrivateTag tseq_values8name(0x7fe1,0x2,"GEMS_Ultrasound_MovieGroup_001");
  if( !subds.FindDataElement( tseq_values8name ) ) return 1;
  const DataElement& values8name = subds.GetDataElement( tseq_values8name );
{
  Element<VR::LO,VM::VM1> el;
  el.SetFromDataElement( values8name );
  std::cout « el.GetValue() « std::endl;
}
  size_t count = subds.Size(); (void)count;
  assert( subds.Size() == 3 + 2 + 1 || subds.Size() == 3 + 2 + 2);

//  (7fe1,0010) # 30,1 Private Creator
//  (7fe1,1002) # 8,1 US MovieGroup Value 0008 Name
//  (7fe1,1003) # 4,1 ?
//  (7fe1,1008) # 8140,1 US MovieGroup Value 0008 Sequence
//  (7fe1,1010) # 1372196,1 ?
//  (7fe1,1070) # 33684,1 US MovieGroup Dict
//  (7fe1,1073) (*)
  PrintNameValueMapping( sqi_values8, sqi_dict, " ");

  const PrivateTag tseq_values10(0x7fe1,0x10,"GEMS_Ultrasound_MovieGroup_001");
  const PrivateTag tseq_values10name(0x7fe1,0x12,"GEMS_Ultrasound_MovieGroup_001");
  const PrivateTag tseq_values18(0x7fe1,0x18,"GEMS_Ultrasound_MovieGroup_001");
  PrintNameValueMapping4( tseq_values10, subds, tseq_values10name, tseq_values18, sqi_dict,"  ");

  print73( subds, sqi_dict, "  " );

#if 0
  gdcm::DataSet::ConstIterator it = subds.Begin();
  for( ; it != subds.End(); ++it )
    {
  const gdcm::DataElement &de = *it;
    std::cout « de.GetTag() « std::endl;
    }
#endif

  return 0;
}
```

14.52 DumpImageHeaderInfo.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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```

```
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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Dump TOSHIBA MDW HEADER / Image Header Info
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"

#include <iostream>
#include <fstream>
#include <vector>

#include <string.h>
#include <assert.h>
#include <stdint.h>

struct element
{
  std::istream & read( std::istream & is );
};

std::istream & element::read( std::istream & is )
{
  static const uint32_t ref = 0xe000fffe;
  std::ostream &os = std::cout;
  if( is.eof() )
    {
    return is;
    }
  uint32_t magic;
  if( !is.read( (char*)&magic, sizeof(magic) ) )
    {
    return is;
    }
  //os << magic << std::endl;
  assert( magic == ref ); (void)ref;

  uint32_t l;
  is.read( (char*)&l, sizeof(l) );
  //os << l << std::endl;

  char str[17];
  str[16] = 0;
  is.read( str, 16 );
  os << str << " (" << l << ")" << std::endl;
  std::vector<char> bytes;
  bytes.resize( l - 16 );
  if( !bytes.empty() )
    {
    is.read( bytes.data(), l - 16 );
    }
  //os << "pos:" << is.tellg() << std::endl;

  if( strcmp(str, "TUSREMEASUREMENT" ) == 0 )
    {
    const char *p = bytes.data();
    uint32_t val;
    memcpy( (char*)&val, p, sizeof(val) );
    os << " " << val << std::endl;
    p += sizeof(val);
    memcpy( (char*)&val, p, sizeof(val) );
    os << " " << val << std::endl;
    p += sizeof(val);
    memcpy( (char*)&val, p, sizeof(val) );
    os << " " << val << std::endl;
    p += sizeof(val);
    memcpy( (char*)&val, p, sizeof(val) );
    os << " " << val << std::endl;
    p += sizeof(val);
    memcpy( (char*)&val, p, sizeof(val) );
    os << " " << val << std::endl;
    p += sizeof(val);
    memcpy( (char*)&val, p, sizeof(val) );
```

```
    os « " " « val « std::endl;
    p += sizeof(val);
#if 0
    float f;
    memcpy( (char*)&f, p, sizeof(f) );
    os « " " « f « std::endl;
    p += sizeof(f);
#else
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
#endif
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
    char str2[17];
    memcpy( str2, p, 16 );
    str2[16] = 0;
    os « " " « str2 « std::endl;
    }

#if 0
  std::ofstream out( str, std::ios::binary );
  out.write( (char*)&magic, sizeof( magic ) );
  out.write( (char*)&l, sizeof( l ) );
  out.write( str, 16 );
  out.write( &bytes[0], bytes.size() );
#endif
  return is;
}

static bool DumpImageHeaderInfo( std::istream & is, size_t reflen )
{
  // TUSNONIMAGESTAM (5176)
  // TUSREMEASUREMEN (1352)
  // TUSBSINGLELAYOU (16)
  // TUSCLIPPARAMETE (104)

  element el;
  while( el.read( is ) )
    {
    }
  //size_t pos = is.tellg();
  //assert( pos == reflen );
  (void)reflen;

  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  const gdcm::PrivateTag timageheaderinfo(0x0029,0x10,"TOSHIBA MDW HEADER");
  if( !ds.FindDataElement( timageheaderinfo) ) return 1;
  const gdcm::DataElement& imageheaderinfo = ds.GetDataElement( timageheaderinfo );
  if ( imageheaderinfo.IsEmpty() ) return 1;
  const gdcm::ByteValue * bv = imageheaderinfo.GetByteValue();

  std::istringstream is;
  std::string dup( bv->GetPointer(), bv->GetLength() );
  is.str( dup );
  bool b = DumpImageHeaderInfo( is, bv->GetLength() );
  if( !b ) return 1;

#if 0
  const float d1 = 0.0041666668839752674; // 89 88 88 3B // 0x44c
  //const float d1 = 0.053231674455417881;
  const float d2 = 0.10828025639057159; // 0A C2 DD 3D // 0x1ac
  //const float d1 = 0.1786956206927281 3;
  //const unsigned int d2 = 4294967280;
  const float d3 = 0.10828025639057159; // 0A C2 DD 3D // 0x15c
```

```
  const int32_t d4 = 134;
  const uint32_t d5 = 1153476;
  std::ofstream t("/tmp/debug", std::ios::binary );
  //t.write( (char*)&d0, sizeof( d0 ) );
  t.write( (char*)&d1, sizeof( d1 ) );
  t.write( (char*)&d2, sizeof( d2 ) );
  t.write( (char*)&d3, sizeof( d3 ) );
  t.write( (char*)&d4, sizeof( d4 ) );
  t.write( (char*)&d5, sizeof( d5 ) );
  t.close();
#endif

  return 0;
}
```

14.53 DumpPhilipsECHO.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmDeflateStream.h"
#include "gdcm_zlib.h"

/*
 * This example extract the ZLIB compressed US image from a Philips private tag
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Usage:
 *
 * $ DumpPhilipsECHO private_us.dcm raw_us_img.raw
 * $ gdcmimg --sop-class-uid 1.2.840.10008.5.1.4.1.1.3.1 --size 608,427,88 raw_us_img.raw raw_us_img.dcm
 */

// header:
struct hframe
{
  uint32_t val0; // 800 increment ?
  uint16_t val1[2];
  uint16_t val2[2];
  uint32_t imgsize;

  bool operator==(const hframe &h) const
    {
    return val0 == h.val0 &&
      val1[0] == h.val1[0] &&
      val1[1] == h.val1[1] &&
      val2[0] == h.val2[0] &&
      val2[1] == h.val2[1] &&
      imgsize == h.imgsize;
    }

};

static bool ProcessDeflate( const char *outfilename, const int nslices, const
  int buf_size, const char *buf, const std::streampos len,
  const char *crcbuf, const size_t crclen )
{
```

```
  std::vector< hframe > crcheaders;
  crcheaders.reserve( nslices );
    {
    std::istringstream is;
    is.str( std::string( crcbuf, crclen ) );
    hframe header;
    for( int r = 0; r < nslices; ++r )
      {
      is.read( (char*)&header, sizeof( header ));
#if 0
      std::cout « header.val0
         « " " « header.val1[0]
         « " " « header.val1[1]
         « " " « header.val2[0]
         « " " « header.val2[1]
         « " " « header.imgsize « std::endl;
#endif
      crcheaders.push_back( header );
      }
    }

  std::istringstream is;
  is.str( std::string( buf, (size_t)len ) );

  std::streamoff totalsize;
  is.read( (char*)&totalsize, sizeof( totalsize ));
  assert( totalsize == len );

  uint32_t nframes;
  is.read( (char*)&nframes, sizeof( nframes ));
  assert( nframes == (uint32_t)nslices );

  std::vector< std::streamoff > offsets;
  offsets.reserve( nframes );
  for( uint32_t frame = 0; frame < nframes ; ++frame )
    {
    uint32_t offset;
    is.read( (char*)&offset, sizeof( offset ));
    offsets.push_back( offset );
    }

  std::vector<char> outbuf;

  const int size[2] = { 608, 427 }; // FIXME: where does it comes from ?
  std::stringstream ss;
  ss « outfilename;
  ss « '_';
  //ss « crcheaders[0].imgsize; // FIXME: Assume all header are identical !
  ss « size[0];
  ss « '_';
  ss « size[1];
  ss « '_';
  ss « nframes;
  ss « ".raw";
  std::ofstream os( ss.str().c_str(), std::ios::binary );

  assert( buf_size >= size[0] * size[1] );
  outbuf.resize( buf_size );

  hframe header;
  //uint32_t prev = 0;
  for( unsigned int r = 0; r < nframes; ++r )
    {
    is.read( (char*)&header, sizeof( header ));

    assert( header == crcheaders[r] );
    assert( header.val1[0] == 2000 );
    assert( header.val1[1] == 3 );
    assert( header.val2[0] == 1 );
    assert( header.val2[1] == 1280 );

    uLongf destLen = buf_size; // >= 608,427
    Bytef *dest = (Bytef*)outbuf.data();
    assert( is.tellg() == offsets[r] + 16 );
    const Bytef *source = (const Bytef*)buf + offsets[r] + 16;
    uLong sourceLen;
    if( r + 1 == nframes )
      sourceLen = (uLong)totalsize - (uLong)offsets[r] - 16;
    else
      sourceLen = (uLong)offsets[r+1] - (uLong)offsets[r] - 16;
    // FIXME: in-memory decompression:
```

```
    int ret = uncompress (dest, &destLen, source, sourceLen);
    assert( ret == Z_OK ); (void)ret;
    assert( destLen >= (uLongf)size[0] * size[1] ); // 16bytes padding ?
    assert( header.imgsize == (uint32_t)size[0] * size[1] );
    //os.write( &outbuf[0], outbuf.size() );
    os.write( outbuf.data(), size[0] * size[1] );

    // skip data:
    is.seekg( sourceLen, std::ios::cur );
    }
  os.close();
  assert( is.tellg() == totalsize );

  return true;
}

static bool ProcessNone( const char *outfilename, const int nslices, const
  int buf_size, const char *buf, const std::streampos len,
  const char *crcbuf, const size_t crclen )
{
  std::vector< hframe > crcheaders;
  crcheaders.reserve( nslices );
    {
    std::istringstream is;
    is.str( std::string( crcbuf, crclen ) );
    hframe header;
    for( int r = 0; r < nslices; ++r )
      {
      is.read( (char*)&header, sizeof( header ));
#if 0
      std::cout « header.val0
         « " " « header.val1[0]
         « " " « header.val1[1]
         « " " « header.val2[0]
         « " " « header.val2[1]
         « " " « header.imgsize « std::endl;
#endif
      crcheaders.push_back( header );
      }
    }

  std::istringstream is;
  is.str( std::string( buf, (size_t)len ) );

  std::streampos totalsize;
  is.read( (char*)&totalsize, sizeof( totalsize ));
  assert( totalsize == len );

  uint32_t nframes;
  is.read( (char*)&nframes, sizeof( nframes ));
  assert( nframes == (uint32_t)nslices );

  std::vector< uint32_t > offsets;
  offsets.reserve( nframes );
  for( uint32_t frame = 0; frame < nframes ; ++frame )
    {
    uint32_t offset;
    is.read( (char*)&offset, sizeof( offset ));
    offsets.push_back( offset );
    //std::cout « offset « std::endl;
    }

  std::vector<char> outbuf;
  // No idea how to present the data, I'll just append everything, and present it as 2D
  std::stringstream ss;
  ss « outfilename;
  ss « '_';
  ss « crcheaders[0].imgsize; // FIXME: Assume all header are identical !
  ss « '_';
  ss « nframes;
  ss « ".raw";
  std::ofstream os( ss.str().c_str(), std::ios::binary );
  outbuf.resize( buf_size ); // overallocated + 16
  char *buffer = outbuf.data();

  hframe header;
  for( unsigned int r = 0; r < nframes; ++r )
    {
    is.read( (char*)&header, sizeof( header ));
#if 0
    std::cout « header.val0
```

```
          « " " « header.val1[0]
          « " " « header.val1[1]
          « " " « header.val2[0]
          « " " « header.val2[1]
          « " " « header.imgsize « std::endl;
#endif
    assert( header == crcheaders[r] );

    is.read( buffer, buf_size - 16 );
    os.write( buffer, header.imgsize );
    }
  assert( is.tellg() == totalsize );
  os.close();

  return true;
}

#ifndef NDEBUG
static const char * const UDM_USD_DATATYPE_STRINGS[] = {
  "UDM_USD_DATATYPE_DIN_2D_ECHO",
  "UDM_USD_DATATYPE_DIN_2D_ECHO_CONTRAST",
  "UDM_USD_DATATYPE_DIN_DOPPLER_CW",
  "UDM_USD_DATATYPE_DIN_DOPPLER_PW",
  "UDM_USD_DATATYPE_DIN_DOPPLER_PW_TDI",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_FLOW",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_PMI",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_CPA",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_TDI",
  "UDM_USD_DATATYPE_DIN_MMODE_ECHO",
  "UDM_USD_DATATYPE_DIN_MMODE_COLOR",
  "UDM_USD_DATATYPE_DIN_MMODE_COLOR_TDI",
  "UDM_USD_DATATYPE_DIN_PARAM_BLOCK",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_VELOCITY",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_POWER",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_VARIANCE",
  "UDM_USD_DATATYPE_DIN_DOPPLER_AUDIO",
  "UDM_USD_DATATYPE_DIN_DOPPLER_HIGHQ",
  "UDM_USD_DATATYPE_DIN_PHYSIO",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_STRAIN",
  "UDM_USD_DATATYPE_DIN_COMPOSITE_RGB",
  "UDM_USD_DATATYPE_DIN_XFOV_REALTIME_GRAPHICS",
  "UDM_USD_DATATYPE_DIN_XFOV_MOSAIC",
  "UDM_USD_DATATYPE_DIN_COMPOSITE_R",
  "UDM_USD_DATATYPE_DIN_COMPOSITE_G",
  "UDM_USD_DATATYPE_DIN_COMPOSITE_B",
  "UDM_USD_DATATYPE_DIN_MMODE_COLOR_VELOCITY",
  "UDM_USD_DATATYPE_DIN_MMODE_COLOR_POWER",
  "UDM_USD_DATATYPE_DIN_MMODE_COLOR_VARIANCE",
  "UDM_USD_DATATYPE_DIN_2D_ELASTO",
};

static inline bool is_valid( const char * datatype_str )
{
  static const int n = sizeof( UDM_USD_DATATYPE_STRINGS ) / sizeof( *UDM_USD_DATATYPE_STRINGS );
  bool found = false;
  if( datatype_str )
    {
    for( int i = 0; !found && i < n; ++i )
      {
      found = strcmp( datatype_str, UDM_USD_DATATYPE_STRINGS[i] ) == 0;
      }
    }
  return found;
}
#endif

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  using namespace gdcm;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() ) return 1;

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds1 = file.GetDataSet();

  const PrivateTag tseq1(0x200d,0x3cf8,"Philips US Imaging DD 045");
  if( !ds1.FindDataElement( tseq1 ) ) return 1;
```

```
const DataElement& seq1 = ds1.GetDataElement( tseq1 );

SmartPointer<SequenceOfItems> sqi1 = seq1.GetValueAsSQ();
assert( sqi1->GetNumberOfItems() >= 1 );

const size_t nitems = sqi1->GetNumberOfItems();
for( size_t item = 1; item < nitems; ++item )
  {
  Item &item1 = sqi1->GetItem(item);
  DataSet &ds2 = item1.GetNestedDataSet();

  // (200d,300d)  LO  28  UDM_USD_DATATYPE_DIN_2D_ECHO
  const PrivateTag tdatatype(0x200d,0x300d,"Philips US Imaging DD 033");
  if( !ds2.FindDataElement( tdatatype ) ) return 1;
  const DataElement& datatype = ds2.GetDataElement( tdatatype );
  const ByteValue *bvdatatype = datatype.GetByteValue();
  if( !bvdatatype ) return 1;

  const PrivateTag tseq2(0x200d,0x3cf1,"Philips US Imaging DD 045");
  if( !ds2.FindDataElement( tseq2 ) ) return 1;
  const DataElement& seq2 = ds2.GetDataElement( tseq2 );

  SmartPointer<SequenceOfItems> sqi2 = seq2.GetValueAsSQ();
  assert( sqi2->GetNumberOfItems() >= 1 );

  // FIXME: what if not in first Item ?
  assert( sqi2->GetNumberOfItems() == 1 );
  Item &item2 = sqi2->GetItem(1);
  DataSet &ds3 = item2.GetNestedDataSet();

  const PrivateTag tzlib(0x200d,0x3cfa,"Philips US Imaging DD 045");
  if( !ds3.FindDataElement( tzlib ) ) return 1;
  const DataElement& zlib = ds3.GetDataElement( tzlib );

  const ByteValue *bv = zlib.GetByteValue();
  if( !bv ) return 1;
  if( bv->GetLength() != 4 ) return 1;

  // (200d,3010)  IS  2  88
  const PrivateTag tnslices(0x200d,0x3010,"Philips US Imaging DD 033");
  if( !ds3.FindDataElement( tnslices ) ) return 1;
  const DataElement& nslices = ds3.GetDataElement( tnslices );
  Element<VR::IS,VM::VM1> elnslices;
  elnslices.SetFromDataElement( nslices );
  const int nslicesref = elnslices.GetValue();
  assert( nslicesref >= 0 );
  // (200d,3011)  IS  6  259648
  const PrivateTag tzalloc(0x200d,0x3011,"Philips US Imaging DD 033");
  if( !ds3.FindDataElement( tzalloc ) ) return 1;
  const DataElement& zalloc = ds3.GetDataElement( tzalloc );
  Element<VR::IS,VM::VM1> elzalloc;
  elzalloc.SetFromDataElement( zalloc );
  const int zallocref = elzalloc.GetValue();
  assert( zallocref >= 0 );
  // (200d,3021)  IS  2  0
  const PrivateTag tzero(0x200d,0x3021,"Philips US Imaging DD 033");
  if( !ds3.FindDataElement( tzero ) ) return 1;
  const DataElement& zero = ds3.GetDataElement( tzero );
  Element<VR::IS,VM::VM1> elzero;
  elzero.SetFromDataElement( zero );
  const int zerocref = elzero.GetValue();
  assert( zerocref == 0 ); (void)zerocref;

  // (200d,3cf3) OB
  const PrivateTag tdeflate(0x200d,0x3cf3,"Philips US Imaging DD 045");
  if( !ds3.FindDataElement( tdeflate) ) return 1;
  const DataElement& deflate = ds3.GetDataElement( tdeflate );
  const ByteValue *bv2 = deflate.GetByteValue();

  // (200d,3cfb) OB
  const PrivateTag tcrc(0x200d,0x3cfb,"Philips US Imaging DD 045");
  if( !ds3.FindDataElement( tcrc ) ) return 1;
  const DataElement& crc = ds3.GetDataElement( tcrc );
  const ByteValue *bv3 = crc.GetByteValue();

  std::string outfile = std::string( bvdatatype->GetPointer(), bvdatatype->GetLength() );
  outfile = LOComp::Trim( outfile.c_str() );
  const char *outfilename = outfile.c_str();
  assert( is_valid(outfilename) );
  if( bv2 )
    {
```

```
      assert( bv3 );
      assert( zallocref > 0 );
      assert( nslicesref > 0 );
      std::cout « ds2 « std::endl;

      if( strncmp(bv->GetPointer(), "ZLib", 4) == 0 )
        {
        if( !ProcessDeflate( outfilename, nslicesref, zallocref, bv2->GetPointer(),
            std::streampos(bv2->GetLength()), bv3->GetPointer(), bv3->GetLength() ) )
          {
          return 1;
          }
        }
      else if( strncmp(bv->GetPointer(), "None", 4) == 0 )
        {
        if( !ProcessNone( outfilename, nslicesref, zallocref, bv2->GetPointer(),
            std::streampos(bv2->GetLength()), bv3->GetPointer(), bv3->GetLength() ) )
          {
          return 1;
          }
        }
      else
        {
        std::string str( bv->GetPointer(), bv->GetLength() );
        std::cerr « "Unhandled: " « str « std::endl;
        return 1;
        }
      }
    }

  return 0;
}
```

14.54 DumpSiemensBase64.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * https://groups.google.com/forum/#!msg/comp.protocols.dicom/2kZ2lLP8EcM/WzjFrtjnAgAJ
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmPrinter.h"
#include "gdcmDictPrinter.h"
#include "gdcmCSAHeader.h"
#include "gdcmBase64.h"
#include "gdcmExplicitDataElement.h"
#include "gdcmSwapper.h"

#include <iostream>
#include <fstream>
#include <vector>

#include <assert.h>

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
  {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
```

```
  }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  gdcm::CSAHeader csa;
  const gdcm::PrivateTag &t1 = csa.GetCSAImageHeaderInfoTag();
  if( !ds.FindDataElement( t1 ) ) return 1;
  csa.LoadFromDataElement( ds.GetDataElement( t1 ) );

  //const char name[] = "MRDiffusion";
  const char name[] = "MR_ASL";
  if( csa.FindCSAElementByName(name) )
  {
    const gdcm::CSAElement & el = csa.GetCSAElementByName(name);
    const gdcm::ByteValue* bv = el.GetByteValue();
    std::string str( bv->GetPointer(), bv->GetLength() );
    str.erase(std::remove(str.begin(), str.end(), '\n'), str.end());
    size_t dl = gdcm::Base64::GetDecodeLength( str.c_str(), str.size() );
    std::vector<char> buf;
    buf.resize( dl );
    size_t dl2 = gdcm::Base64::Decode( buf.data(), buf.size(), str.c_str(), str.size() );
    (void)dl2;
    std::stringstream ss;
    ss.str( std::string(buf.data(), buf.size()) );
    gdcm::File file;
    gdcm::DataSet &ds2 = file.GetDataSet();
    gdcm::DataElement xde;
    try
    {
      while( xde.Read<gdcm::ExplicitDataElement,gdcm::SwapperNoOp>( ss ) )
      {
        ds2.Insert( xde );
      }
      assert( ss.eof() );
    }
    catch(std::exception &)
    {
      return 1;
    }
    gdcm::Printer p;
    p.SetFile( file );
    p.Print(std::cout);

  }

  return 0;
}
```

14.55 DumpToSQLITE3.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Ref:
 * http://massmail.spl.harvard.edu/public-archives/slicer-devel/2010/004408.html
 *
 * Implementation details:
 * http://www.sqlite.org/c3ref/bind_blob.html
 * http://www.adp-gmbh.ch/sqlite/bind_insert.html
 */
#include "gdcmScanner.h"
#include "gdcmDirectory.h"
#include "gdcmTag.h"
```

```
#include "gdcmTrace.h"

#include "sqlite3.h"

#include <stdio.h>
#include <time.h>

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    return 1;
    }
  time_t time_start = time(nullptr);

  gdcm::Trace::SetDebug( false );
  gdcm::Trace::SetWarning( false );
  const char *inputdirectory = argv[1];

  gdcm::Directory d;
  unsigned int nfiles = d.Load( inputdirectory, true);

  gdcm::Scanner s;
  using gdcm::Tag;
  s.AddTag( Tag(0x20,0xd) ); // Study Instance UID
  s.AddTag( Tag(0x20,0xe) ); // Series Instance UID

  bool b0 = s.Scan( d.GetFilenames() );
  if( !b0 ) return 1;
  time_t time_scanner = time(nullptr);

  std::cout « "Finished loading data from : " « nfiles « " files" « std::endl;

//  MappingType const &mappings = s.GetMappings();


  sqlite3* db;
  sqlite3_open("./dicom.db", &db);

  if(db == nullptr)
    {
    std::cerr « "Could not open database." « std::endl;
    return 1;
    }

  const char sql_stmt[] = "create table browser (seriesuid, studyuid)";
  int   ret;

  char *errmsg;
  ret = sqlite3_exec(db, sql_stmt, nullptr, nullptr, &errmsg);

  if(ret != SQLITE_OK)
    {
    printf("Error in statement: %s [%s].\n", sql_stmt, errmsg);
    return 1;
    }
  using gdcm::Directory;
  using gdcm::Scanner;
  const Directory::FilenamesType& files = d.GetFilenames();
  Directory::FilenamesType::const_iterator file = files.begin();

  sqlite3_stmt *stmt;
  if ( sqlite3_prepare(
      db,
      "insert into browser values (?,?)",  // stmt
      -1, // If than zero, then stmt is read up to the first nul terminator
      &stmt,
      nullptr  // Pointer to unused portion of stmt
  )
    != SQLITE_OK)
    {
    printf("\nCould not prepare statement.");
    return 1;
    }
  //printf("\nThe statement has %d wildcards\n", sqlite3_bind_parameter_count(stmt));
  for(; file != files.end(); ++file)
    {
    const char *filename = file->c_str();
    bool b = s.IsKey(filename);
    if( b )
      {
```

```
      const Scanner::TagToValue &mapping = s.GetMapping(filename);
      Scanner::TagToValue::const_iterator it = mapping.begin();

      sqlite3_reset(stmt);

      for( int index = 1; it != mapping.end(); ++it, ++index)
        {
        //const Tag & tag = it->first;
        const char *value = it->second;

        if (sqlite3_bind_text (
            stmt,
            index,  // Index of wildcard
            value,
            (int)strlen(value),  // length of text
            SQLITE_STATIC // SQLite assumes that the information is in static
        )
          != SQLITE_OK)
          {
          printf("\nCould not bind int.\n");
          return 1;
          }
        }
      if (sqlite3_step(stmt) != SQLITE_DONE)
        {
        printf("\nCould not step (execute) stmt.\n");
        return 1;
        }
      }
    }

  sqlite3_close(db);

  time_t time_sqlite = time(nullptr);

  std::cout << "Time to scan DICOM files: " << (time_scanner - time_start) << std::endl;
  std::cout << "Time to build SQLITE3: " << (time_sqlite - time_scanner) << std::endl;

  return 0;
}
```

14.56 DumpToshibaDTI.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
/*
 * https://groups.google.com/d/msg/comp.protocols.dicom/7IaIkT0ZG5U/k7LPu81VvAMJ
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmPrinter.h"
#include "gdcmDictPrinter.h"

#include <iostream>
#include <fstream>
#include <vector>

#include <assert.h>

static bool DumpToshibaDTI( const char * input, size_t len )
{
  static int i = 0;
  ++i;
  if( len % 2 ) return false;

  std::vector<char> copy( input, input + len );
```

```
  std::reverse( copy.begin(), copy.end() );

#if 0
  std::ostringstream f;
  f « "debug" « i;
  std::ofstream of( f.str().c_str(), std::ios::binary );
  of.write( &copy[0], copy.size() );
  of.close();
#else

  std::istringstream is;
  std::string dup( copy.data(), copy.size() );
  is.str( dup );

  gdcm::File file;
  gdcm::FileMetaInformation & fmi = file.GetHeader();
  fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );
  gdcm::DataSet & ds = file.GetDataSet();
  ds.Read<gdcm::ExplicitDataElement,gdcm::SwapperNoOp>( is );

  //gdcm::DictPrinter p;
  gdcm::Printer p;
  p.SetFile( file );
  p.SetColor( true );
  p.Print( std::cout );
#endif

  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  // (0029,0010) ?? (LO) [PMTF INFORMATION DATA ]                       # 22,1 Private Creator
  // (0029,1001) ?? (SQ) (Sequence with undefined length)               # u/l,1 ?

  const gdcm::PrivateTag tpmtf(0x0029,0x1,"PMTF INFORMATION DATA");
  if( !ds.FindDataElement( tpmtf) ) return 1;
  const gdcm::DataElement& pmtf = ds.GetDataElement( tpmtf );
  if ( pmtf.IsEmpty() ) return 1;
  gdcm::SmartPointer<gdcm::SequenceOfItems> seq = pmtf.GetValueAsSQ();
  if ( !seq || !seq->GetNumberOfItems() ) return 1;

  size_t n = seq->GetNumberOfItems();
  for( size_t i = 1; i <= n; ++i )
    {
    gdcm::Item &item = seq->GetItem(i);
    gdcm::DataSet &subds = item.GetNestedDataSet();
    // (0029,0010) ?? (LO) [PMTF INFORMATION DATA ]                  # 22,1 Private Creator
    // (0029,1090) ?? (OB) 00\05\00\13\00\12\00\22\                  # 202,1 ?
    const gdcm::PrivateTag tseq(0x0029,0x90,"PMTF INFORMATION DATA");

    if( subds.FindDataElement( tseq ) )
      {
      const gdcm::DataElement & de = subds.GetDataElement( tseq );
      const gdcm::ByteValue * bv = de.GetByteValue();
      if( !bv ) return 1;

      bool b = DumpToshibaDTI( bv->GetPointer(), bv->GetLength() );
      if( !b ) return 1;
      }

    }

  return 0;
}
```

14.57 DumpToshibaDTI2.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 *
      https://gazelle.ihe.net/EVSClient/dicomResult.seam;jsessionid=x+Rf9Zs+ip49P+jC3L8SLZb8?&oid=1.3.6.1.4.1.12559.11.1.2.1.4.162
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmPrinter.h"
#include "gdcmDictPrinter.h"

#include <iostream>
#include <fstream>
#include <vector>

#include <assert.h>

static bool DumpToshibaDTI2( const char * input, size_t len )
{
  static int i = 0;
  ++i;
  if( len % 2 ) return false;

  std::vector<char> copy( input, input + len );
  std::reverse( copy.begin(), copy.end() );

#if 0
  std::ostringstream f;
  f << "debug" << i;
  std::ofstream of( f.str().c_str(), std::ios::binary );
  of.write( &copy[0], copy.size() );
  of.close();
#else

  std::istringstream is;
  std::string dup( copy.data(), copy.size() );
  is.str( dup );

  gdcm::File file;
  gdcm::FileMetaInformation & fmi = file.GetHeader();
  fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );
  gdcm::DataSet & ds = file.GetDataSet();
  ds.Read<gdcm::ExplicitDataElement,gdcm::SwapperNoOp>( is );

  //gdcm::DictPrinter p;
  gdcm::Printer p;
  p.SetFile( file );
  p.SetColor( true );
  p.Print( std::cout );
#endif

  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr << "Failed to read: " << filename << std::endl;
    return 1;
    }
```

```
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  /*
  (0029,1001) SQ (Sequence with explicit length #=6)      # 18746, 1 Unknown Tag & Data
    (fffe,e000) na (Item with explicit length #=2)          # 206, 1 Item
      (0029,0010) LO [TOSHIBA_MEC_MR3]                        #  16, 1 PrivateCreator
      (0029,1090) OB 00\07\00\06\00\05\00\04\00\03\00\02\00\0c\00\01\00\00\00\00\12... # 170, 1 Unknown Tag &
      Data
    (fffe,e00d) na (ItemDelimitationItem for re-encoding)   #   0, 0 ItemDelimitationItem
    (fffe,e000) na (Item with explicit length #=2)          # 866, 1 Item
      (0029,0010) LO [TOSHIBA_MEC_MR3]                        #  16, 1 PrivateCreator
      (0029,1090) OB 45\4e\49\50\53\4c\20\52\41\5c\45\4e\49\50\53\4c\54\5c\52\45\53\55... # 830, 1 Unknown Tag &
      Data
  [...]
  (0029,1002) SQ (Sequence with explicit length #=1)      # 120, 1 Unknown Tag & Data
    (fffe,e000) na (Item with explicit length #=2)          # 112, 1 Item
      (0029,0010) LO [TOSHIBA_MEC_MR3]                        #  16, 1 PrivateCreator
      (0029,1090) OB 00\10\00\02\53\55\10\80\70\0d\30\31\5e\33\52\4d\5f\43\45\4d\5f\41... #  76, 1 Unknown Tag &
      Data
    (fffe,e00d) na (ItemDelimitationItem for re-encoding)   #   0, 0 ItemDelimitationItem
  */

  const gdcm::PrivateTag tmecmr3(0x0029,0x1,"TOSHIBA_MEC_MR3");
  if( !ds.FindDataElement( tmecmr3) ) return 1;
  const gdcm::DataElement& mecmr3 = ds.GetDataElement( tmecmr3 );
  if ( mecmr3.IsEmpty() ) return 1;
  gdcm::SmartPointer<gdcm::SequenceOfItems> seq = mecmr3.GetValueAsSQ();
  if ( !seq || !seq->GetNumberOfItems() ) return 1;

  size_t n = seq->GetNumberOfItems();
  for( size_t i = 1; i <= n; ++i )
    {
    gdcm::Item &item = seq->GetItem(i);
    gdcm::DataSet &subds = item.GetNestedDataSet();
    const gdcm::PrivateTag tseq(0x0029,0x90,"TOSHIBA_MEC_MR3");

    if( subds.FindDataElement( tseq ) )
      {
      const gdcm::DataElement & de = subds.GetDataElement( tseq );
      const gdcm::ByteValue * bv = de.GetByteValue();
      if( !bv ) return 1;

      bool b = DumpToshibaDTI2( bv->GetPointer(), bv->GetLength() );
      if( !b ) return 1;
      }

    }

  return 0;
}
```

14.58 DumpVisusChange.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
#include "gdcmReader.h"
#include "gdcmDirectory.h"
#include "gdcmStringFilter.h"

#include <vector>
#include <algorithm>

/*
 */
static bool process( std::vector<gdcm::DataElement> & ms, const char * filename)
```

```
{
  using namespace gdcm;
  Tag pd(0x7fe0,0x0000);
  std::set<gdcm::Tag> skiptags;
  skiptags.insert( pd );

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.ReadUpToTag( pd, skiptags ) )
  {
    std::cerr « "Failure to read: " « filename « std::endl;
    return false;
  }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds1 = file.GetDataSet();

  const gdcm::PrivateTag tseq1(0x5533,0x33,"Visus Change");
  if( !ds1.FindDataElement( tseq1 ) ) return true;
  const gdcm::DataElement& seq1 = ds1.GetDataElement( tseq1 );

  SmartPointer<SequenceOfItems> sqi1 = seq1.GetValueAsSQ();

  const size_t nitems = sqi1->GetNumberOfItems();
  for( size_t item = 1; item < nitems; ++item )
    {
    Item &item1 = sqi1->GetItem(item);
    DataSet &ds2 = item1.GetNestedDataSet();
    for(DataSet::ConstIterator it = ds2.Begin(); it != ds2.End(); ++it )
      {
      DataElement const & de = *it;
      // cannot simply use std::set here, see there is a discrepancy in between
      // operator== and operator<.
      // So only use operator== here:
      std::vector<DataElement>::iterator vit = std::find(ms.begin(), ms.end(), de);
      if( vit == ms.end() )
        ms.push_back(de);
      }
    }
  return true;
}

int main(int argc, char *argv[])
{
  bool usefastpath = true;

  if( argc < 2 ) return 1;
  using namespace gdcm;
  const char *filename = argv[1];
  gdcm::Directory::FilenamesType filenames;
  if( !gdcm::System::FileExists(filename) )
    {
    std::cerr « "Could not find file: " « filename « std::endl;
    return 1;
    }

  gdcm::Directory dir;
  if( gdcm::System::FileIsDirectory(filename) )
  {
    unsigned int nfiles = dir.Load(filename, false);
    if( nfiles == 0 )
      {
      std::cerr « "Could not find files: " « filename « std::endl;
      return 1;
      }
    filenames = dir.GetFilenames();
  }
  else
  {
    filenames.push_back( filename );
  }
  gdcm::StringFilter sf;

  Tag pd(0x7fe0,0x0000);
  std::set<gdcm::Tag> skiptags;
  skiptags.insert( pd );

  gdcm::Reader reader;
  reader.SetFileName( filenames[0].c_str() );
  if( !reader.ReadUpToTag( pd, skiptags ) )
  {
```

```
    std::cerr « "Could not read file: " « filename « std::endl;
    return 1;
  }
  gdcm::File &file = reader.GetFile();
  sf.SetFile(file);

  if( usefastpath ) {
    // Heuristic, assume if private tag cannot be found in first file, skip the directory
    gdcm::DataSet &ds1 = file.GetDataSet();

    const gdcm::PrivateTag tseq1(0x5533,0x33,"Visus Change");
    if( !ds1.FindDataElement( tseq1 ) ){
      std::cerr « "Could not find private tag in first file skipping whole directory: " « filename « std::endl;
      return 0;
    }
  }
  std::vector<DataElement> ms;
  for(gdcm::Directory::FilenamesType::const_iterator cit = filenames.begin(); cit != filenames.end(); ++cit )
  {
    if( !process(ms, cit->c_str()) ) {
      return 1;
    }
  }

  if( !ms.empty() ) {
    std::sort(ms.begin(), ms.end());
    std::cout « filename « ",\"";
    for(std::vector<DataElement>::const_iterator it = ms.begin(); it != ms.end(); ++it )
    {
      DataElement const & de = *it;
      std::string const & s = sf.ToString( de );
      std::cout « de.GetTag() « " " « s « std::endl;
    }
    std::cout « "\"" « std::endl;
  }

  return 0;
}
```

14.59 DuplicatePCDE.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
/*
  Usage:
  DuplicatePCDE gdcmData/D_CLUNIE_CT1_J2KI.dcm out.dcm

aka:
medical.nema.org/medical/dicom/DataSets/WG04/IMAGES/J2KI/CT1_J2KI

See:
  gdcmConformanceTests/CT1_J2KI_DuplicatePCDE.dcm

Original thread can be found at:

http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/82f28c4db28963af
```

```
Question:
1.
  There is no restriction for a specific Private Creator Data Element
(PCDE) to be unique within the same group, right ?
  Decoders of Private Data would have to handle the case where a PCDE
would be repeated and should NOT stop on the first instance of a
particular PCDE, right ?

  Eg. when searching for the tag associated with
(0x0029,0x0010,"SIEMENS CSA HEADER") in the following (pseudo)
dataset:

(0029,0010) LO [SIEMENS CSA HEADER]                     #  18, 1
PrivateCreator
(0029,0011) LO [SIEMENS MEDCOM HEADER]                  #  22, 1
PrivateCreator
(0029,0012) LO [SIEMENS MEDCOM HEADER2]                 #  22, 1
PrivateCreator
(0029,0013) LO [SIEMENS CSA HEADER]                     #  18, 1
PrivateCreator
(0029,1008) CS [IMAGE NUM 4]                            #  12, 1
CSAImageHeaderType
(0029,1009) LO [20050723]                               #   8, 1
CSAImageHeaderVersion
(0029,1010) OB 53\56\31\30\04\03\02\01\38\00\00\00\4d
\00\00\00\45\63\68\6f\4c\69... # 6788, 1 CSAImageHeaderInfo
(0029,1018) CS [MR]                                     #   2, 1
CSASeriesHeaderType
(0029,1019) LO [20050723]                               #   8, 1
CSASeriesHeaderVersion
(0029,1020) OB 53\56\31\30\04\03\02\01\2c\00\00\00\4d
\00\00\00\55\73\65\64\50\61... # 51520, 1 CSASeriesHeaderInfo
(0029,1131) LO [4.0.163088300]                          #  14, 1
PMTFInformation1
(0029,1132) UL 32768                                    #   4, 1
PMTFInformation2
(0029,1133) UL 0                                        #   4, 1
PMTFInformation3
(0029,1134) CS [DB TO DICOM]                            #  12, 1
PMTFInformation4
(0029,1260) ?? 63\6f\6d\20                              #   4, 1
Unknown Tag & Data
(0029,1310) OB 53\56\31\30\04\03\02\01\38\00\00\00\4d
\00\00\00\45\63\68\6f\4c\69... # 6788, 1 CSAImageHeaderInfo

  one should return two instances, correct ?

Answer:
I would say that this is covered in principle by the PS 3.5 7.1
"The Data Elements ... shall occur at most once in a Data Set"
rule, since the data element is defined by the tuple
(private creator,gggg,ee) where xxee is the element
number and xx is arbitrary and has no inherent meaning and
does not serve to disambiguate the data element.

E.g.:

(0019,0030) Private Creator ID = "Smith"
...
(0019,0032) Private Creator ID = "Smith"
...
(0019,3015) Fractal Index = "32"
...
(0019,3215) Fractal Index = "32"

would be illegal because even though they are assigned different
(completely arbitrary) blocks, with the same group, element
number and private creator, (0019,3015) and (0019,3215) are the
"same" data element.

*/

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];
```

```
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  // Let's get all private element from group 0x9:
/*
(0009,0010) LO [GEMS_IDEN_01]                                       # 12,1 Private Creator
(0009,1001) LO [GE_GENESIS_FF ]                                     # 14,1 Full fidelity
(0009,1002) SH [CT01]                                               # 4,1 Suite id
(0009,1004) SH [HiSpeed CT/i]                                       # 12,1 Product id
(0009,1027) SL 862399669                                            # 4,1 Image actual date
(0009,1030) SH (no value)                                           # 0,1 Service id
(0009,1031) SH (no value)                                           # 0,1 Mobile location number
(0009,10e6) SH [05]                                                 # 2,1 Genesis Version - now
(0009,10e7) UL 973283917                                            # 4,1 Exam Record checksum
(0009,10e9) SL 862399669                                            # 4,1 Actual series data time stamp
*/
  gdcm::Tag start(0x0009,0x0);
  // Create a temporary duplicate dataset, since we cannot insert data element as we go over them (std::set
  // would reorganize itself as we go over it ...)
  gdcm::DataSet dup;
  gdcm::Tag new_private(0x0009,0x0);
  while (start.GetGroup() == 0x9 )
    {
    const gdcm::DataElement& de = ds.FindNextDataElement(start);
    const gdcm::Tag &t = de.GetTag();
    if( t.IsPrivateCreator() )
      {
      std::cout « t « std::endl;
      // Ok let's duplicate into the next available attribute:
      gdcm::DataElement duplicate = de;
      duplicate.GetTag().SetElement( (uint16_t)(t.GetElement() + 1) );
      dup.Insert( duplicate );
      new_private = duplicate.GetTag();
      }
    else if( t.IsPrivate() && !t.IsPrivateCreator() )
      {
      //std::cout « de « std::endl;
      std::string owner = ds.GetPrivateCreator( de.GetTag() );
      //std::cout « owner « std::endl;
      gdcm::DataElement duplicate = de;
      duplicate.GetTag().SetPrivateCreator( new_private );
      if( const gdcm::ByteValue *bv = duplicate.GetByteValue() )
        {
        // Warning: when doing : duplicate = de, only the pointer to the ByteValue is passed
        // (to avoid large memory duplicate). We need to explicitly duplicate the bytevalue ourselves:
        gdcm::ByteValue *dupbv = new gdcm::ByteValue( bv->GetPointer(),
          bv->GetLength() );
        // Let's recognize the duplicated ASCII-type elements:
        if( duplicate.GetVR() & gdcm::VR::VRASCII )
          dupbv->Fill( 'X' );
        duplicate.SetValue( *dupbv );
        }
      dup.Insert( duplicate );
      }
    start = t;
    // move to next possible 'public' element
    start.SetElement( (uint16_t)(start.GetElement() + 1) );
    }

  gdcm::DataSet::ConstIterator it = dup.Begin();
  for( ; it != dup.End(); ++it )
    {
    ds.Insert( *it );
    }

  gdcm::Writer w;
  w.SetFile( file );
  w.SetFileName( outfilename );
  if (!w.Write() )
    {
    return 1;
    }

  return 0;
```

```
}
```

14.60 ELSCINT1WaveToText.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"

/*
 * This example shows how to read a Wave Information tag from ELSCINT1
 * The wave information is stored in Tag (01e1,18,ELSCINT1) hidden in a
 * Secondary Capture Image Storage (usually a 'N' Symbol is shown)
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Special thanks to:
 * Gauthier Bouilhol
 */

template <typename T>
bool dumpargs(std::ostream & os, T c1, T c2, T c3, T c4, T c5, T c6, T c7, T c8)
{
  static const char sep = '\t';
  os « c1 « sep « c2 « sep « c3 « sep « c4 « sep « c5 « sep « c6 « sep « c7 « sep « c8;
  os « std::endl;
  return true;
}

bool wave2stream( std::ostream &text_file, const char *in, size_t len )
{
  const short * buffer = (const short*)in;
  size_t length = len / sizeof( short );
  text_file « "COMPLETE_WAVE" « '\t' « "MASK"       « '\t' « "AQUISITION_PROFIL" « '\t' « "END-INHALE" « '\t' «
      "END-EXHALE" « '\t' « "AQUISITION_WAVE" « '\t' « "WAVE_STATISTICS" « '\t' « "MASK"        « std::endl;
  for (size_t i=0;i<length-76;i+=2)
    {
    if ( i < 74 )
      {
      if (buffer[i+75] == 0)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                  « '\t' « "  "         «
      '\t' « "  "         « '\t' « "  "              « '\t' « buffer[i]         « '\t' « buffer[i+1] «
      std::endl;
      if (buffer[i+75] == 16384)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                  « '\t' « buffer[i+74] «
      '\t' « "  "         « '\t' « "  "              « '\t' « buffer[i]         « '\t' « buffer[i+1] «
      std::endl;
      if (buffer[i+75] == 256)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                  « '\t' « "  "         «
      '\t' « buffer[i+74] « '\t' « "  "              « '\t' « buffer[i]         « '\t' « buffer[i+1] «
      std::endl;
      if (buffer[i+75] == -32768)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                  « '\t' « "  "         «
      '\t' « "  "         « '\t' « buffer[i+74]      « '\t' « buffer[i]         « '\t' « buffer[i+1] «
      std::endl;
      if (buffer[i+75] == -16384)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                  « '\t' « buffer[i+74] «
      '\t' « "  "         « '\t' « buffer[i+74]      « '\t' « buffer[i]         « '\t' « buffer[i+1] «
      std::endl;
```

```
      if (buffer[i+75] == -32512)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                « '\t' « "  "         «
      '\t' « buffer[i+74] « '\t' « buffer[i+74]      « '\t' « buffer[i]         « '\t' « buffer[i+1] «
      std::endl;
      }
    else
      {
      if (buffer[i+75] == 0)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                « '\t' « "  "         «
      '\t' « "  "         « '\t' « "  "              « '\t' « "  "              « '\t' « "  "        «
      std::endl;
      if (buffer[i+75] == 16384)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                « '\t' « buffer[i+74] «
      '\t' « "  "         « '\t' « "  "              « '\t' « "  "              « '\t' « "  "        «
      std::endl;
      if (buffer[i+75] == 256)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                « '\t' « "  "         «
      '\t' « buffer[i+74] « '\t' « "  "              « '\t' « "  "              « '\t' « "  "        «
      std::endl;
      if (buffer[i+75] == -32768)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                « '\t' « "  "         «
      '\t' « "  "         « '\t' « buffer[i+74]      « '\t' « "  "              « '\t' « "  "        «
      std::endl;
      if (buffer[i+75] == -16384)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                « '\t' « buffer[i+74] «
      '\t' « "  "         « '\t' « buffer[i+74]      « '\t' « "  "              « '\t' « "  "        «
      std::endl;
      if (buffer[i+75] == -32512)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                « '\t' « "  "         «
      '\t' « buffer[i+74] « '\t' « buffer[i+74]      « '\t' « "  "              « '\t' « "  "        «
      std::endl;
      }
    }

  return true;
}

int main(int argc, char *argv [])
{
  if( argc < 3 ) return 1;
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  const gdcm::PrivateTag twave(0x01e1,0x18,"ELSCINT1");
  if( !ds.FindDataElement( twave ) ) return 1;
  const gdcm::DataElement& wave = ds.GetDataElement( twave );
  if ( wave.IsEmpty() ) return 1;
  const gdcm::ByteValue * bv = wave.GetByteValue();
  assert( bv );

  std::ofstream os( outfilename, std::ios::binary );
  // Dump that to a CSV file:
  wave2stream( os, bv->GetPointer(), bv->GetLength() );
  os.close();

  return 0;
}
```

14.61 EmptyMask.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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```

```
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=========================================================================*/
#include "gdcmEmptyMaskGenerator.h"

#include <string>
#include <cstring>

int main( int argc, char *argv[] )
{
  std::string inputdir;
  std::string outputdir;
  bool input_sopclassuid = true;
  bool grayscale_secondary_sopclassuid = false;
  if( argc < 3 ) return 1;
  inputdir = argv[1];
  outputdir = argv[2];
  // input_sopclassuid -> Use original SOP Class UID from input DICOM (Default).
  // grayscale_secondary_sopclassuid -> Use Grayscale Secondary Image Storage SOP Class UID.
  if( argc >= 3 )
  {
    input_sopclassuid = false;
    if( strcmp("input_sopclassuid", argv[3]) == 0 )
      input_sopclassuid = true;
    else if (strcmp("grayscale_secondary_sopclassuid", argv[3]) == 0 ) {
      grayscale_secondary_sopclassuid = true;
    }
  }

  //
  gdcm::EmptyMaskGenerator emg;
  if( input_sopclassuid )
    emg.SetSOPClassUIDMode( gdcm::EmptyMaskGenerator::UseOriginalSOPClassUID );
  else if( grayscale_secondary_sopclassuid )
    emg.SetSOPClassUIDMode( gdcm::EmptyMaskGenerator::UseGrayscaleSecondaryImageStorage );
  emg.SetInputDirectory( inputdir.c_str() );
  emg.SetOutputDirectory( outputdir.c_str() );
  if( !emg.Execute() )
  {
    return 1;
  }

  return 0;
}
```

14.62 EncapsulateFileInRawData.cxx

```
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=========================================================================*/
#include "gdcmAnonymizer.h"
#include "gdcmWriter.h"
#include "gdcmUIDGenerator.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmSystem.h"

#include "magic.h" // libmagic, API to file command line tool

/*
 * Let say you want to encapsulate a file type that is not defined in DICOM (exe, zip, png)
 * PNG is a bad example, unless it contains transparency (which has been deprecated).
 * It will take care of dispatching each chunk to an appropriate data item (pretty much like
 * WaveformData)
```

```
 *
 * Usage:
 * ./EncapsulateFileInRawData large_input_file.exe large_input_file.dcm
 */

// TODO:
// $ file -bi /tmp/gdcm-2.1.0.pdf
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " inputfile output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  if( !gdcm::System::FileExists( filename ) ) return 1;

  size_t s = gdcm::System::FileSize(filename);
  if( !s ) return 1;

  magic_t cookie = magic_open(MAGIC_NONE);
  const char * file_type = magic_file(cookie, filename);
  if( !file_type ) return 1;
  magic_close(cookie);

  gdcm::Writer w;
  gdcm::File &file = w.GetFile();
  //gdcm::DataSet &ds = file.GetDataSet();
  //w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );

  file.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ImplicitVRLittleEndian );

  gdcm::Anonymizer anon;
  anon.SetFile( file );

  gdcm::MediaStorage ms = gdcm::MediaStorage::RawDataStorage;

  gdcm::UIDGenerator gen;
  anon.Replace( gdcm::Tag(0x0008,0x16), ms.GetString() );
  std::cout « ms.GetString() « std::endl;
  anon.Replace( gdcm::Tag(0x0008,0x18), gen.Generate() );


  if (!w.Write() )
    {
    std::cerr « "Could not write: " « outfilename « std::endl;
    return 1;
    }

  return 0;
}
```

14.63 ExtractEncryptedContent.cxx

```
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=========================================================================*/
#include "gdcmReader.h"

#include <fstream>

/*
```

```
openssl smime -encrypt -binary -aes256 -in outputfile.dcm -inform DER -out outputfile.der -outform DER
      ../trunk/Testing/Source/Data/certificate.pem

openssl smime -decrypt -binary -in out.der -inform DER -out outputfile.dcm -outform DER -inkey
      ../trunk/Testing/Source/Data/privatekey.pem ../trunk/Testing/Source/Data/certificate.pem

 */

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.der" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  const gdcm::DataElement &EncryptedAttributesSequence = ds.GetDataElement( gdcm::Tag( 0x0400,0x0500 ) );

  gdcm::SequenceOfItems *sqi = EncryptedAttributesSequence.GetValueAsSQ();

  if ( !sqi || sqi->GetNumberOfItems() != 1 ) return 1;

  gdcm::Item &item = sqi->GetItem(1);

  gdcm::DataSet &nestedds = item.GetNestedDataSet();

  if( ! nestedds.FindDataElement( gdcm::Tag( 0x0400,0x0520) ) ) return 1;

  const gdcm::DataElement &EncryptedContent = nestedds.GetDataElement( gdcm::Tag( 0x0400,0x0520) );

  const gdcm::ByteValue *bv = EncryptedContent.GetByteValue();

  std::ofstream of( outfilename, std::ios::binary );
  of.write( bv->GetPointer(), bv->GetLength() );
  of.close();

  return 0;
}
```

14.64 ExtractIconFromFile.cxx

```
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=========================================================================*/
/*
 * This example shows how to either retrieve an Icon if present somewhere
 * in the file, or else generate one.
 */
#include "gdcmImageReader.h"
#include "gdcmPNMCodec.h"
#include "gdcmIconImageFilter.h"
#include "gdcmIconImageGenerator.h"

bool WriteIconAsPNM(const char* filename, const gdcm::IconImage& icon)
```

```
{
  gdcm::PNMCodec pnm;
  pnm.SetDimensions( icon.GetDimensions() );
  pnm.SetPixelFormat( icon.GetPixelFormat() );
  pnm.SetPhotometricInterpretation( icon.GetPhotometricInterpretation() );
  pnm.SetLUT( icon.GetLUT() );
  const gdcm::DataElement& in = icon.GetDataElement();
  bool b = pnm.Write( filename, in );
  assert( b );
  return b;
}

int main(int argc, char *argv [])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read (or not image): " « filename « std::endl;
    return 1;
    }

  gdcm::IconImageFilter iif;
  iif.SetFile( reader.GetFile() );
  bool b = iif.Extract();

  if( b )
    {
    const gdcm::IconImage &icon = iif.GetIconImage(0);
    icon.Print( std::cout );

    if( !icon.GetTransferSyntax().IsEncapsulated() )
      {
      // Let's write out this icon as PNM file
      WriteIconAsPNM("icon.ppm", icon);
      }
    else if( icon.GetTransferSyntax() == gdcm::TransferSyntax::JPEGBaselineProcess1
      || icon.GetTransferSyntax() == gdcm::TransferSyntax::JPEGExtendedProcess2_4
    )
      {
      const gdcm::DataElement& in = icon.GetDataElement();
      const gdcm::ByteValue *bv = in.GetByteValue();
      assert( bv );
      std::ofstream out( "icon.jpg", std::ios::binary );
      out.write( bv->GetPointer(), bv->GetLength() );
      out.close();
      }
    }
  else
    {
    assert( iif.GetNumberOfIconImages() == 0 );
    std::cerr « "No Icon Found anywhere in file" « std::endl;

    const gdcm::Image &img = reader.GetImage();
    gdcm::IconImageGenerator iig;
    iig.AutoPixelMinMax(true);
    iig.SetPixmap( img );
    const unsigned int idims[2] = { 64, 64 };
    iig.SetOutputDimensions( idims );
    //iig.SetPixelMinMax(60, 868);
    if( !iig.Generate() ) return 1;
    const gdcm::IconImage & icon = iig.GetIconImage();
    WriteIconAsPNM("icon.ppm", icon);
    }

  return 0;
}
```

14.65 Extracting_All_Resolution.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library
```

```
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=========================================================================*/
// This work was realised during the GSOC 2011 by Manoj Alwani

#include <fstream>
#include <stdint.h>
#include <string.h>
#include <assert.h>
#include <gdcm_j2k.h>
#include <gdcm_jp2.h>
#include<iostream>
#include <cstring>
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
#include <math.h>
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmSystem.h"
#include <fstream>



#include "gdcm_openjpeg.h"
#include "gdcmMediaStorage.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmAttribute.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDGenerator.h"
#include "gdcmAnonymizer.h"
#include "gdcmStreamImageWriter.h"
#include "gdcmImageHelper.h"
#include "gdcmTrace.h"

void error_callback(const char *msg, void *) {
  (void)msg;
}
void warning_callback(const char *msg, void *) {
  (void)msg;
}
void info_callback(const char *msg, void *) {
  (void)msg;
}


bool Write_Resolution(gdcm::StreamImageWriter & theStreamWriter, const char *filename, int res, std::ostream&
      of, int flag,  gdcm::SequenceOfItems *sq, int No_Of_Resolutions)
{
  std::ifstream is;
  is.open( filename, std::ios::binary );
  opj_dparameters_t parameters;  /* decompression parameters */
  opj_event_mgr_t event_mgr;    /* event manager */
  opj_dinfo_t* dinfo;  /* handle to a decompressor */
  opj_cio_t *cio;
  opj_image_t *image = NULL;
  // FIXME: Do some stupid work:
  is.seekg( 0, std::ios::end);
  std::streampos buf_size = is.tellg();
  char *dummy_buffer = new char[(unsigned int)buf_size];
  is.seekg(0, std::ios::beg);
  is.read( dummy_buffer, buf_size);
  unsigned char *src = (unsigned char*)dummy_buffer;
  uint32_t file_length = (uint32_t)buf_size; // 32bits truncation should be ok since DICOM cannot have larger
      than 2Gb image


  /* configure the event callbacks (not required) */
  memset(&event_mgr, 0, sizeof(opj_event_mgr_t));
  event_mgr.error_handler = error_callback;
  event_mgr.warning_handler = warning_callback;
```

```
  event_mgr.info_handler = info_callback;

  /* set decoding parameters to default values */
  opj_set_default_decoder_parameters(&parameters);

  // default blindly copied
  parameters.cp_layer=0;
  parameters.cp_reduce= res;
  //   parameters.decod_format=-1;
  //   parameters.cod_format=-1;

  const char jp2magic[] = "\x00\x00\x00\x0C\x6A\x50\x20\x20\x0D\x0A\x87\x0A";
  if( memcmp( src, jp2magic, sizeof(jp2magic) ) == 0 )
    {
    /* JPEG-2000 compressed image data ... sigh */
    // gdcmData/ELSCINT1_JP2vsJ2K.dcm
    // gdcmData/MAROTECH_CT_JP2Lossy.dcm
    //gdcmWarningMacro( "J2K start like JPEG-2000 compressed image data instead of codestream" );
    parameters.decod_format = 1; //JP2_CFMT;
    //assert(parameters.decod_format == JP2_CFMT);
    }
  else
    {
    /* JPEG-2000 codestream */
    //parameters.decod_format = J2K_CFMT;
    //assert(parameters.decod_format == J2K_CFMT);
    assert( 0 );
    }
  parameters.cod_format = 11; // PGX_DFMT;
  //assert(parameters.cod_format == PGX_DFMT);

  /* get a decoder handle */
    dinfo = opj_create_decompress(CODEC_JP2);

  /* catch events using our callbacks and give a local context */
  opj_set_event_mgr((opj_common_ptr)dinfo, &event_mgr, NULL);

  /* setup the decoder decoding parameters using user parameters */
  opj_setup_decoder(dinfo, &parameters);

  /* open a byte stream */
  cio = opj_cio_open((opj_common_ptr)dinfo, src, file_length);

  /* decode the stream and fill the image structure */
  image = opj_decode(dinfo, cio);
  if(!image) {
    opj_destroy_decompress(dinfo);
    opj_cio_close(cio);
    //gdcmErrorMacro( "opj_decode failed" );
    return 1;
  }

       opj_cp_t * cp = ((opj_jp2_t*)dinfo->jp2_handle)->j2k->cp;
       opj_tcp_t *tcp = &cp->tcps[0];
       opj_tccp_t *tccp = &tcp->tccps[0];
    /*   std::cout « "\n No of Cols In Image" « image->x1;
       std::cout « "\n No of Rows In Image" « image->y1;
       std::cout « "\n No of Components in Image" « image->numcomps;
       std::cout « "\n No of Resolutions"« tccp->numresolutions « "\n";
*/
        opj_j2k_t* j2k = NULL;
        opj_jp2_t* jp2 = NULL;
        jp2 = (opj_jp2_t*)dinfo->jp2_handle;
        int reversible = jp2->j2k->cp->tcps->tccps->qmfbid;
        //std:: cout « reversible;
       int compno = 0;
       opj_image_comp_t *comp = &image->comps[compno];
       int Dimensions[2];
       Dimensions[0]= comp->w;
       Dimensions[1] = comp->h;
       opj_cio_close(cio);
       unsigned long len = Dimensions[0]*Dimensions[1] * image->numcomps;
       //std::cout « "\nTest" «image->comps[0].factor;
       char *raw = new char[len];
  for (unsigned int compno = 0; compno < (unsigned int)image->numcomps; compno++)
    {
    opj_image_comp_t *comp = &image->comps[compno];

    int w = image->comps[compno].w;
    int h = image->comps[compno].h;
      uint8_t *data8 = (uint8_t*)raw + compno;
```

```
      for (int i = 0; i < w * h ; i++)
        {
        int v = image->comps[compno].data[i];
        *data8 = (uint8_t)v;
        data8 += image->numcomps;
        }
    }

  gdcm::Writer w;
  gdcm::File &file = w.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  file.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  gdcm::UIDGenerator uid;
  gdcm::DataElement de( gdcm::Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( gdcm::VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, strlen(u) );
  ds.Insert( de );

  gdcm::DataElement de1( gdcm::Tag(0x8,0x16) );
  de1.SetVR( gdcm::VR::UI );
  gdcm::MediaStorage ms( gdcm::MediaStorage::CTImageStorage );
  de1.SetByteValue( ms.GetString(), strlen(ms.GetString()));
  ds.Insert( de1 );

  const char mystr[] = "MONOCHROME2 ";
  gdcm::DataElement de2( gdcm::Tag(0x28,0x04) );
  //de.SetTag(gdcm::Tag(0x28,0x04));
  de2.SetVR( gdcm::VR::CS );
  de2.SetByteValue(mystr, strlen(mystr));
  ds.Insert( de2 );

   gdcm::Attribute<0x0028,0x0010> row = {image->comps[0].w};
   //row.SetValue(512);
   ds.Insert( row.GetAsDataElement() );
//   w.SetCheckFileMetaInformation( true );
   gdcm::Attribute<0x0028,0x0011> col = {image->comps[0].h};
   ds.Insert( col.GetAsDataElement() );
   gdcm::Attribute<0x0028,0x0008> Number_Of_Frames = {1};
   ds.Insert( Number_Of_Frames.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0100> at = {8};
   ds.Insert( at.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0002> at1 = {image->numcomps};
   ds.Insert( at1.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0101> at2 = {8};
   ds.Insert( at2.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0102> at3 = {7};
  ds.Insert( at3.GetAsDataElement() );



  if (flag == 1)
  {

    for (int i=0; i < No_Of_Resolutions; i++)
    {

     int a = 1;
     int b =1;

     while(a!=((No_Of_Resolutions)-i))
        {
          b = b*2;
          a = a+1;
         }
     uint16_t row = (image->y1)/b;
     uint16_t col = (image->x1)/b;
     //std::cout « row;
     gdcm::Element<gdcm::VR::IS,gdcm::VM::VM1> el2;
     el2.SetValue(i+1);
     gdcm::DataElement rfn = el2.GetAsDataElement();     //ulr --> upper left row
     rfn.SetTag( gdcm::Tag(0x0008,0x1160) );

     gdcm::Element<gdcm::VR::US,gdcm::VM::VM2> el;
     el.SetValue(1,0);
```

```
    el.SetValue(1,1);
    gdcm::DataElement ulr = el.GetAsDataElement();     //ulr --> upper left col/row
    ulr.SetTag( gdcm::Tag(0x0048,0x0201) );

    gdcm::Element<gdcm::VR::US,gdcm::VM::VM2> el1;
    el1.SetValue(col,0);
    el1.SetValue(row,1);
    gdcm::DataElement brr = el1.GetAsDataElement();
    brr.SetTag( gdcm::Tag(0x0048,0x0202) );            //brr --> bottom right col/row
   gdcm::Item it;
   gdcm::DataSet &nds = it.GetNestedDataSet();
   nds.Insert( rfn );
   nds.Insert(ulr);
   nds.Insert(brr);

   sq->AddItem(it);
 }

 gdcm::Writer w1;
 gdcm::File &file1 = w1.GetFile();
 gdcm::DataSet &ds1 = file1.GetDataSet();
 file1.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

 gdcm::UIDGenerator uid1;
 gdcm::DataElement dea( gdcm::Tag(0x8,0x18) ); // SOP Instance UID
 dea.SetVR( gdcm::VR::UI );
 const char *u1 = uid1.Generate();
 dea.SetByteValue( u1, strlen(u1) );
 ds1.Insert( dea );

 gdcm::DataElement deb( gdcm::Tag(0x8,0x16) );
 deb.SetVR( gdcm::VR::UI );
 gdcm::MediaStorage ms1( gdcm::MediaStorage::VLWholeSlideMicroscopyImageStorage );
 deb.SetByteValue( ms1.GetString(), strlen(ms1.GetString()));
 ds1.Insert( deb );

 const char mystr1[] = "MONOCHROME2 ";
 gdcm::DataElement dec( gdcm::Tag(0x28,0x04) );
 //de.SetTag(gdcm::Tag(0x28,0x04));
 dec.SetVR( gdcm::VR::CS );
 dec.SetByteValue(mystr, strlen(mystr1));
 ds1.Insert( dec );

  gdcm::Attribute<0x0028,0x0010> row1 = {image->y1};
  //row.SetValue(512);
  ds1.Insert( row1.GetAsDataElement() );
//  w.SetCheckFileMetaInformation( true );
  gdcm::Attribute<0x0028,0x0011> col1 = {image->x1};
  ds1.Insert( col1.GetAsDataElement() );
  gdcm::Attribute<0x0028,0x0008> Number_Of_Frames1 = {tccp->numresolutions};
  ds1.Insert( Number_Of_Frames1.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0100> ata = {8};
  ds1.Insert( ata.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0002> atb = {image->numcomps};
  ds1.Insert( atb.GetAsDataElement() );

 gdcm::Attribute<0x0028,0x0101> atc = {8};
  ds1.Insert( atc.GetAsDataElement() );

 gdcm::Attribute<0x0028,0x0102> atd = {7};
 ds1.Insert( atd.GetAsDataElement() );

  theStreamWriter.SetFile(file1);

 gdcm::DataElement des( gdcm::Tag(0x0048,0x0200) );
 des.SetVR(gdcm::VR::SQ);
 //des.SetVR(gdcm::VM::VM1);
 des.SetValue(*sq);
 des.SetVLToUndefined();

 ds1.Insert(des);


 if (!theStreamWriter.WriteImageInformation()){
     std::cerr « "unable to write image information" « std::endl;
     return 1; //the CanWrite function should prevent getting here, else,
     //that's a test failure
```

```
    }

 }

   theStreamWriter.SetFile(file);

  if (!theStreamWriter.CanWriteFile()){
      delete [] raw;
      std::cout « "Not able to write";
      return 0;//this means that the file was unwritable, period.
      //very similar to a ReadImageInformation failure
    }
else
   std::cout«"\nabletoread";

 // Important to write here
 std::vector<unsigned int> extent = gdcm::ImageHelper::GetDimensionsValue(file);

    unsigned short xmax = extent[0];
    unsigned short ymax = extent[1];
    unsigned short theChunkSize = 4;
    unsigned short ychunk = extent[1]/theChunkSize; //go in chunk sizes of theChunkSize
    unsigned short zmax = extent[2];
    std::cout « "\n"«xmax « "\n" « ymax«"\n"«zmax«"\n" « image->numcomps«"\n";


    if (xmax == 0 || ymax == 0)
      {
      std::cerr « "Image has no size, unable to write zero-sized image." « std::endl;
      return 0;
      }


    int z, y, nexty;
    unsigned long prevLen = 0; //when going through the char buffer, make sure to grab
    //the bytes sequentially.  So, store how far you got in the buffer with each iteration.
    for (z = 0; z < zmax; ++z){
      for (y = 0; y < ymax; y += ychunk){
        nexty = y + ychunk;
        if (nexty > ymax) nexty = ymax;
        theStreamWriter.DefinePixelExtent(0, xmax, y, nexty, z, z+1);
        unsigned long len = theStreamWriter.DefineProperBufferLength();
        std::cout « "\n" «len;
        char* finalBuffer = new char[len];
        memcpy(finalBuffer, &(raw[prevLen]), len);
        std::cout « "\nable to write";
        if (!theStreamWriter.Write(finalBuffer, len)){
          std::cerr « "writing failure:" « "output.dcm" « " at y = " « y « " and z= " « z « std::endl;
          delete [] raw;
          delete [] finalBuffer;
          return 1;
        }
        delete [] finalBuffer;
        prevLen += len;
      }
    }
    delete raw;

  delete[] src;  //FIXME

if(dinfo) {
    opj_destroy_decompress(dinfo);
  }

 opj_image_destroy(image);

 return true;

}

bool Different_Resolution( gdcm::StreamImageWriter & theStreamWriter, const char *filename, int res,
      std::ostream& of)
{
  //std::vector<std::string>::const_iterator it = filenames.begin();
  bool b = true;
  int flag = 1;

 gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
```

```
 sq->SetLengthToUndefined();


  for(int i = res-1 ; i>=0; --i)
  {
    b = b && Write_Resolution( theStreamWriter, filename, i, of ,flag,sq,res);
   // b = b && Get_Resolution( theStreamWriter, filename, i, of ,0);
    flag = 0;
  }
  //b = b && Get_Lowest_Resolution( writer, sq, filename, res-1 );
  //b = b && PopulateSingeFile( writer, sq, jpeg, filename2 );
  //image.SetDimension(2,  res )
  return b;
}


int main(int argc, char *argv[])
{


   if( argc < 4 )
    {
    std::cerr « argv[0] « " input.jp2 output.dcm No. Of Resolutions " « std::endl;
    return 1;
    }
   const char *filename = argv[1];
  const char *outfilename = argv[2];
  char *resolutions = argv[3];
   int res = int((*resolutions)-48);
    //std:: cout « "\nres"« res;
   gdcm::StreamImageWriter theStreamWriter;

   std::ofstream of;
   of.open( outfilename, std::ios::out | std::ios::binary );
   theStreamWriter.SetStream(of);

   if( !Different_Resolution( theStreamWriter, filename,res,of ) ) return 1;

 uint16_t firstTag1 =  0xfffe;
 uint16_t secondTag1 = 0xe0dd;
 uint32_t thirdTag1 =  0x00000000;
 //uint16_t fourthTag1 = 0xffff;
 const int theBufferSize1 = 2*sizeof(uint16_t)+sizeof(uint32_t);
 char* tmpBuffer2 = new char[theBufferSize1];
 memcpy(&(tmpBuffer2[0]), &firstTag1, sizeof(uint16_t));
 memcpy(&(tmpBuffer2[sizeof(uint16_t)]), &secondTag1, sizeof(uint16_t));
 memcpy(&(tmpBuffer2[2*sizeof(uint16_t)]), &thirdTag1, sizeof(uint32_t));
 //memcpy(&(tmpBuffer2[3*sizeof(uint16_t)]), &fourthTag1, sizeof(uint16_t));
 assert( of && !of.eof() && of.good() );
 of.write(tmpBuffer2, theBufferSize1);
 of.flush();
 assert( of );



return 0;
}
```

14.66 Fake_Image_Using_Stream_Image_Writer.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// This work was realised during the GSOC 2011 by Manoj Alwani

#include "gdcmReader.h"
```

```
#include "gdcmMediaStorage.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmAttribute.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDGenerator.h"
#include "gdcmAnonymizer.h"
#include "gdcmStreamImageWriter.h"
#include "gdcmImageHelper.h"
#include "gdcmTrace.h"

int main(int, char *[])
{

  char * buffer = new char[ 256 * 256 *3 ];
  // *p = (uint8_t*)buffer;
  char * p = buffer;

  gdcm::Trace::DebugOn();
  gdcm::Trace::WarningOn();

  for(int row = 0; row < 256; ++row)
  {
    for(int col = 0; col < 256; ++col)
      //for(int b = 0; b < 256; ++b)
      {
        *p++ = 255;
        *p++ = 0;
        *p++ = 0;
       }
  }

  gdcm::Writer w;
  gdcm::File &file = w.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  file.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  gdcm::UIDGenerator uid;
  gdcm::DataElement de( gdcm::Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( gdcm::VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, strlen(u) );
  ds.Insert( de );

  gdcm::DataElement de1( gdcm::Tag(0x8,0x16) );
  de1.SetVR( gdcm::VR::UI );
  gdcm::MediaStorage ms( gdcm::MediaStorage::VLWholeSlideMicroscopyImageStorage );
  de1.SetByteValue( ms.GetString(), strlen(ms.GetString()));
  ds.Insert( de1 );

  const char mystr[] = "RGB";
  gdcm::DataElement de2( gdcm::Tag(0x28,0x04) );
  //de.SetTag(gdcm::Tag(0x28,0x04));
  de2.SetVR( gdcm::VR::CS );
  de2.SetByteValue(mystr, strlen(mystr));
  ds.Insert( de2 );

   gdcm::Attribute<0x0028,0x0010> row = {256};
   //row.SetValue(512);
   ds.Insert( row.GetAsDataElement() );
//  w.SetCheckFileMetaInformation( true );
   gdcm::Attribute<0x0028,0x0011> col = {256};
   ds.Insert( col.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0008> Number_Of_Frames = {1};
   ds.Insert( Number_Of_Frames.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0100> at = {8};
   ds.Insert( at.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0002> at1 = {3}; //bits per pixel
   ds.Insert( at1.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0101> at2 = {8};
   ds.Insert( at2.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0102> at3 = {7};
```

```
   ds.Insert( at3.GetAsDataElement() );

 gdcm::Attribute<0x0028,0x006> at4 = {0};
 ds.Insert( at4.GetAsDataElement() );

 gdcm::Attribute<0x0028,0x0103> at5 = {0};
 ds.Insert( at5.GetAsDataElement() );

 //de.SetTag(gdcm::Tag(0x7fe0,0x0010));
 //ds.Insert(de);

  gdcm::StreamImageWriter theStreamWriter;
gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
 sq->SetLengthToUndefined();

     uint16_t row1 = 256;
     uint16_t col1 = 256;
     //std::cout « row;

     gdcm::Element<gdcm::VR::IS,gdcm::VM::VM1> el2;
     el2.SetValue(1);
     gdcm::DataElement rfn = el2.GetAsDataElement();     //rfn ---> reference frame number
     rfn.SetTag( gdcm::Tag(0x0008,0x1160) );

     gdcm::Element<gdcm::VR::US,gdcm::VM::VM2> el;
     el.SetValue(1,0);
     el.SetValue(1,1);
     gdcm::DataElement ulr = el.GetAsDataElement();     //ulr --> upper left col/row
     ulr.SetTag( gdcm::Tag(0x0048,0x0201) );

     gdcm::Element<gdcm::VR::US,gdcm::VM::VM2> el1;
     el1.SetValue(col1,0);
     el1.SetValue(row1,1);
     gdcm::DataElement brr = el1.GetAsDataElement();
     brr.SetTag( gdcm::Tag(0x0048,0x0202) );            //brr --> bottom right col/row

    gdcm::Item it;
    gdcm::DataSet &nds = it.GetNestedDataSet();
    nds.Insert( rfn );
    nds.Insert(ulr);
    nds.Insert(brr);

    sq->AddItem(it);

  gdcm::DataElement des( gdcm::Tag(0x0048,0x0200) );
  des.SetVR(gdcm::VR::SQ);
  des.SetValue(*sq);
  des.SetVLToUndefined();

  ds.Insert(des);


 theStreamWriter.SetFile(file);

  std::ofstream of;
  of.open( "output.dcm", std::ios::out | std::ios::binary );
  theStreamWriter.SetStream(of);


if (!theStreamWriter.CanWriteFile()){
      delete [] buffer;
      std::cout « "Not able to write";
      return 0;//this means that the file was unwritable, period.
      //very similar to a ReadImageInformation failure
    }
else
   std::cout«"\nabletoread";

if (!theStreamWriter.WriteImageInformation()){
      std::cerr « "unable to write image information" « std::endl;
      delete [] buffer;
      return 1; //the CanWrite function should prevent getting here, else,
      //that's a test failure
    }

 std::vector<unsigned int> extent =
      gdcm::ImageHelper::GetDimensionsValue(file);

    unsigned short xmax = extent[0];
    unsigned short ymax = extent[1];
    unsigned short theChunkSize = 1;
```

```
    unsigned short ychunk = extent[1]/theChunkSize; //go in chunk sizes of theChunkSize
    unsigned short zmax = extent[2];

    std::cout « xmax « ymax « zmax;

    if (xmax == 0 || ymax == 0)
      {
      std::cerr « "Image has no size, unable to write zero-sized image." « std::endl;
      return 0;
      }

    int z, y, nexty;
    unsigned long prevLen = 0; //when going through the char buffer, make sure to grab
    //the bytes sequentially.  So, store how far you got in the buffer with each iteration.
    for (z = 0; z < zmax; ++z){
      for (y = 0; y < ymax; y += ychunk){
        nexty = y + ychunk;
        if (nexty > ymax) nexty = ymax;
        theStreamWriter.DefinePixelExtent(0, xmax, y, nexty, z, z+1);
        unsigned long len = theStreamWriter.DefineProperBufferLength();
        std::cout « "\n" «len;
        char* finalBuffer = new char[len];
        memcpy(finalBuffer, &(buffer[prevLen]), len);
        std::cout « "\nable to write";
        if (!theStreamWriter.Write(finalBuffer, len)){
          std::cerr « "writing failure:" « "output.dcm" « " at y = " « y « " and z= " « z « std::endl;
          delete [] buffer;
          delete [] finalBuffer;
          return 1;
        }
        delete [] finalBuffer;
        prevLen += len;
      }
    }
    delete buffer;

 uint16_t firstTag1 =  0xfffe;
 uint16_t secondTag1 = 0xe0dd;
 uint32_t thirdTag1 =  0x00000000;
 //uint16_t fourthTag1 = 0xffff;
 const int theBufferSize1 = 2*sizeof(uint16_t)+sizeof(uint32_t);
 char* tmpBuffer2 = new char[theBufferSize1];
 memcpy(&(tmpBuffer2[0]), &firstTag1, sizeof(uint16_t));
 memcpy(&(tmpBuffer2[sizeof(uint16_t)]), &secondTag1, sizeof(uint16_t));
 memcpy(&(tmpBuffer2[2*sizeof(uint16_t)]), &thirdTag1, sizeof(uint32_t));
 //memcpy(&(tmpBuffer2[3*sizeof(uint16_t)]), &fourthTag1, sizeof(uint16_t));
 assert( of && !of.eof() && of.good() );
 of.write(tmpBuffer2, theBufferSize1);
 of.flush();
 assert( of );


  return 0;
}
```

14.67 FixBrokenJ2K.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfFragments.h"
#include "gdcmFile.h"

// http://www.lost.in.ua/dicom/c.dcm
```

```
//
// -> BuggyJ2Kvvvua-fixed2-j2k.dcm

/*
 * This program attempts to fix a broken J2K/DICOM:
 * It contains 2 bugs:
 * 1. The first 8 bytes seems to be random bytes: remove them
 * 2. YCC is set to 1, while image is grayscale need to set it back to 0
 *
 * Ref:
 * It's a software from http://rentgenprom.ru/ , shipped with universal digital radiographic units
 * "ProScan-2000". The Ukrainian manufacturer developed own digital radiographic unit and it is
 * compatible with software from "ProScan-2000".
 * Information found in DICOM file is:
 *
 * (0008,0070) LO [ZAO "Renthenprom" (JSC Rentgenprom) ]             # 36,1 Manufacturer
 * (0018,1020) LO [2.13.1.7]                                         # 8,1-n Software Version(s)
 *
 */
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  const gdcm::DataElement &pixeldata0 = file.GetDataSet().GetDataElement( gdcm::Tag(0x7fe0,0x0010) );
  const gdcm::SequenceOfFragments *sqf = pixeldata0.GetSequenceOfFragments();
  if( !sqf )
    {
    return 1;
    }
  const gdcm::Fragment &frag0 = sqf->GetFragment(0);

  gdcm::ByteValue *bv = const_cast<gdcm::ByteValue*>(frag0.GetByteValue());
  char *ptr = (char*)bv->GetVoidPointer();
  size_t len = bv->GetLength();

  static const unsigned char sig[] = {0,0,0,0,0x6A,0x70,0x32,0x63};
  if( memcmp(ptr, sig, sizeof(sig)) != 0 )
    {
    std::cerr « "magic random signature not found" « std::endl;
    return 1;
    }

  // Apparently the flag to enable a color transform on 3 color components is set in
  // the COD marker. (YCC is byte[6] in the COD marker)
  // we need to disable this flag;
  char *cod_marker = ptr + 0x35; /* 0x2d + 0x8 */ // FIXME
  if( cod_marker[0] == (char)0xff && cod_marker[1] == 0x52 )
    {
    // found start of COD
    if( cod_marker[6+2] == 1 )
      {
      // Change in place:
      *((char*)cod_marker + 6+2) = 0;
      // Prepare a new DataElement:
      gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
      pixeldata.SetVR( gdcm::VR::OB );
      gdcm::SmartPointer<gdcm::SequenceOfFragments> sq = new gdcm::SequenceOfFragments;

      gdcm::Fragment frag;
      // remove 8 first bytes:
      frag.SetByteValue( ptr + 8, (uint32_t)(len - 8) );
      sq->AddFragment( frag );
      pixeldata.SetValue( *sq );
      file.GetDataSet().Replace( pixeldata );
      }
    else
      {
      return 1;
```

```
      }
    }
  else
    {
    std::cerr « "COD not found" « (int)cod_marker[0] « std::endl;
    return 1;
    }

  gdcm::Writer writer;
  writer.SetFile( reader.GetFile() );
  writer.SetFileName( outfilename );
  writer.CheckFileMetaInformationOff();
  if( !writer.Write() )
    {
    std::cerr « "Could not write" « std::endl;
    }

  // paranoid check:
  gdcm::ImageReader ireader;
  ireader.SetFileName( outfilename );
  if( !ireader.Read() )
    {
    std::cerr « "file written is still not valid, please report" « std::endl;
    return 1;
    }


  return 0;
}
```

14.68 FixJAIBugJPEGLS.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmImageReader.h"

#include <fstream>

#include "gdcm_charls.h"

/*
 * This small example should show how one can handle the famous JAI-JPEGLS bug
 * It will take in as invalid DICOM/JAI-JPEG-LS and write out as Explicit Little
 * Endian. One can use `gdcmconv --jpegls' to recompress properly
 *
 * References:
 * http://charls.codeplex.com/discussions/230307?ProjectName=charls
 * http://charls.codeplex.com/workitem/7297
 * http://www.dcm4che.org/jira/browse/DCM-442
 * http://www.dcm4che.org/jira/browse/DCMEE-1144
 * http://java.net/jira/browse/JAI_IMAGEIO_CORE-183
 *
 * Explanation of the issue:
 *
 * Seems, the error is in the calculation of the default values for thresholds T1,
 * T2, T3, in particular min(MAXVAL, 4095) is not applied in
 *
 * FACTOR = (min(MAXVAL, 4095) + 128)/256
 *
 * as specified in http://www.itu.int/rec/T-REC-T.87-199806-I/en .
 *
 */
int main(int argc, char *argv[])
```

```
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::FileMetaInformation::SetSourceApplicationEntityTitle( "FixJAIBugJPEGLS" );

  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::Image &image = reader.GetImage();
  //unsigned long len = image.GetBufferLength();
  const gdcm::DataElement & in =
    reader.GetFile().GetDataSet().GetDataElement( gdcm::Tag(0x7fe0,0x0010) );
  const gdcm::SequenceOfFragments *sf = in.GetSequenceOfFragments();
  if( !sf )
    {
    std::cerr « "No pixel data (or not encapsulated)" « std::endl;
    return 1;
    }
  const unsigned int *dims = image.GetDimensions();
  if ( sf->GetNumberOfFragments() != dims[2] )
    {
    std::cerr « "Unsupported" « std::endl;
    return 1;
    }

//  unsigned long totalLen = sf->ComputeByteLength();
  std::vector<unsigned char> rgbyteOutall;
  for(unsigned int i = 0; i < sf->GetNumberOfFragments(); ++i)
    {
    const gdcm::Fragment &frag = sf->GetFragment(i);
    if( frag.IsEmpty() ) return 1;
    const gdcm::ByteValue *bv = frag.GetByteValue();
    if( !bv ) return 1;
    unsigned long totalLen = bv->GetLength();

    std::vector<char> vbuffer;
    vbuffer.resize( totalLen );
    char *buffer = vbuffer.data();
    bv->GetBuffer(buffer, totalLen);
    const unsigned char* pbyteCompressed0 = (const unsigned char*)buffer;
    while( totalLen > 0 && pbyteCompressed0[totalLen-1] != 0xd9 )
      {
      totalLen--;
      }

    JlsParameters metadata;
    char errorMsg[256+1]={'\0'};
    if (JpegLsReadHeader(buffer, totalLen, &metadata, errorMsg) != charls::ApiResult::OK)
      {
      std::cerr « "Can't parse jpegls: " « errorMsg « std::endl;
      return 1;
      }

    std::cout « metadata.width « std::endl;
    std::cout « metadata.height « std::endl;
    std::cout « metadata.bitsPerSample « std::endl;

    gdcm::PixelFormat const & pf = image.GetPixelFormat();
    std::cout « pf « std::endl;

    // http://charls.codeplex.com/discussions/230307?ProjectName=charls
    unsigned char marker_lse_13[] = {
      0xFF, 0xF8, 0x00, 0x0D,
      0x01,
      0x1F, 0xFF,
      0x00, 0x22,  // T1 = 34
      0x00, 0x83,  // T2 = 131
      0x02, 0x24,  // T3 = 548
      0x00, 0x40
    };

    unsigned char marker_lse_14[] = {
```

```
      0xFF, 0xF8, 0x00, 0x0D,
      0x01,
      0x3F, 0xFF,
      0x00, 0x42, // T1 = 66
      0x01, 0x03, // T2 = 259
      0x04, 0x44, // T3 = 1092
      0x00, 0x40
    };

    unsigned char marker_lse_15[] = {
      0xFF, 0xF8, 0x00, 0x0D,
      0x01,
      0x7F, 0xFF,
      0x00, 0x82, // T1 = 130
      0x02, 0x03, // T2 = 515
      0x08, 0x84, // T3 = 2180
      0x00, 0x40
    };

    unsigned char marker_lse_16[] = {
      0xFF, 0xF8, 0x00, 0x0D,
      0x01,
      0xFF, 0xFF,
      0x01, 0x02, // T1 = 258
      0x04, 0x03, // T2 = 1027
      0x11, 0x04, // T3 = 4356
      0x00, 0x40
    };

    const unsigned char *marker_lse = nullptr;
    switch( metadata.bitsPerSample )
      {
    case 13:
      marker_lse = marker_lse_13;
      break;
    case 14:
      marker_lse = marker_lse_14;
      break;
    case 15:
      marker_lse = marker_lse_15;
      break;
    case 16:
      marker_lse = marker_lse_16;
      break;
      }
    if( !marker_lse )
      {
      std::cerr « "Can't handle: " « metadata.bitsPerSample « std::endl;
      return 1;
      }

    // FIXME: One should recompute the value for 0x0F
    vbuffer.insert (vbuffer.begin() + 0x0F, marker_lse, marker_lse+15);

#if 0
    std::ofstream of( "/tmp/d.jls", std::ios::binary );
    of.write( &vbuffer[0], vbuffer.size() );
    of.close();
#endif

    const char *pbyteCompressed = vbuffer.data();
    size_t cbyteCompressed = vbuffer.size(); // updated length

    JlsParameters params;
    JpegLsReadHeader(pbyteCompressed, cbyteCompressed, &params, nullptr);

    std::vector<unsigned char> rgbyteOut;
    //rgbyteOut.resize( image.GetBufferLength() );
    rgbyteOut.resize(params.height *params.width * ((params.bitsPerSample + 7)
        / 8) * params.components);

    CharlsApiResultType result =
      JpegLsDecode(rgbyteOut.data(), rgbyteOut.size(), pbyteCompressed, cbyteCompressed, &params, errorMsg );
    if (result != charls::ApiResult::OK)
      {
      std::cerr « "Could not patch JAI-JPEGLS: " « errorMsg « std::endl;
      return 1;
      }
    rgbyteOutall.insert( rgbyteOutall.end(), rgbyteOut.begin(), rgbyteOut.end() );
```

```
    }

  gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
  pixeldata.SetVR( gdcm::VR::OW );
  pixeldata.SetByteValue( (char*)rgbyteOutall.data(), (uint32_t)rgbyteOutall.size() );


  // Add the pixel data element
  reader.GetFile().GetDataSet().Replace( pixeldata );
  reader.GetFile().GetHeader().SetDataSetTransferSyntax(
    gdcm::TransferSyntax::ExplicitVRLittleEndian);

  gdcm::Writer writer;
  writer.SetFileName( outfilename );
  writer.SetFile( reader.GetFile() );
  writer.Write();

  std::cout << "Success !" << std::endl;

  return 0;
}
```

14.69 FixOrientation.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmFile.h"
#include "gdcmOrientation.h"
#include "gdcmAttribute.h"

// Very simple orientation changer, fix invalid dataset
int main(int argc, char* argv[] )
{
  // assume AXIAL input for now
  if( argc < 3 )
    {
    std::cerr << argv[0] << " input.dcm output.dcm" << std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if (! reader.Read() )
    {
    return 1;
    }

  const double axial[] = { 1,0,0, 0,1,0 };
  (void)axial;
  const double coronal[] = { 0,0,1, 1,0,0 };
  (void)coronal;
  const double sagittal[] = { 0,1,0, 0,0,1 };
  (void)sagittal;
  gdcm::Attribute<0x0020,0x0032> at1; // IPP
  (void)at1;
  gdcm::Attribute<0x0020,0x0037> at2; // IOP
  (void)at2;

  gdcm::File & f = reader.GetFile();
  gdcm::DataSet & ds = f.GetDataSet();
  at1.SetFromDataSet( ds );
```

```
#if 0
  at2.SetFromDataSet( ds );
  const double * iop = at2.GetValues();
  if( !std::equal(iop, iop + 6, axial ) )
  {
    gdcm::Orientation::OrientationType type = gdcm::Orientation::GetType ( iop );
    std::cerr « "Wrong orientation: " « gdcm::Orientation::GetLabel( type ) « std::endl;
    return 1;
  }
  at2.SetValues( sagittal );
  ds.Replace( at2.GetAsDataElement() );
#endif

  // for sagittal: swap element 0 & 2
  const double tmp0 = at1.GetValue(0);
  const double tmp2 = at1.GetValue(2);
  (void)tmp2;
  //at1.SetValue(tmp2, 0);
  //at1.SetValue(tmp0, 2);
  at1.SetValue( - tmp0 );
  ds.Replace( at1.GetAsDataElement() );

  gdcm::Writer writer;
  writer.SetFile( f );
  writer.SetFileName( outfilename );
  if ( !writer.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.70 GenAllVR.cxx

```
/*=========================================================================

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=========================================================================*/
#include "gdcmReader.h"
#include "gdcmGlobal.h"
#include "gdcmDummyValueGenerator.h"
#include "gdcmMediaStorage.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmDict.h"
#include "gdcmDictEntry.h"
#include "gdcmDicts.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDGenerator.h"
#include "gdcmFileExplicitFilter.h"

#include <cstdlib>
#include <cstring>


gdcm::Tag FindTagFromVR(gdcm::Dict const &dict, gdcm::VR const &vr)
{
  using gdcm::Dict;
  Dict::ConstIterator beg = dict.Begin();
  Dict::ConstIterator end = dict.End();
  Dict::ConstIterator it;
  for( it = beg; it != end; ++it)
```

```
    {
    const gdcm::Tag &t = it->first;
    const gdcm::DictEntry &de = it->second;
    const gdcm::VR &vr_de = de.GetVR();
    if( vr == vr_de && !de.GetRetired() && t.GetGroup() >= 0x8 )
      {
      return t;
      }
    }
  return gdcm::Tag(0xffff,0xffff);
}

struct rnd_gen {
  rnd_gen(char const* r = "abcdefghijklmnopqrstuvwxyz0123456789")
    : range(r), len(std::strlen(r)) { }

  char operator ()() const {
    return range[static_cast<std::size_t>(std::rand() * (1.0 / ((double)RAND_MAX + 1.0 )) * (double)len)];
  }
private:
  char const* range;
  std::size_t len;
};

/*
 */
int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " output.dcm" « std::endl;
    return 1;
    }
  const char *outfilename = argv[1];
  static const gdcm::Global &g = gdcm::Global::GetInstance();
  static const gdcm::Dicts &dicts = g.GetDicts();
  static const gdcm::Dict &pubdict = dicts.GetPublicDict();
  using gdcm::VR;
  using gdcm::Tag;

  gdcm::Writer w;

  gdcm::File &f = w.GetFile();
  gdcm::DataSet &ds = f.GetDataSet();

  gdcm::FileExplicitFilter fef;
  //fef.SetChangePrivateTags( true );
  fef.SetFile( w.GetFile() );
  if( !fef.Change() )
    {
    std::cerr « "Failed to change" « std::endl;
    return 1;
    }

  gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
  sq->SetLengthToUndefined();

//  gdcm::DummyValueGenerator dvg;

  const std::size_t len = 10;
  char ss[len+1];
  ss[len] = '\0';

  const char owner_str[] = "GDCM CONFORMANCE TESTS";
  gdcm::DataElement owner( gdcm::Tag(0x4d4d, 0x10) );
  owner.SetByteValue(owner_str, (uint32_t)strlen(owner_str));
  owner.SetVR( gdcm::VR::LO );

  // Create an item
  gdcm::Item it;
  it.SetVLToUndefined();
  gdcm::DataSet &nds = it.GetNestedDataSet();
  //    nds.Insert(owner);
  //    nds.Insert(de);

  // Insert sequence into data set
  gdcm::DataElement des( gdcm::Tag(0x4d4d,0x1001) );
  des.SetVR(gdcm::VR::SQ);
  des.SetValue(*sq);
```

```
  des.SetVLToUndefined();

  ds.Insert(owner);
  ds.Insert(des);

  // avoid INVALID = 0
  for(int i = 1; i < 27; ++i)
    {
    VR vr = (VR::VRType)(1LL << i);
    Tag t = FindTagFromVR( pubdict, vr );
    if( vr != VR::UN && vr != VR::SQ )
      {
      assert( t != Tag(0xffff,0xffff) );
      gdcm::DataElement de( t );
      std::generate_n(ss, len, rnd_gen());
      de.SetVR( vr );
      de.SetByteValue( ss, (uint32_t)std::strlen( ss ) );
      nds.Insert( de );
      }
    }
  sq->AddItem(it);

  // Make sure to override any UID stuff
  gdcm::UIDGenerator uid;
  gdcm::DataElement de( Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, (uint32_t)strlen(u) );
  ds.Insert( de );

  de.SetTag( Tag(0x8,0x16) ); // SOP Class UID
  de.SetVR( VR::UI );
  gdcm::MediaStorage ms( gdcm::MediaStorage::RawDataStorage );
  de.SetByteValue( ms.GetString(), (uint32_t)strlen(ms.GetString()));
  ds.Insert( de );

  gdcm::FileMetaInformation &fmi = f.GetHeader();
  //fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ImplicitVRLittleEndian );
  fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );
  if (!w.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.71 GenFakeIdentifyFile.cxx

```
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=========================================================================*/
#include "gdcmReader.h"
#include "gdcmGlobal.h"
#include "gdcmDummyValueGenerator.h"
#include "gdcmMediaStorage.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmAttribute.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
```

```
#include "gdcmDict.h"
#include "gdcmDictEntry.h"
#include "gdcmDicts.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDGenerator.h"
#include "gdcmAnonymizer.h"

#include <cstdlib>
#include <cstring>

gdcm::DataElement CreateFakeElement(gdcm::Tag const &tag, bool toremove)
{
  static const gdcm::Global &g = gdcm::Global::GetInstance();
  static const gdcm::Dicts &dicts = g.GetDicts();
  static const gdcm::Dict &pubdict = dicts.GetPublicDict();
  static size_t countglobal = 0;
  static std::vector<gdcm::Tag> balcptags =
    gdcm::Anonymizer::GetBasicApplicationLevelConfidentialityProfileAttributes();
  size_t count = countglobal % balcptags.size();

  const gdcm::DictEntry &dictentry = pubdict.GetDictEntry(tag);

  gdcm::DataElement de;
  de.SetTag( tag );
  using gdcm::VR;
  const VR &vr = dictentry.GetVR();
  //if( vr != VR::INVALID )
  if( vr.IsDual() )
    {
    if( vr == VR::US_SS )
      {
      de.SetVR( VR::US );
      }
    else if( vr == VR::US_SS_OW )
      {
      de.SetVR( VR::OW );
      }
    else if( vr == VR::OB_OW )
      {
      de.SetVR( VR::OB );
      }
    }
  else
    {
    de.SetVR( vr );
    }
  const char str[] = "BasicApplicationLevelConfidentialityProfileAttributes";
  const char safe[] = "This is safe to keep";
  if( de.GetVR() != VR::SQ )
    {
    if( toremove )
      de.SetByteValue( str, (uint32_t)strlen(str) );
    else
      de.SetByteValue( safe, (uint32_t)strlen(safe) );
    }
  else
    {
    // Create an item
    gdcm::Item it;
    it.SetVLToUndefined();
    gdcm::DataSet &nds = it.GetNestedDataSet();
    // Insert sequence into data set
    assert(de.GetVR() == gdcm::VR::SQ );
    gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
    sq->SetLengthToUndefined();
    de.SetValue(*sq);
    de.SetVLToUndefined();
    //ds.Insert(de);

    if( !toremove )
      {
      nds.Insert( CreateFakeElement( balcptags[count], true ) );
      countglobal++;
      }
    else
      {
      gdcm::Attribute<0x0008,0x0000> at1 = { 0 }; // This element has no reason to be 'anonymized'...
      nds.Insert( at1.GetAsDataElement() );
      gdcm::Attribute<0x000a,0x0000> at2 = { 0 };
      nds.Insert( at2.GetAsDataElement() );
      }
```

```
    sq->AddItem(it);
    }
  return de;
}

/*
 */
int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " output.dcm" « std::endl;
    return 1;
    }
  using gdcm::Tag;
  using gdcm::VR;
  const char *outfilename = argv[1];

  std::vector<gdcm::Tag> balcptags =
    gdcm::Anonymizer::GetBasicApplicationLevelConfidentialityProfileAttributes();

  gdcm::Writer w;
  gdcm::File &f = w.GetFile();
  gdcm::DataSet &ds = f.GetDataSet();

  // Add attribute that need to be anonymized:
  std::vector<gdcm::Tag>::const_iterator it = balcptags.begin();
  for(; it != balcptags.end(); ++it)
    {
    ds.Insert( CreateFakeElement( *it, true ) );
    }

  // Add attribute that do NOT need to be anonymized:
  static const gdcm::Global &g = gdcm::Global::GetInstance();
  static const gdcm::Dicts &dicts = g.GetDicts();
  static const gdcm::Dict &pubdict = dicts.GetPublicDict();

  using gdcm::Dict;
  Dict::ConstIterator dictit = pubdict.Begin();
  for(; dictit != pubdict.End(); ++dictit)
    {
    const gdcm::Tag &dicttag = dictit->first;
    if( dicttag == Tag(0x6e65,0x6146) ) break;
    //const gdcm::DictEntry &dictentry = dictit->second;
    ds.Insert( CreateFakeElement( dicttag, false ) );
    }
  ds.Remove( gdcm::Tag(0x400,0x500) );
  ds.Remove( gdcm::Tag(0x12,0x62) );
  ds.Remove( gdcm::Tag(0x12,0x63) );

  // Make sure to override any UID stuff
  gdcm::UIDGenerator uid;
  gdcm::DataElement de( Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, (uint32_t)strlen(u) );
  //ds.Insert( de );
  ds.Replace( de );

  de.SetTag( Tag(0x8,0x16) ); // SOP Class UID
  de.SetVR( VR::UI );
  gdcm::MediaStorage ms( gdcm::MediaStorage::RawDataStorage );
  de.SetByteValue( ms.GetString(), (uint32_t)strlen(ms.GetString()));
  ds.Replace( de ); // replace !

  gdcm::FileMetaInformation &fmi = f.GetHeader();
  //fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ImplicitVRLittleEndian );
  fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );
  if (!w.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.72 GenLongSeqs.cxx

```
/*=========================================================================

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=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmFile.h"
#include "gdcmTag.h"

/*
 * This example is used to generate the file:
 *
 *
 * There is a flaw in the DICOM design were it is assumed that Sequence can be
 * either represented as undefined length or defined length. This should work
 * in most case, but the undefined length is a little more general and can
 * store sequence of items that a defined length cannot.
 * We need to make sure that we can store numerous Item in a SQ
 *
 * Warning: do not try to compute the group length elements !
 * Warning: You may need a 64bits machine for this example to work.
 */
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  // Create a Sequence
  gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
  sq->SetLengthToUndefined();

  const char owner_str[] = "GDCM CONFORMANCE TESTS";
  gdcm::DataElement owner( gdcm::Tag(0x4d4d, 0x10) );
  owner.SetByteValue(owner_str, (uint32_t)strlen(owner_str));
  owner.SetVR( gdcm::VR::LO );

  size_t nitems = 1000;
  nitems += std::numeric_limits<uint32_t>::max();
  for(unsigned int idx = 0; idx < nitems; ++idx)
    {
    // Create a dataelement
    //gdcm::DataElement de( gdcm::Tag(0x4d4d, 0x1002) );
    //de.SetByteValue(ptr, ptr_len);
    //de.SetVR( gdcm::VR::OB );

    // Create an item
    gdcm::Item it;
    it.SetVLToUndefined();
    //gdcm::DataSet &nds = it.GetNestedDataSet();
    //nds.Insert(owner);
```

```
    //nds.Insert(de);

    sq->AddItem(it);
    }

  // Insert sequence into data set
  gdcm::DataElement des( gdcm::Tag(0x4d4d,0x1001) );
  des.SetVR(gdcm::VR::SQ);
  des.SetValue(*sq);
  des.SetVLToUndefined();

  ds.Insert(owner);
  ds.Insert(des);

  gdcm::Writer w;
  w.SetFile( file );
  //w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );
  if (!w.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.73 GenSeqs.cxx

```
/*=========================================================================

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=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmFile.h"
#include "gdcmTag.h"

/*
 * This example is used to generate the file:
 *
 * gdcmConformanceTests/SequenceWithUndefinedLengthNotConvertibleToDefinedLength.dcm
 *
 * There is a flaw in the DICOM design were it is assumed that Sequence can be
 * either represented as undefined length or defined length. This should work
 * in most case, but the undefined length is a little more general and can
 * store sequence of items that a defined length cannot.
 * Deflated syntax was used in this case since this synthetic example can be
 * nicely compressed using this transfer syntax.
 *
 * Warning: do not try to compute the group length elements !
 * Warning: You may need a 64bits machine for this example to work.
 */
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
```

```
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  //const unsigned int nitems = 1000;
  const unsigned int ptr_len = 42; /*94967296 / nitems; */
  //assert( ptr_len == 42949672 );
  char *ptr = new char[ptr_len];
  memset(ptr,0,ptr_len);

  // Create a Sequence
  gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
  sq->SetLengthToUndefined();

  const char owner_str[] = "GDCM CONFORMANCE TESTS";
  gdcm::DataElement owner( gdcm::Tag(0x4d4d, 0x10) );
  owner.SetByteValue(owner_str, (uint32_t)strlen(owner_str));
  owner.SetVR( gdcm::VR::LO );

  for(unsigned int idx = 0; idx < 10/* nitems*/; ++idx)
    {
    // Create a dataelement
    gdcm::DataElement de( gdcm::Tag(0x4d4d, 0x1002) );
    de.SetByteValue(ptr, ptr_len);
    de.SetVR( gdcm::VR::OB );

    // Create an item
    gdcm::Item it;
    it.SetVLToUndefined();
    gdcm::DataSet &nds = it.GetNestedDataSet();
    nds.Insert(owner);
    nds.Insert(de);

    sq->AddItem(it);
    }

  // Insert sequence into data set
  gdcm::DataElement des( gdcm::Tag(0x4d4d,0x1001) );
  des.SetVR(gdcm::VR::SQ);
  des.SetValue(*sq);
  des.SetVLToUndefined();

  ds.Insert(owner);
  ds.Insert(des);

  gdcm::Writer w;
  w.SetFile( file );
  //w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );
  if (!w.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.74 GenerateStandardSOPClasses.cxx

```
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=========================================================================*/
/*
```

```
 */

#include "gdcmDefs.h"
#include "gdcmUIDs.h"
#include "gdcmGlobal.h"
#include "gdcmMediaStorage.h"
#include "gdcmSOPClassUIDToIOD.h"

int main(int , char *[])
{
  using gdcm::MediaStorage;
  gdcm::Global& g = gdcm::Global::GetInstance();
  if( !g.LoadResourcesFiles() )
    {
    std::cerr « "Could not LoadResourcesFiles" « std::endl;
    return 1;
    }

  const gdcm::Defs &defs = g.GetDefs();

  int ret = 0;

  //std::cout « "Table B.5-1 STANDARD SOP CLASSES" « std::endl;
  std::cout « "SOP Class Name,SOP Class UID,IOD Specification (defined in PS 3.3)" « std::endl;


  gdcm::MediaStorage::MSType mst;
  for ( mst = gdcm::MediaStorage::MediaStorageDirectoryStorage; mst < gdcm::MediaStorage::MS_END;
    mst = (gdcm::MediaStorage::MSType)(mst + 1) )
    {
    const char *iod = defs.GetIODNameFromMediaStorage(mst);
    gdcm::UIDs uid;
    uid.SetFromUID( gdcm::MediaStorage::GetMSString(mst) /*mst.GetString()*/ );
    if( iod )
      {
      const char *iod_ref = gdcm::SOPClassUIDToIOD::GetIOD(uid);
      if( iod_ref )
        {
        std::string iod_ref_str = iod_ref;
        //iod_ref_str += " IOD Modules";
        //if( iod_ref_str != iod )
          {
          //std::cout « "UID: " « uid « "    ";
          std::cout « '"' « uid.GetName() « '"' «"," « '"' «uid.GetString() « '"' «"," « '"' «iod « '"' «
    std::endl;
          //std::cout « "Incompatible IODs: [" « iod « "] versus ref= [" « iod_ref_str « "]" « std::endl;
          ++ret;
          }
        }
      }
    }


  return 0;
}
```

14.75 GetJPEGSamplePrecision.cxx

```
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=========================================================================*/
/*
 * This example is a little helper to detect the famous SIEMENS JPEG lossless compressed image
 * where DICOM is declared as:
 *
 *  (0028,0100) US 16                                       # 2,1 Bits Allocated
```

```
 *  (0028,0101) US 12                                                    # 2,1 Bits Stored
 *  (0028,0102) US 11                                                    # 2,1 High Bit
 *  (0028,0103) US 0                                                     # 2,1 Pixel Representation
 *
 * But where JPEG is:
 *
 *        JPEG_SOF_Parameters:
 *                SamplePrecision = 16
 *                nLines = 192
 *                nSamplesPerLine = 192
 *                nComponentsInFrame = 1
 *                component 0
 *                        ComponentIdentifier = 1
 *                        HorizontalSamplingFactor = 1
 *                        VerticalSamplingFactor = 1
 *                        QuantizationTableDestinationSelector = 0
 *
 *
 * This case is valid. One simply has to use the 16bits jpeg decoder to decode the 12bits stored image.
 * This used to be an issue in GDCM 1.2.x (fixed in GDCM 1.2.5)
 *
 * The main return 0 (no error) when the file read is actually a potential problem. At the end of the main
 * function, the jpeg stream is stored in the filename specified as second argument
 */

#include "gdcmImageReader.h"
#include "gdcmSequenceOfFragments.h"
#include "gdcmJPEGCodec.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.jpg" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }

  // The output of gdcm::Reader is a gdcm::File
  const gdcm::File &file = reader.GetFile();
  const gdcm::Image &image = reader.GetImage();

  const gdcm::TransferSyntax &ts = file.GetHeader().GetDataSetTransferSyntax();

  if( ts != gdcm::TransferSyntax::JPEGLosslessProcess14 && ts != gdcm::TransferSyntax::JPEGLosslessProcess14_1 )
    {
    std::cerr « "Input is not a lossless JPEG" « std::endl;
    return 1;
    }

  // the dataset is the the set of element we are interested in:
  const gdcm::DataSet &ds = file.GetDataSet();

  const gdcm::Tag rawTag(0x7fe0, 0x0010); // Default to Pixel Data
  const gdcm::DataElement& pdde = ds.GetDataElement( rawTag );
  const gdcm::SequenceOfFragments *sf = pdde.GetSequenceOfFragments();
  if( sf )
    {
    std::ofstream output(outfilename, std::ios::binary);
    sf->WriteBuffer(output);
    }
  else
    {
    std::cerr « "Error" « std::endl;
    return 1;
    }

  gdcm::JPEGCodec jpeg;
  std::ifstream is(outfilename, std::ios::binary);
```

```
  gdcm::PixelFormat pf ( gdcm::PixelFormat::UINT8 ); // let's pretend it's a 8bits jpeg
  jpeg.SetPixelFormat( pf );
  gdcm::TransferSyntax ts_jpg;
  bool b = jpeg.GetHeaderInfo( is, ts_jpg );
  if( !b )
    {
    return 1;
    }

  //jpeg.Print( std::cout );
  if( jpeg.GetPixelFormat().GetBitsAllocated() != image.GetPixelFormat().GetBitsAllocated()
   || jpeg.GetPixelFormat().GetBitsStored() != image.GetPixelFormat().GetBitsStored() )
    {
    std::cerr « "There is a mismatch in between DICOM declared Pixel Format and Sample Precision used in the
      JPEG stream" « std::endl;
    return 0;
    }

  std::cout « jpeg.GetPixelFormat() « std::endl;
  std::cout « image.GetPixelFormat() « std::endl;

  return 1;
}
```

14.76 GetSequenceUltrasound.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmAttribute.h"

bool Region ( char* nomefile, unsigned int* X_min, unsigned int* Y_min, unsigned int* X_max, unsigned int* Y_max
      );

int main(int argc, char* argv[] )
{
  // Controllo del numero di argomenti introdotti da riga di comando
  if( argc < 2 )
    {
    std::cerr « "Usage: " « std::endl;
    std::cerr « argv[0] « " inputImageFile  " « std::endl;
    return EXIT_FAILURE;
    }


  unsigned int x_min = 1;
  unsigned int y_min = 1;
  unsigned int x_max = 1;
  unsigned int y_max = 1;

  if( Region ( argv[1], &x_min, &y_min, &x_max, &y_max ) )
    {
    std::cout « "x_min = " « x_min « std::endl;
    std::cout « "y_min = " « y_min « std::endl;
    std::cout « "x_max = " « x_max « std::endl;
    std::cout « "y_max = " « y_max « std::endl;
    }

  else
    {
    std::cout « "no\n";
    }

}

bool Region ( char* nomefile, unsigned int* X_min, unsigned int* Y_min, unsigned int* X_max, unsigned int* Y_max
```

```
      )
{
  gdcm::Reader reader;
  reader.SetFileName( nomefile );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « nomefile « std::endl;
    return false;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  gdcm::Tag tsqur(0x0018,0x6011);
  if( !ds.FindDataElement( tsqur ) )
    {
    return false;
    }

  const gdcm::DataElement &squr= ds.GetDataElement( tsqur );
  //std::cout « squr « std::endl;
  const gdcm::SequenceOfItems *sqi = squr.GetValueAsSQ();
  if( !sqi || !sqi->GetNumberOfItems() )
    {
    return false;
    }
  //std::cout « sqi « std::endl;

  const gdcm::Item & item = sqi->GetItem(1);
  //std::cout « item « std::endl;
  const gdcm::DataSet& nestedds = item.GetNestedDataSet();
  //std::cout « nestedds « std::endl;

  gdcm::Tag tX0(0x0018,0x6018);
  gdcm::Tag tY0(0x0018,0x601a);
  gdcm::Tag tX1(0x0018,0x601c);
  gdcm::Tag tY1(0x0018,0x601e);

  if( (!nestedds.FindDataElement( tX0 ))||(!nestedds.FindDataElement( tY0 ))||(!nestedds.FindDataElement( tX1
      ))||(!nestedds.FindDataElement( tY1 )) )
    {
    return false;
    }

  const gdcm::DataElement& deX0 = nestedds.GetDataElement( tX0 );
  const gdcm::DataElement& deY0 = nestedds.GetDataElement( tY0 );
  const gdcm::DataElement& deX1 = nestedds.GetDataElement( tX1 );
  const gdcm::DataElement& deY1 = nestedds.GetDataElement( tY1 );
  //std::cout « deX0 « std::endl « deY0 « std::endl « deX1 « std::endl « deY1 « std::endl;

  //const gdcm::ByteValue *bvX0 = deX0.GetByteValue();
  //const gdcm::ByteValue *bvY0 = deY0.GetByteValue();
  //const gdcm::ByteValue *bvX1 = deX1.GetByteValue();
  //const gdcm::ByteValue *bvY1 = deY1.GetByteValue();
  //std::cout « bvX0 « std::endl « bvY0 « std::endl « bvX1 « std::endl « bvY1 « std::endl;

  gdcm::Attribute<0x0018,0x6018> atX0;
  gdcm::Attribute<0x0018,0x601a> atY0;
  gdcm::Attribute<0x0018,0x601c> atX1;
  gdcm::Attribute<0x0018,0x601e> atY1;
  atX0.SetFromDataElement( deX0 );
  atY0.SetFromDataElement( deY0 );
  atX1.SetFromDataElement( deX1 );
  atY1.SetFromDataElement( deY1 );
  uint32_t X0 = atX0.GetValue();
  uint32_t Y0 = atY0.GetValue();
  uint32_t X1 = atX1.GetValue();
  uint32_t Y1 = atY1.GetValue();
  std::cout « X0 « std::endl « Y0 « std::endl « X1 « std::endl « Y1 « std::endl;

  *X_min = static_cast<unsigned int>(X0);
  *Y_min = static_cast<unsigned int>(Y0);
  *X_max = static_cast<unsigned int>(X1);
  *Y_max = static_cast<unsigned int>(Y1);

  //std::cout « "X_min = " « *X_min « std::endl;
  //std::cout « "Y_min = " « *Y_min « std::endl;
  //std::cout « "X_max = " « *X_max « std::endl;
  //std::cout « "Y_max = " « *Y_max « std::endl;

  return true;
```

```
}
```

14.77 GetSubSequenceData.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
#include "gdcmReader.h"
#include "gdcmImage.h"
#include "gdcmImageWriter.h"
#include "gdcmDataElement.h"
#include "gdcmPrivateTag.h"
#include "gdcmUIDGenerator.h"

#include <iostream>
#include <string>

#include <map>

/*
 * This example will extract the Movie from the private group of
 * GEMS_Ultrasound_MovieGroup_001 See Attribute
 * (7fe1,60,GEMS_Ultrasound_MovieGroup_001)
 *
 * The output file will be stored in `outvid.dcm` as
 * MultiframeGrayscaleByteSecondaryCaptureImageStorage
 */
int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  using namespace gdcm;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  reader.Read();

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();
  const PrivateTag tseq(0x7fe1,0x1,"GEMS_Ultrasound_MovieGroup_001");

  if( !ds.FindDataElement( tseq ) ) return 1;
  const DataElement& seq = ds.GetDataElement( tseq );

  SmartPointer<SequenceOfItems> sqi = seq.GetValueAsSQ();
  assert( sqi->GetNumberOfItems() == 1 );
  Item &item = sqi->GetItem(1);
  DataSet &subds = item.GetNestedDataSet();

  const PrivateTag tseq1(0x7fe1,0x10,"GEMS_Ultrasound_MovieGroup_001");

  if( !subds.FindDataElement( tseq1 ) ) return 1;
  const DataElement& seq1 = subds.GetDataElement( tseq1 );

  SmartPointer<SequenceOfItems> sqi2 = seq1.GetValueAsSQ();
  //int n = sqi2->GetNumberOfItems();
  int index = 1;
  Item &item2 = sqi2->GetItem(index);
  DataSet &subds2 = item2.GetNestedDataSet();

  const PrivateTag tseq2(0x7fe1,0x20,"GEMS_Ultrasound_MovieGroup_001");

  if( !subds2.FindDataElement( tseq2 ) ) return 1;
  const DataElement& seq2 = subds2.GetDataElement( tseq2 );

//    std::cout « seq2 « std::endl;

  SmartPointer<SequenceOfItems> sqi3 = seq2.GetValueAsSQ();
```

```
  size_t ni3 = sqi3->GetNumberOfItems(); (void)ni3;
  assert( sqi3->GetNumberOfItems() >= 1 );
  Item &item3 = sqi3->GetItem(1);
  DataSet &subds3 = item3.GetNestedDataSet();

  const PrivateTag tseq6(0x7fe1,0x26,"GEMS_Ultrasound_MovieGroup_001");
  if( !subds3.FindDataElement( tseq6 ) ) return true;
  const DataElement& seq6 = subds3.GetDataElement( tseq6 );
  SmartPointer<SequenceOfItems> sqi6 = seq6.GetValueAsSQ();
  size_t ni6= sqi6->GetNumberOfItems();
  assert( sqi6->GetNumberOfItems() >= 1 );
  const PrivateTag tseq7(0x7fe1,0x86,"GEMS_Ultrasound_MovieGroup_001");
  int dimx = 0, dimy = 0;
  for( size_t i6 = 1; i6 <= ni6; ++i6 )
    {
    Item &item6 = sqi6->GetItem(i6);
    DataSet &subds6 = item6.GetNestedDataSet();

    if( subds6.FindDataElement( tseq7 ) )
      {
      Element<VR::SL, VM::VM4> el;
      el.SetFromDataElement( subds6.GetDataElement( tseq7 ) );
      std::cout « "El= " « el.GetValue() « std::endl;
      dimx = el.GetValue(0);
      dimy = el.GetValue(1);
      }
    }

  const PrivateTag tseq3(0x7fe1,0x36,"GEMS_Ultrasound_MovieGroup_001");
  if( !subds3.FindDataElement( tseq3 ) ) return true;
  const DataElement& seq3 = subds3.GetDataElement( tseq3 );

//    std::cout « seq3 « std::endl;

  SmartPointer<SequenceOfItems> sqi4 = seq3.GetValueAsSQ();
  size_t ni4= sqi4->GetNumberOfItems();
  assert( sqi4->GetNumberOfItems() >= 1 );
  const PrivateTag tseq8(0x7fe1,0x37,"GEMS_Ultrasound_MovieGroup_001");
  const PrivateTag tseq4(0x7fe1,0x43,"GEMS_Ultrasound_MovieGroup_001");
  const PrivateTag tseq5(0x7fe1,0x60,"GEMS_Ultrasound_MovieGroup_001");

  std::vector<char> imbuffer;
  int dimz = 0;
  for( size_t i4 = 1; i4 <= ni4; ++i4 )
    {
    Item &item4 = sqi4->GetItem(i4);
    DataSet &subds4 = item4.GetNestedDataSet();

    if( !subds4.FindDataElement( tseq8 ) ) return true;
    const DataElement& de8 = subds4.GetDataElement( tseq8 );
    Element<VR::UL,VM::VM1> ldimz;
    ldimz.SetFromDataElement( de8 );
    dimz += ldimz.GetValue();
    if( !subds4.FindDataElement( tseq4 ) ) return true;
    const DataElement& seq4 = subds4.GetDataElement( tseq4 );
    if( !subds4.FindDataElement( tseq5 ) ) return true;
    const DataElement& seq5 = subds4.GetDataElement( tseq5 );

    //    std::cout « seq4 « std::endl;
    //    std::cout « seq5 « std::endl;

    const ByteValue *bv4 = seq4.GetByteValue();
    (void)bv4;
#if 0
      {
      std::ofstream out( "/tmp/mo4", std::ios::binary );
      out.write( bv4->GetPointer(), bv4->GetLength());
      out.close();
      }
#endif
  const ByteValue *bv5 = seq5.GetByteValue();
#if 0
    {
    std::ofstream out( "/tmp/mo5", std::ios::binary );
    out.write( bv5->GetPointer(), bv5->GetLength());
    out.close();
    }
#endif

    std::cout « bv5->GetLength() « std::endl;
    imbuffer.insert( imbuffer.begin(), bv5->GetPointer(), bv5->GetPointer() + bv5->GetLength() );
```

```
    }
  DataElement fakedata;
  fakedata.SetByteValue( imbuffer.data(), (uint32_t)imbuffer.size() );


  gdcm::SmartPointer<gdcm::Image> im = new gdcm::Image;
  im->SetNumberOfDimensions( 3 );

  im->SetDimension(0, dimx );
  im->SetDimension(1, dimy );
  im->SetDimension(2, dimz );
  size_t l1 = imbuffer.size();
  (void)l1;
  size_t l2 = im->GetBufferLength();
  (void)l2;
  assert( im->GetBufferLength() == imbuffer.size() );
  im->SetPhotometricInterpretation( gdcm::PhotometricInterpretation::MONOCHROME2 );

  im->SetDataElement( fakedata );

  gdcm::ImageWriter w;
  w.SetImage( *im );
  DataSet &dataset = w.GetFile().GetDataSet();

  gdcm::UIDGenerator uid;
  gdcm::DataElement de( Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, (uint32_t)strlen(u) );
  //ds.Insert( de );
  dataset.Replace( de );

  de.SetTag( Tag(0x8,0x16) ); // SOP Class UID
  de.SetVR( VR::UI );
  gdcm::MediaStorage ms(
    gdcm::MediaStorage::MultiframeGrayscaleByteSecondaryCaptureImageStorage );
  de.SetByteValue( ms.GetString(), (uint32_t)strlen(ms.GetString()));
  dataset.Replace( de ); // replace !

  w.SetFileName( "outvid.dcm" );
  if( !w.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.78 HelloVizWorld.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
/*
 * Basic example for dealing with a DICOM file that contains an Image
 * (read: Pixel Data element)
 */

#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmImage.h"
#include "gdcmPhotometricInterpretation.h"

#include <iostream>

int main(int argc, char *argv[])
```

```
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  // Instantiate the image reader:
  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }
  // If we reach here, we know for sure 2 things:
  // 1. It is a valid DICOM
  // 2. And it contains an Image !

  // The output of superclass gdcm::Reader is a gdcm::File
  //gdcm::File &file = reader.GetFile();

  // The other output of gdcm::ImageReader is a gdcm::Image
  const gdcm::Image &image = reader.GetImage();

  // Let's get some property from the image:
  unsigned int ndim = image.GetNumberOfDimensions();
  // Dimensions of the image:
  const unsigned int *dims = image.GetDimensions();
  // Origin
  const double *origin = image.GetOrigin();
  const gdcm::PhotometricInterpretation &pi = image.GetPhotometricInterpretation();
  for(unsigned int i = 0; i < ndim; ++i)
    {
    std::cout « "Dim(" « i « "): " « dims[i] « std::endl;
    }
  for(unsigned int i = 0; i < ndim; ++i)
    {
    std::cout « "Origin(" « i « "): " « origin[i] « std::endl;
    }
  std::cout « "PhotometricInterpretation: " « pi « std::endl;

  // Write the modified DataSet back to disk
  gdcm::ImageWriter writer;
  writer.SetImage( image );
  writer.SetFileName( outfilename );
  //writer.SetFile( file ); // We purposely NOT copy the meta information from the input
                            // file, and instead only pass the image
  if( !writer.Write() )
    {
    std::cerr « "Could not write: " « outfilename « std::endl;
    return 1;
    }

  return 0;
}
```

14.79 HelloWorld.cxx

```
/*=========================================================================

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=========================================================================*/
/*
 * This example is ... guess what this is for :)
```

```
 */

#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"

#include <iostream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  // Instantiate the reader:
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }

  // If we reach here, we know for sure only 1 thing:
  // It is a valid DICOM file (potentially an old ACR-NEMA 1.0/2.0 file)
  // (Maybe, it's NOT a Dicom image -could be a DICOMDIR, a RTSTRUCT, etc-)

  // The output of gdcm::Reader is a gdcm::File
  gdcm::File &file = reader.GetFile();

  // the dataset is the the set of element we are interested in:
  gdcm::DataSet &ds = file.GetDataSet();

  // Construct a static(*) type for Image Comments :
  gdcm::Attribute<0x0020,0x4000> imagecomments;
  imagecomments.SetValue( "Hello, World !" );

  // Now replace the Image Comments from the dataset with our:
  ds.Replace( imagecomments.GetAsDataElement() );

  // Write the modified DataSet back to disk
  gdcm::Writer writer;
  writer.CheckFileMetaInformationOff(); // Do not attempt to reconstruct the file meta to preserve the file
                                        // as close to the original as possible.
  writer.SetFileName( outfilename );
  writer.SetFile( file );
  if( !writer.Write() )
    {
    std::cerr « "Could not write: " « outfilename « std::endl;
    return 1;
    }

  return 0;
}

/*
 * (*) static type, means that extra DICOM information VR & VM are computed at compilation time.
 * The compiler is deducing those values from the template arguments of the class.
 */
```

14.80 LargeVRDSExplicit.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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```

```
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"
#include "gdcmFileExplicitFilter.h"
#include "gdcmSequenceOfItems.h"


bool interpolate(const double * pts, size_t npts, std::vector<double> &out )
{
  out.clear();
  for(size_t i = 0; i < 2*npts; ++i )
    {
    const size_t j = i / 2;
    if( i % 2 )
      {
      if( j != npts - 1 )
        {
        assert( 3*j+5 < 3*npts );
        const double midpointx = (pts[3*j+0] + pts[3*j+3]) / 2;
        const double midpointy = (pts[3*j+1] + pts[3*j+4]) / 2;
        const double midpointz = (pts[3*j+2] + pts[3*j+5]) / 2;
        out.push_back( midpointx );
        out.push_back( midpointy );
        out.push_back( midpointz );
        }
      }
    else
      {
      assert( j < npts );
      out.push_back( pts[3*j+0] );
      out.push_back( pts[3*j+1] );
      out.push_back( pts[3*j+2] );
      }
    }
  assert( out.size() == 2 * npts * 3 - 3 );
  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  gdcm::FileExplicitFilter fef;
  //fef.SetChangePrivateTags( changeprivatetags );
  fef.SetFile( reader.GetFile() );
  if( !fef.Change() )
    {
    std::cerr « "Failed to change: " « filename « std::endl;
    return 1;
    }

  // (3006,0039) SQ (Sequence with undefined length #=4)     # u/l, 1 ROIContourSequence
  gdcm::Tag tag(0x3006,0x0039);

  const gdcm::DataElement &roicsq = ds.GetDataElement( tag );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi = roicsq.GetValueAsSQ();
  //sqi->SetNumberOfItems( 1 );
  const gdcm::Item & item = sqi->GetItem(1); // Item start at #1
  const gdcm::DataSet& nestedds = item.GetNestedDataSet();

  gdcm::Tag tcsq(0x3006,0x0040);
  if( !nestedds.FindDataElement( tcsq ) )
    {
```

```
    return 0;
    }
  const gdcm::DataElement& csq = nestedds.GetDataElement( tcsq );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi2 = csq.GetValueAsSQ();
  if( !sqi2 || !sqi2->GetNumberOfItems() )
    {
    return 0;
    }
  //unsigned int nitems = sqi2->GetNumberOfItems();
  gdcm::Item & item2 = sqi2->GetItem(1); // Item start at #1

  gdcm::DataSet& nestedds2 = item2.GetNestedDataSet();
  //item2.SetVLToUndefined();
  //std::cout « nestedds2 « std::endl;
  // (3006,0050) DS [43.57636\65.52504\-10.0\46.043102\62.564945\-10.0\49.126537\60.714... # 398,48 ContourData
  gdcm::Tag tcontourdata(0x3006,0x0050);
  const gdcm::DataElement & contourdata = nestedds2.GetDataElement( tcontourdata );
  //std::cout « contourdata « std::endl;

  //const gdcm::ByteValue *bv = contourdata.GetByteValue();
  gdcm::Attribute<0x3006,0x0046> ncontourpoints;
  ncontourpoints.Set( nestedds2 );

  gdcm::Attribute<0x3006,0x0050> at;
  at.SetFromDataElement( contourdata );
  const double* pts = at.GetValues();
  unsigned int npts = at.GetNumberOfValues() / 3;

  std::vector<double> out( pts, pts + npts * 3 );
  std::vector<double> out2;

  //const unsigned int niter = 7;
  const unsigned int niter = 8;
  for( unsigned int i = 0; i < niter; ++i)
    {
    //bool b =
    interpolate(out.data(), out.size() / 3, out2);
    //const double *pout = &out[0];
    out = out2;
    out2.clear();
    }
  assert( out.size() % 3 == 0 );

  gdcm::Attribute<0x3006,0x0050> at_interpolate;
  at_interpolate.SetNumberOfValues( (unsigned int)(out.size() / 3) );
  at_interpolate.SetValues( out.data(), (uint32_t)out.size() );

  ncontourpoints.SetValue( at_interpolate.GetNumberOfValues() / 3 );
  nestedds2.Replace( at_interpolate.GetAsDataElement() );
  nestedds2.Replace( ncontourpoints.GetAsDataElement() );

  //assert(0);

  // Let's take item one and subdivide it

  gdcm::TransferSyntax ts = gdcm::TransferSyntax::ImplicitVRLittleEndian;
  ts = gdcm::TransferSyntax::ExplicitVRLittleEndian;

  gdcm::FileMetaInformation &fmi = file.GetHeader();
  const char *tsuid = gdcm::TransferSyntax::GetTSString( ts );
  // const char * is ok since padding is \0 anyway...
  gdcm::DataElement de( gdcm::Tag(0x0002,0x0010) );
  de.SetByteValue( tsuid, (uint32_t)strlen(tsuid) );
  de.SetVR( gdcm::Attribute<0x0002, 0x0010>::GetVR() );
  fmi.Replace( de );
  fmi.Remove( gdcm::Tag(0x0002,0x0012) ); // will be regenerated
  fmi.Remove( gdcm::Tag(0x0002,0x0013) ); //  '   '    '
  fmi.SetDataSetTransferSyntax(ts);


  gdcm::Writer w;
  w.SetFile( file );
  w.SetFileName( outfilename );
  if (!w.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.81 MakeTemplate.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmFileAnonymizer.h"
#include "gdcmReader.h"
#include "gdcmWriter.h"

int main(int argc, char *argv[])
{
  if( argc < 3 ) return 1;
  const char* filename = argv[1];
  const char* outfilename = argv[2];

  //gdcm::Trace::DebugOn();

  // Remove Pixel Data element:
  gdcm::FileAnonymizer fa;
  fa.SetInputFileName( filename );
  fa.SetOutputFileName( outfilename );

  fa.Empty( gdcm::Tag(0x7fe0,0x10) );
  // cannot replace in-place DICOM header:
  //fa.Replace( gdcm::Tag(0x2,0x2), "1.2.840.10008.5.1.4.1.1.7" );

  if( !fa.Write() )
    {
    std::cerr « "impossible to remove Pixel Data attribute" « std::endl;
    return 1;
    }

  // Update the DICOM Header:
  gdcm::Reader reader;
  reader.SetFileName( outfilename );
  if( !reader.Read() )
    {
    std::cerr « "could not read back" « std::endl;
    return 1;
    }

  gdcm::File & file = reader.GetFile();
  gdcm::FileMetaInformation &fmi = file.GetHeader();
  gdcm::TransferSyntax ts = gdcm::TransferSyntax::ImplicitVRLittleEndian;
  ts = gdcm::TransferSyntax::ExplicitVRLittleEndian;
  fmi.SetDataSetTransferSyntax(ts);

  gdcm::Writer writer;
  writer.SetFile( file );
  writer.SetFileName( outfilename ); // warning overwrite file !
  if( !writer.Write() )
    {
    std::cerr « "could not write back" « std::endl;
    return 1;
    }

  return 0;
}
```

14.82 MergeTwoFiles.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
```

```
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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example will show how one can read in two DICOM files, use the dataset
 * from file1 and use image from file2  to save it in a 3rd file.
 *
 * Eg:
 * MergeTwoFiles gdcmData/012345.002.050.dcm gdcmData/test.acr merge.dcm
 */

#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmWriter.h"
#include "gdcmDataSet.h"
#include "gdcmAttribute.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    return 1;
    }
  const char *file1 = argv[1];
  const char *file2 = argv[2];
  const char *file3 = argv[3];

  // Read file1
  gdcm::ImageReader reader1;
  reader1.SetFileName( file1 );
  if( !reader1.Read() )
    {
    return 1;
    }

  // Read file2
  gdcm::ImageReader reader2;
  reader2.SetFileName( file2 );
  if( !reader2.Read() )
    {
    return 1;
    }

  // Ok now let's take the DataSet from file1 and the Image from file2
  // Warning: if file2 is -for example- a Secondary Capture Storage, then it has no
  // Image Orientation (Patient) thus any Image Orientation (Patient) from file1
  // will be discarded...

  // let's be fancy. In case reader2 contains explicit, but reader1 is implicit
  // we would rather see an implicit output
  if( reader1.GetFile().GetHeader().GetDataSetTransferSyntax() == gdcm::TransferSyntax::ImplicitVRLittleEndian )
    {
    reader2.GetImage().SetTransferSyntax( gdcm::TransferSyntax::ImplicitVRLittleEndian );
    }

  gdcm::ImageWriter writer;
  writer.SetFileName( file3 );
  writer.SetFile( reader1.GetFile() );
  // ImageWriter will always use all of gdcm::Image information an override anything wrong from
  // reader1.GetFile(), including the Transfer Syntax
  writer.SetImage( reader2.GetImage() );

  gdcm::DataSet &ds = reader1.GetFile().GetDataSet();

  // Make sure that SOPInstanceUID are different
  // Simply removing it is sufficient as gdcm::ImageWriter will generate one by default
  // if not found.
  ds.Remove( gdcm::Tag(0x0008,0x0018) );
  if( !writer.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.83 MrProtocol.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 *
 */

/*
28 - 'MrProtocol' VM 1, VR UN, SyngoDT 0, NoOfItems 6, Data '### ASCCONV BEGIN ###
ulVersion                                = 0xbee332
tSequenceFileName                        = "%SiemensSeq%\fl_fq_shphs"
tProtocolName                            = "flash+AF8-100+AF8-through-plane+AF8-V"
tReferenceImage0                         = "1.3.12.2.1107.5.2.9.16041.30000007062106100181200004658"
tReferenceImage1                         = "1.3.12.2.1107.5.2.9.16041.30000007062106100181200004635"
tReferenceImage2                         = "1.3.12.2.1107.5.2.9.16041.30000007062106100181200004683"
ucScanRegionPosValid                     = 0x1
sProtConsistencyInfo.tBaselineString     = "N4_VB11A_LATEST_20031004"
sProtConsistencyInfo.flNominalB0         = 1.494
sProtConsistencyInfo.flGMax              = 22
sProtConsistencyInfo.flRiseTime          = 10
sGRADSPEC.sEddyCompensationX.aflAmplitude[0] = 0.0141111
sGRADSPEC.sEddyCompensationX.aflAmplitude[1] = 0.057038
sGRADSPEC.sEddyCompensationX.aflAmplitude[2] = -0.00986504
sGRADSPEC.sEddyCompensationX.aflAmplitude[3] = 0.00247627
sGRADSPEC.sEddyCompensationX.aflAmplitude[4] = 0.0026377
sGRADSPEC.sEddyCompensationX.aflTimeConstant[0] = 1.53826
sGRADSPEC.sEddyCompensationX.aflTimeConstant[1] = 0.746617
sGRADSPEC.sEddyCompensationX.aflTimeConstant[2] = 0.339236
sGRADSPEC.sEddyCompensationX.aflTimeConstant[3] = 0.0309809
sGRADSPEC.sEddyCompensationX.aflTimeConstant[4] = 0.00067694
sGRADSPEC.sEddyCompensationY.aflAmplitude[0] = 0.0156411
sGRADSPEC.sEddyCompensationY.aflAmplitude[1] = 0.0440623
sGRADSPEC.sEddyCompensationY.aflAmplitude[2] = -0.00782663
sGRADSPEC.sEddyCompensationY.aflAmplitude[3] = 0.00186828
sGRADSPEC.sEddyCompensationY.aflAmplitude[4] = 0.00154504
sGRADSPEC.sEddyCompensationY.aflTimeConstant[0] = 1.47145
sGRADSPEC.sEddyCompensationY.aflTimeConstant[1] = 0.750538
sGRADSPEC.sEddyCompensationY.aflTimeConstant[2] = 0.339397
sGRADSPEC.sEddyCompensationY.aflTimeConstant[3] = 0.0312962
sGRADSPEC.sEddyCompensationY.aflTimeConstant[4] = 0.000895133
sGRADSPEC.sEddyCompensationZ.aflAmplitude[0] = 0.00618504
sGRADSPEC.sEddyCompensationZ.aflAmplitude[1] = 0.00313121
sGRADSPEC.sEddyCompensationZ.aflAmplitude[2] = 0.000289346
sGRADSPEC.sEddyCompensationZ.aflAmplitude[3] = -0.00019677
sGRADSPEC.sEddyCompensationZ.aflAmplitude[4] = 7.66445e-005
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[0] = 3.37462
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[1] = 0.999351
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[2] = 0.0174646
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[3] = 0.0110094
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[4] = 0.00199922
sGRADSPEC.bEddyCompensationValid         = 1
sGRADSPEC.sB0CompensationX.aflAmplitude[0] = 0.307474
sGRADSPEC.sB0CompensationX.aflAmplitude[1] = 0.029337
sGRADSPEC.sB0CompensationX.aflAmplitude[2] = -0.187118
sGRADSPEC.sB0CompensationX.aflTimeConstant[0] = 0.98583
sGRADSPEC.sB0CompensationX.aflTimeConstant[1] = 0.0308443
sGRADSPEC.sB0CompensationX.aflTimeConstant[2] = 0.000466792
sGRADSPEC.sB0CompensationY.aflAmplitude[0] = 0.365257
sGRADSPEC.sB0CompensationY.aflAmplitude[1] = -0.318647
sGRADSPEC.sB0CompensationY.aflAmplitude[2] = -0.0118978
sGRADSPEC.sB0CompensationY.aflTimeConstant[0] = 0.61535
sGRADSPEC.sB0CompensationY.aflTimeConstant[1] = 0.488831
sGRADSPEC.sB0CompensationY.aflTimeConstant[2] = 0.00199991
sGRADSPEC.sB0CompensationZ.aflAmplitude[0] = -0.44647
sGRADSPEC.sB0CompensationZ.aflAmplitude[1] = -0.0455154
sGRADSPEC.sB0CompensationZ.aflAmplitude[2] = -0.0304901
sGRADSPEC.sB0CompensationZ.aflTimeConstant[0] = 0.959231
sGRADSPEC.sB0CompensationZ.aflTimeConstant[1] = 0.0720189
```

```
sGRADSPEC.sB0CompensationZ.aflTimeConstant[2] = 0.00190141
sGRADSPEC.bB0CompensationValid           = 1
sGRADSPEC.sCrossTermCompensationXY.aflAmplitude[0] = 0.00105046
sGRADSPEC.sCrossTermCompensationXY.aflTimeConstant[0] = 0.842014
sGRADSPEC.sCrossTermCompensationXZ.aflAmplitude[0] = -0.00150189
sGRADSPEC.sCrossTermCompensationXZ.aflTimeConstant[0] = 0.736169
sGRADSPEC.sCrossTermCompensationYX.aflAmplitude[0] = -5.5278e-005
sGRADSPEC.sCrossTermCompensationYX.aflTimeConstant[0] = 0.228697
sGRADSPEC.sCrossTermCompensationYZ.aflAmplitude[0] = 0.000307999
sGRADSPEC.sCrossTermCompensationYZ.aflTimeConstant[0] = 1.19431
sGRADSPEC.sCrossTermCompensationZX.aflAmplitude[0] = -0.000286868
sGRADSPEC.sCrossTermCompensationZX.aflTimeConstant[0] = 0.665979
sGRADSPEC.sCrossTermCompensationZY.aflAmplitude[0] = 0.000355175
sGRADSPEC.sCrossTermCompensationZY.aflTimeConstant[0] = 0.844189
sGRADSPEC.bCrossTermCompensationValid    = 1
sGRADSPEC.lOffsetX                       = 25
sGRADSPEC.lOffsetY                       = 84
sGRADSPEC.lOffsetZ                       = 47
sGRADSPEC.bOffsetValid                   = 1
sGRADSPEC.lDelayX                        = 12
sGRADSPEC.lDelayY                        = 11
sGRADSPEC.lDelayZ                        = 9
sGRADSPEC.bDelayValid                    = 1
sGRADSPEC.flSensitivityX                 = 0.000264087
sGRADSPEC.flSensitivityY                 = 0.000272009
sGRADSPEC.flSensitivityZ                 = 0.000272677
sGRADSPEC.bSensitivityValid              = 1
sGRADSPEC.alShimCurrent[0]               = 183
sGRADSPEC.alShimCurrent[1]               = -25
sGRADSPEC.alShimCurrent[2]               = -85
sGRADSPEC.alShimCurrent[3]               = 378
sGRADSPEC.alShimCurrent[4]               = 82
sGRADSPEC.bShimCurrentValid              = 1
sGRADSPEC.ucMode                         = 0x2
sTXSPEC.asNucleusInfo[0].tNucleus        = "1H"
sTXSPEC.asNucleusInfo[0].lFrequency      = 63684693
sTXSPEC.asNucleusInfo[0].bFrequencyValid = 1
sTXSPEC.asNucleusInfo[0].flReferenceAmplitude = 359.734
sTXSPEC.asNucleusInfo[0].bReferenceAmplitudeValid = 1
sTXSPEC.asNucleusInfo[0].flAmplitudeCorrection = 1
sTXSPEC.asNucleusInfo[0].bAmplitudeCorrectionValid = 1
sTXSPEC.asNucleusInfo[1].bFrequencyValid = 1
sTXSPEC.asNucleusInfo[1].bReferenceAmplitudeValid = 1
sTXSPEC.asNucleusInfo[1].bAmplitudeCorrectionValid = 1
sTXSPEC.aRFPULSE[0].tName                = "03GreFCE"
sTXSPEC.aRFPULSE[0].bAmplitudeValid      = 0x1
sTXSPEC.aRFPULSE[0].flAmplitude          = 147.095
sTXSPEC.aRFPULSE[1].tName                = "02GreFCE"
sTXSPEC.aRFPULSE[1].bAmplitudeValid      = 0x1
sTXSPEC.aRFPULSE[1].flAmplitude          = 147.095
sTXSPEC.aRFPULSE[2].tName                = "01GreFCE"
sTXSPEC.aRFPULSE[2].bAmplitudeValid      = 0x1
sTXSPEC.aRFPULSE[2].flAmplitude          = 147.095
sTXSPEC.lNoOfTraPulses                   = 3
sTXSPEC.lBTB1ParallelCapacity            = 2
sTXSPEC.lBTB1SerialCapacity              = 24
sTXSPEC.lBTB2ParallelCapacity            = 2
sTXSPEC.lBTB2SerialCapacity              = 26
sTXSPEC.bBTBValid                        = 1
sTXSPEC.flKDynMagnitudeMin               = 0.5
sTXSPEC.flKDynMagnitudeMax               = 1.5
sTXSPEC.flKDynMagnitudeClipLow           = 0.96
sTXSPEC.flKDynMagnitudeClipHigh          = 1.04
sTXSPEC.flKDynPhaseMax                   = 0.698132
sTXSPEC.flKDynPhaseClip                  = 0.174533
sTXSPEC.bKDynValid                       = 1
sTXSPEC.ucRFPulseType                    = 0x1
sTXSPEC.ucExcitMode                      = 0x1
sTXSPEC.ucSimultaneousExcitation         = 0x1
sRXSPEC.lGain                            = 1
sRXSPEC.bGainValid                       = 1
sRXSPEC.aFFT_SCALE[0].lRxChannel         = 1
sRXSPEC.aFFT_SCALE[0].flFactor           = 1.06857
sRXSPEC.aFFT_SCALE[0].bValid             = 1
sRXSPEC.aFFT_SCALE[1].lRxChannel         = 2
sRXSPEC.aFFT_SCALE[1].flFactor           = 1.07454
sRXSPEC.aFFT_SCALE[1].bValid             = 1
sRXSPEC.aFFT_SCALE[2].lRxChannel         = 3
sRXSPEC.aFFT_SCALE[2].flFactor           = 1.06622
sRXSPEC.aFFT_SCALE[2].bValid             = 1
sRXSPEC.aFFT_SCALE[3].lRxChannel         = 4
```

```
sRXSPEC.aFFT_SCALE[3].flFactor           = 1.06524
sRXSPEC.aFFT_SCALE[3].bValid             = 1
sRXSPEC.aFFT_SCALE[4].lRxChannel         = 5
sRXSPEC.aFFT_SCALE[4].flFactor           = 0.982692
sRXSPEC.aFFT_SCALE[4].bValid             = 1
sRXSPEC.aFFT_SCALE[5].lRxChannel         = 6
sRXSPEC.aFFT_SCALE[5].flFactor           = 0.988603
sRXSPEC.aFFT_SCALE[5].bValid             = 1
sRXSPEC.aFFT_SCALE[6].lRxChannel         = 7
sRXSPEC.aFFT_SCALE[6].flFactor           = 0.981538
sRXSPEC.aFFT_SCALE[6].bValid             = 1
sRXSPEC.aFFT_SCALE[7].lRxChannel         = 8
sRXSPEC.aFFT_SCALE[7].flFactor           = 1.00856
sRXSPEC.aFFT_SCALE[7].bValid             = 1
sRXSPEC.bVariCapVoltagesValid            = 1
sRXSPEC.alDwellTime[0]                   = 8500
sAdjFreSpec.ulMode                       = 0x1
sAdjFreSpec.ucAdjWithBC                  = 0x1
sAdjTraSpec.ucAdjWithBC                  = 0x1
sAdjShimSpec.ulMode                      = 0x1
sAdjShimSpec.ucAdjWithBC                 = 0x1
sAdjWatSupSpec.ulMode                    = 0x1
sAdjWatSupSpec.ucAdjWithBC               = 0x1
alTR[0]                                  = 37000
lContrasts                               = 1
alTE[0]                                  = 4000
acFlowComp[0]                            = 1
lCombinedEchoes                          = 1
sSliceArray.asSlice[0].sPosition.dSag    = 35.31199581
sSliceArray.asSlice[0].sPosition.dCor    = -8.387765754
sSliceArray.asSlice[0].sPosition.dTra    = -23.13178296
sSliceArray.asSlice[0].sNormal.dSag      = 0.771051253
sSliceArray.asSlice[0].sNormal.dCor      = 0.5863890019
sSliceArray.asSlice[0].sNormal.dTra      = -0.2482496801
sSliceArray.asSlice[0].dThickness        = 6
sSliceArray.asSlice[0].dPhaseFOV         = 187.5
sSliceArray.asSlice[0].dReadoutFOV       = 250
sSliceArray.lSize                        = 1
sSliceArray.lSag                         = 1
sSliceArray.lConc                        = 1
sSliceArray.ucMode                       = 0x1
sSliceArray.sTSat.dThickness             = 40
sSliceArray.sTSat.dGap                   = 10
sGroupArray.asGroup[0].nSize             = 1
sGroupArray.asGroup[0].dDistFact         = 0.2
sGroupArray.anMember[1]                  = -1
sGroupArray.lSize                        = 1
sGroupArray.sPSat.dThickness             = 50
sGroupArray.sPSat.dGap                   = 10
sAutoAlign.dAAMatrix[0]                  = 1
sAutoAlign.dAAMatrix[5]                  = 1
sAutoAlign.dAAMatrix[10]                 = 1
sAutoAlign.dAAMatrix[15]                 = 1
sNavigatorPara.ucRespComp                = 0x4
sPrepPulses.ucFatSat                     = 0x4
sPrepPulses.ucWaterSat                   = 0x4
sPrepPulses.ucInversion                  = 0x4
sPrepPulses.ucSatRecovery                = 0x1
sPrepPulses.ucFatSatMode                 = 0x2
sKSpace.lBaseResolution                  = 256
sKSpace.lPhaseEncodingLines              = 192
sKSpace.dPhaseResolution                 = 1
sKSpace.lPartitions                      = 32
sKSpace.lImagesPerSlab                   = 32
sKSpace.dSliceResolution                 = 1
sKSpace.ucPhasePartialFourier            = 0x10
sKSpace.ucSlicePartialFourier            = 0x10
sKSpace.ucAveragingMode                  = 0x2
sKSpace.ucMultiSliceMode                 = 0x1
sKSpace.ucDimension                      = 0x2
sKSpace.ucAsymmetricEchoAllowed          = 0x1
sKSpace.unReordering                     = 0x1
sFastImaging.lEPIFactor                  = 1
sFastImaging.lTurboFactor                = 1
sFastImaging.lSegments                   = 3
sFastImaging.ulEnableRFSpoiling          = 0x1
sPhysioImaging.lSignal1                  = 2
sPhysioImaging.lMethod1                  = 2
sPhysioImaging.lSignal2                  = 1
sPhysioImaging.lMethod2                  = 1
sPhysioImaging.lPhases                   = 21
```

```
sPhysioImaging.lRetroGatedImages         = 16
sPhysioImaging.sPhysioECG.lScanWindow    = 805
sPhysioImaging.sPhysioECG.lTriggerPulses = 1
sPhysioImaging.sPhysioECG.lTriggerWindow = 5
sPhysioImaging.sPhysioECG.lArrhythmiaDetection = 1
sPhysioImaging.sPhysioECG.lCardiacGateOnThreshold = 100000
sPhysioImaging.sPhysioECG.lCardiacGateOffThreshold = 700000
sPhysioImaging.sPhysioPulse.lTriggerPulses = 1
sPhysioImaging.sPhysioPulse.lTriggerWindow = 5
sPhysioImaging.sPhysioPulse.lCardiacGateOnThreshold = 100000
sPhysioImaging.sPhysioPulse.lCardiacGateOffThreshold = 700000
sPhysioImaging.sPhysioExt.lTriggerPulses = 1
sPhysioImaging.sPhysioExt.lTriggerWindow = 5
sPhysioImaging.sPhysioExt.lCardiacGateOnThreshold = 100000
sPhysioImaging.sPhysioExt.lCardiacGateOffThreshold = 700000
sPhysioImaging.sPhysioResp.lRespGateThreshold = 20
sPhysioImaging.sPhysioResp.lRespGatePhase = 2
sPhysioImaging.sPhysioResp.dGatingRatio  = 0.3
sSpecPara.lPhaseCyclingType              = 1
sSpecPara.lPhaseEncodingType             = 1
sSpecPara.lRFExcitationBandwidth         = 1
sSpecPara.ucRemoveOversampling           = 0x1
sSpecPara.lDecouplingType                = 1
sSpecPara.lNOEType                       = 1
sSpecPara.lExcitationType                = 1
sSpecPara.lSpectralSuppression           = 1
sDiffusion.ulMode                        = 0x1
sAngio.sFlowArray.asElm[0].nVelocity     = 100
sAngio.sFlowArray.asElm[0].nDir          = 0x4
sAngio.sFlowArray.lSize                  = 1
sAngio.ucPCFlowMode                      = 0x2
sAngio.ucTOFInflow                       = 0x4
sAngio.ucRephasedImage                   = 0x1
sAngio.ucPhaseImage                      = 0x1
sEllipticalFilter.ucMode                 = 0x1
sPat.lAccelFactPE                        = 1
sPat.lAccelFact3D                        = 1
sPat.ucPATMode                           = 0x1
sPat.ucRefScanMode                       = 0x1
ucAutoMovie                              = 0x1
ucDisableChangeStoreImages               = 0x1
ucReconstructionMode                     = 0x1
ucPHAPSMode                              = 0x1
ucDixon                                  = 0x1
lAverages                                = 2
adFlipAngleDegree[0]                     = 30
lScanTimeSec                             = 103
lTotalScanTimeSec                        = 112
dRefSNR                                  = 165404.1473
dRefSNR_VOI                              = 165404.1473
tdefaultEVAProt                          = "%SiemensEvaDefProt%\Inline\Inline.evp"
tcurrentEVAProt                          = "%CURRENTEVAPROT%\EVA2A5.tmp"
sCOIL_SELECT_MEAS.asList[0].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[0].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[0].sCoilElementID.tElement = "PP6"
sCOIL_SELECT_MEAS.asList[0].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[0].lRxChannelConnected = 1
sCOIL_SELECT_MEAS.asList[1].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[1].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[1].sCoilElementID.tElement = "PP5"
sCOIL_SELECT_MEAS.asList[1].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[1].lRxChannelConnected = 1
sCOIL_SELECT_MEAS.asList[2].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[2].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[2].sCoilElementID.tElement = "PP3"
sCOIL_SELECT_MEAS.asList[2].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[2].lRxChannelConnected = 2
sCOIL_SELECT_MEAS.asList[3].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[3].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[3].sCoilElementID.tElement = "PP4"
sCOIL_SELECT_MEAS.asList[3].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[3].lRxChannelConnected = 3
sCOIL_SELECT_MEAS.asList[4].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[4].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[4].sCoilElementID.tElement = "PP2"
sCOIL_SELECT_MEAS.asList[4].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[4].lRxChannelConnected = 4
sCOIL_SELECT_MEAS.asList[5].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[5].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[5].sCoilElementID.tElement = "PP1"
sCOIL_SELECT_MEAS.asList[5].lElementSelected = 1
```

```
sCOIL_SELECT_MEAS.asList[5].lRxChannelConnected = 4
sCOIL_SELECT_MEAS.asList[6].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[6].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[6].sCoilElementID.tElement = "PA6"
sCOIL_SELECT_MEAS.asList[6].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[6].lRxChannelConnected = 5
sCOIL_SELECT_MEAS.asList[7].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[7].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[7].sCoilElementID.tElement = "PA5"
sCOIL_SELECT_MEAS.asList[7].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[7].lRxChannelConnected = 5
sCOIL_SELECT_MEAS.asList[8].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[8].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[8].sCoilElementID.tElement = "PA3"
sCOIL_SELECT_MEAS.asList[8].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[8].lRxChannelConnected = 6
sCOIL_SELECT_MEAS.asList[9].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[9].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[9].sCoilElementID.tElement = "PA4"
sCOIL_SELECT_MEAS.asList[9].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[9].lRxChannelConnected = 7
sCOIL_SELECT_MEAS.asList[10].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[10].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[10].sCoilElementID.tElement = "PA2"
sCOIL_SELECT_MEAS.asList[10].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[10].lRxChannelConnected = 8
sCOIL_SELECT_MEAS.asList[11].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[11].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[11].sCoilElementID.tElement = "PA1"
sCOIL_SELECT_MEAS.asList[11].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[11].lRxChannelConnected = 8
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[0] = 0xff
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[1] = 0x76
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[2] = 0x78
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[3] = 0x87
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[4] = 0x67
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[0] = 0x2
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[1] = 0x2
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[2] = 0x2
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[3] = 0x2
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[4] = 0x2
sEFISPEC.bEFIDataValid                    = 1
### ASCCONV END ###
'
*/

/*
 * Table of equivalence:
 *
ulVersion                                 = 0xbee332
<=>
27 - 'MrProtocolVersion' VM 1, VR IS, SyngoDT 6, NoOfItems 6, Data '12510002'
*/

#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmCSAHeader.h"
#include "gdcmAttribute.h"
#include "gdcmGlobal.h"
#include "gdcmDicts.h"

#include <map>

#include <math.h>

int main(int argc, char *argv [])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }

  gdcm::CSAHeader csa;
```

```
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  //const gdcm::PrivateTag &t1 = csa.GetCSAImageHeaderInfoTag();
  const gdcm::PrivateTag &t2 = csa.GetCSASeriesHeaderInfoTag();

  if( ds.FindDataElement( t2 ) )
    {
    csa.LoadFromDataElement( ds.GetDataElement( t2 ) );
    //csa.Print( std::cout );
    }

  if( !csa.FindCSAElementByName( "MrProtocol" ) )
    {
    return 1;
    }
  const gdcm::CSAElement &csael = csa.GetCSAElementByName( "MrProtocol" );
  //std::cout << csael << std::endl;

  const gdcm::ByteValue *bv = csael.GetByteValue();
  if( !bv )
    {
    return 1;
    }
  std::string str(bv->GetPointer(), bv->GetLength());
  std::istringstream is(str);
  std::string s;
  typedef std::map< std::string, std::string > MyMapType;
  MyMapType mymap;
  while( std::getline(is, s ) )
    {
    std::string::size_type pos = s.find( '=' );
    if( pos != std::string::npos )
      {
      std::string sub1 = s.substr(0, pos);
      sub1.erase( sub1.find_last_not_of(' ') + 1);
      std::string sub2 = s.substr(pos+1); // skip the '=' char
      sub2.erase( 0, sub2.find_first_not_of(' '));
      //std::cout << sub1 << std::endl;
      mymap.insert( MyMapType::value_type(sub1, sub2) );
      }
    else
      {
      // ### ASCCONV BEGIN ###
      // ### ASCCONV END ###
      }
    }
  const char fourierstr[] = "sKSpace.ucSlicePartialFourier";
  const gdcm::CSAHeaderDict &csadict = gdcm::Global::GetInstance().GetDicts().GetCSAHeaderDict();
  const gdcm::CSAHeaderDictEntry &fourier = csadict.GetCSAHeaderDictEntry( fourierstr );
  std::cout << fourier << std::endl;
  MyMapType::const_iterator it = mymap.find ( fourierstr );
  if( it == mymap.end() ) return 1;
  //std::cout << it->second << std::endl;
  const std::string &partial_fourier = it->second;
  if( partial_fourier == "0x1" )
    {
    std::cout << "partial fourier is 4/8" << std::endl;
    }
  else if( partial_fourier == "0x2" )
    {
    std::cout << "partial fourier is 5/8" << std::endl;
    }
  else if( partial_fourier == "0x4" )
    {
    std::cout << "partial fourier is 6/8" << std::endl;
    }
  else if( partial_fourier == "0x8" )
    {
    std::cout << "partial fourier is 7/8" << std::endl;
    }
  else if( partial_fourier == "0x10" )
    {
    std::cout << "partial fourier is 8/8" << std::endl;
    }
  else
    {
    std::cerr << "Impossible: " << partial_fourier << std::endl;
    return 1;
    }
/*
This is the Flip Angle:
```

```
adFlipAngleDegree[0]                    = 30

One can find it also in the protocol:

...
      <ParamFunctor.""TlmapFunctor"">
      {
        <Class> ""TlmapFunctor@IceImagePostProcFunctors""

        <ParamBool.""EXECUTE"">  { }
        <ParamDouble.""Flip1_deg"">  { <Precision> 16  14.7378520000000000  }
...

*/
  // Below is an attempt to play with the CSAHeader dict:
#if 0
  const char gspec[] = "sGRADSPEC.flSensitivityX";
  it = mymap.find( gspec );
  if( it == mymap.end() ) return 1;
  const std::string &dummy = it->second;
  std::cout « dummy « std::endl;

  const gdcm::CSAHeaderDictEntry &csaentry = csadict.GetCSAHeaderDictEntry( gspec );
  std::cout « csaentry  « std::endl;
#endif


/*
    sSliceArray.ucMode -- should be in (1, 2, 4)
    enum SeriesMode
    {
      ASCENDING   = 0x01,
      DESCENDING  = 0x02,
      INTERLEAVED = 0x04
    };
*/
  const char sliceorderstr[] = "sSliceArray.ucMode";
  const gdcm::CSAHeaderDictEntry &sliceorder = csadict.GetCSAHeaderDictEntry( sliceorderstr );
  std::cout « sliceorder « std::endl;

  it = mymap.find ( sliceorderstr );
  if( it == mymap.end() ) return 1;
  const std::string &slice_order = it->second;
  if( slice_order == "0x1" )
    {
    std::cout « "slice_order: ASCENDING" « std::endl;
    }
  else if( slice_order == "0x2" )
    {
    std::cout « "slice_order: DESCENDING" « std::endl;
    }
  else if( slice_order == "0x4" )
    {
    std::cout « "slice_order: INTERLEAVED" « std::endl;
    }
  else
    {
    std::cerr « "Impossible: " « slice_order « std::endl;
    return 1;
    }

  gdcm::MrProtocol mrprot;
  if(  csa.GetMrProtocol(ds, mrprot) )
  {
    std::cout « mrprot « std::endl;
  }

  return 0;
}
```

14.84 PrintLUT.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library
```

```
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=========================================================================*/
/*
 */

#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmImage.h"
#include "gdcmPhotometricInterpretation.h"

#include <iostream>

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " input.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];

  // Instantiate the image reader:
  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }
  const gdcm::Image &image = reader.GetImage();

  const gdcm::LookupTable & lut = image.GetLUT();
  lut.Print( std::cout );

  return 0;
}
```

14.85 PublicDict.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
/*
 * Dummy example to show GDCM Dict(s) API (Part 6) + Collected Private Attributes:
 */

#include "gdcmGlobal.h"
#include "gdcmDicts.h"
#include "gdcmDict.h"
#include "gdcmCSAHeader.h"
#include "gdcmPrivateTag.h"

int main(int , char *[])
{
  const gdcm::Global& g = gdcm::Global::GetInstance(); // sum of all knowledge !
  const gdcm::Dicts &dicts = g.GetDicts();
```

```
  const gdcm::Dict &pub = dicts.GetPublicDict(); // Part 6

  //std::cout « pub « std::endl;

  // 3 different ways to access the same information

  // 1. From the public dict only:
  gdcm::Tag patient_name(0x10,0x10);
  const gdcm::DictEntry &entry1 = pub.GetDictEntry(patient_name);
  std::cout « entry1 « std::endl;

  // 2. From all dicts:
  const gdcm::DictEntry &entry2 = dicts.GetDictEntry(patient_name);
  std::cout « entry2 « std::endl;

  // 3. This solution is the most flexible solution as you can request using the same
  // API either a public tag or a private tag
  const char *strowner = nullptr;
  const gdcm::DictEntry &entry3 = dicts.GetDictEntry(patient_name,strowner);
  std::cout « entry3 « std::endl;

  // Private attributes:

  // try with a private tag now:
  const gdcm::PrivateTag &private_tag = gdcm::CSAHeader::GetCSAImageHeaderInfoTag();
  //std::cout « private_tag « std::endl;
  const gdcm::DictEntry &entry4 = dicts.GetDictEntry(private_tag,private_tag.GetOwner());
  std::cout « entry4 « std::endl;

  // Let's pretend that private lookup is on 0x10xx elements:
  gdcm::PrivateTag dummy = private_tag;
  dummy.SetElement( (uint16_t)(0x1000 + dummy.GetElement()) );
  const gdcm::DictEntry &entry5 = dicts.GetDictEntry(dummy,dummy.GetOwner());
  std::cout « entry5 « std::endl;


  return 0;
}
```

14.86 QIDO-RS.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmJSON.h"

/*
 * Simple QIDO-RS round-trip to test implementation of gdcm::JSON
 * See Sup166 for details
 */
int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  using namespace gdcm;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() ) return 1;

  gdcm::JSON json;
  json.PrettyPrintOn();
  std::stringstream ss;
  const gdcm::File & f = reader.GetFile();
```

```
  json.Code( f.GetDataSet(), ss);

  std::cout « ss.str() « std::endl;

  gdcm::Writer w;
  gdcm::File & ff = w.GetFile();
  ff.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );
  if( !json.Decode(ss, ff.GetDataSet() ) )
    {
    std::cerr « "Could not decode" « std::endl;
    return 1;
    }
  w.SetFileName( "/tmp/debug.dcm" );
  if( !w.Write() ) return 1;

  return 0;
}
```

14.87 ReadAndDumpDICOMDIR.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
/*
 * This example shows how to read and dump a DICOMDIR File
 *
 * Thanks:
 *   Tom Marynowski (lordglub gmail) for contributing this example
 */
#include "gdcmReader.h"
#include "gdcmMediaStorage.h"

typedef std::set<gdcm::DataElement> DataElementSet;
typedef DataElementSet::const_iterator ConstIterator;

int main(int argc, char *argv [])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];

  gdcm::Reader reader;
  reader.SetFileName( filename);
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }
  std::stringstream strm;

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();
  gdcm::FileMetaInformation &fmi = file.GetHeader();

  gdcm::MediaStorage ms;
  ms.SetFromFile(file);
  if( ms != gdcm::MediaStorage::MediaStorageDirectoryStorage )
    {
    std::cout « "This file is not a DICOMDIR" « std::endl;
    return 1;
    }

  if (fmi.FindDataElement( gdcm::Tag (0x0002, 0x0002)))
    {   strm.str("");
    fmi.GetDataElement( gdcm::Tag (0x0002, 0x0002) ).GetValue().Print(strm);
    }
  else
```

```
  {
  std::cerr « " Media Storage Sop Class UID not present" « std::endl;
  }

//TODO il faut trimer strm.str() avant la comparaison au cas ou...
if ("1.2.840.10008.1.3.10"!=strm.str())
  {
  std::cout « "This file is not a DICOMDIR" « std::endl;
  return 1;
  }

ConstIterator it = ds.GetDES().begin();

for( ; it != ds.GetDES().end(); ++it)
  {

  if (it->GetTag()==gdcm::Tag (0x0004, 0x1220))
    {

    const gdcm::DataElement &de = (*it);
    // ne pas utiliser GetSequenceOfItems pour extraire les items
    gdcm::SmartPointer<gdcm::SequenceOfItems> sqi =de.GetValueAsSQ();
    unsigned int itemused = 1;
    while (itemused<=sqi->GetNumberOfItems())

      {
      strm.str("");

      if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1430)))
        sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1430)).GetValue().Print(strm);

      //TODO il faut trimer strm.str() avant la comparaison
      while((strm.str()=="PATIENT")||((strm.str()=="PATIENT ")))
        {
        std::cout « strm.str() « std::endl;
        strm.str("");
        if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0010, 0x0010)))
          sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0010, 0x0010)).GetValue().Print(strm);
        std::cout « "PATIENT NAME : " « strm.str() « std::endl;


        //PATIENT ID
        strm.str("");
        if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0010, 0x0020)))
          sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0010, 0x0020)).GetValue().Print(strm);
        std::cout « "PATIENT ID : " « strm.str() « std::endl;

        /*ADD TAG TO READ HERE*/
        std::cout « "============================ "  « std::endl;
        itemused++;
        strm.str("");
        if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1430)))
          sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1430)).GetValue().Print(strm);

        //TODO il faut trimer strm.str() avant la comparaison
        while((strm.str()=="STUDY")||((strm.str()=="STUDY ")))
          {
          std::cout « "   " « strm.str() « std::endl;
          //UID
          strm.str("");
          if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0020, 0x000d)))
            sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0020, 0x000d)).GetValue().Print(strm);
          std::cout « "       STUDY UID : " « strm.str() « std::endl;

          //STUDY DATE
          strm.str("");
          if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0008, 0x0020)))
            sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0008, 0x0020)).GetValue().Print(strm);
          std::cout « "       STUDY DATE : " « strm.str() « std::endl;

          //STUDY DESCRIPTION
          strm.str("");
          if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0008, 0x1030)))
            sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0008, 0x1030)).GetValue().Print(strm);
          std::cout « "       STUDY DESCRIPTION : " « strm.str() « std::endl;

          /*ADD TAG TO READ HERE*/
          std::cout « "       " « "============================ "  « std::endl;

          itemused++;
          strm.str("");
```

```
            if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1430)))
              sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1430)).GetValue().Print(strm);

            //TODO il faut trimer strm.str() avant la comparaison
            while((strm.str()=="SERIES")||((strm.str()=="SERIES ")))
              {
              std::cout « "      " « strm.str() « std::endl;
              strm.str("");
              if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0020, 0x000e)))
                sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0020, 0x000e)).GetValue().Print(strm);
              std::cout « "          SERIE UID" « strm.str() « std::endl;

              //SERIE MODALITY
              strm.str("");
              if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0008, 0x0060)))
                sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0008, 0x0060)).GetValue().Print(strm);
              std::cout « "          SERIE MODALITY" « strm.str() « std::endl;

              //SERIE DESCRIPTION
              strm.str("");
              if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0008, 0x103e)))
                sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0008, 0x103e)).GetValue().Print(strm);
              std::cout « "          SERIE DESCRIPTION" « strm.str() « std::endl;


              /*ADD TAG TO READ HERE*/

              std::cout « "          " « "========================== "  « std::endl;
              itemused++;
              strm.str("");
              if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1430)))
                sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1430)).GetValue().Print(strm);


              //TODO il faut trimer strm.str() avant la comparaison
              while ((strm.str()=="IMAGE")||((strm.str()=="IMAGE ")))
                // if(tmp=="IMAGE")
                {
                std::cout « "          " « strm.str() « std::endl;


                //UID
                strm.str("");
                if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1511)))
                  sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1511)).GetValue().Print(strm);
                std::cout « "              IMAGE UID : " « strm.str() « std::endl;

                //PATH de l'image
                strm.str("");
                if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1500)))
                  sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1500)).GetValue().Print(strm);
                std::cout « "              IMAGE PATH : " « strm.str() « std::endl;
                /*ADD TAG TO READ HERE*/



                if(itemused < sqi->GetNumberOfItems())
                  {itemused++;
                  }else{break;}

                strm.str("");

                if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1430)))
                  sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1430)).GetValue().Print(strm);

                }
              }
            }
          }
        itemused++;
        }
      }
    }
  return 0;
}
```

14.88 ReadAndDumpDICOMDIR2.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
/*
 * This example shows how to read and dump a DICOMDIR File
 *
 * Thanks:
 *   Tom Marynowski (lordglub gmail) for contributing the original
 *    ReadAndDumpDICOMDIR.cxx example
 *   Mihail Isakov for contributing offset calculation code here:
 *    https://sourceforge.net/p/gdcm/mailman/gdcm-developers/?viewmonth=201707&viewday=15
 *   Tod Baudais for combining the above and cleaning up this example
 */

#include <string>
#include <unordered_map>
#include <iostream>
#include <memory>

#include "gdcmReader.h"
#include "gdcmAttribute.h"
#include "gdcmDirectory.h"

//============================================================================
//============================================================================

#define TAG_MEDIA_STORAGE_SOP_CLASS_UID 0x0002,0x0002
#define TAG_DIRECTORY_RECORD_SEQUENCE 0x0004,0x1220
#define TAG_DIRECTORY_RECORD_TYPE 0x0004,0x1430
#define TAG_PATIENTS_NAME 0x0010,0x0010
#define TAG_PATIENT_ID 0x0010,0x0020
#define TAG_STUDY_DATE 0x0008,0x0020
#define TAG_STUDY_DESCRIPTION 0x0008,0x1030
#define TAG_MODALITY 0x0008,0x0060
#define TAG_SERIES_DESCRIPTION 0x0008,0x103E
#define TAG_REFERENCED_FILE_ID 0x0004,0x1500
#define TAG_REFERENCED_LOWER_LEVEL_DIRECTORY_ENTITY_OFFSET 0x0004,0x1420
#define TAG_NEXT_DIRECTORY_RECORD_OFFSET 0x0004,0x1400

//============================================================================
// Some handy utility functions
//============================================================================

std::string left_trim(const std::string &s) {
    std::string ss(s);
    ss.erase(ss.begin(), std::find_if(ss.begin(), ss.end(), std::not1(std::ptr_fun<int, int>(std::isspace))));
    return ss;
}

std::string right_trim(const std::string &s) {
    std::string ss(s);
    ss.erase(std::find_if(ss.rbegin(), ss.rend(), std::not1(std::ptr_fun<int, int>(std::isspace))).base(),
      ss.end());
    return ss;
}

std::string trim(const std::string &s) {
    return left_trim(right_trim(s));
}

//============================================================================
// This code could be put in a header file somewhere
//============================================================================

class DICOMDIRReader {
    public:
                                DICOMDIRReader      (void) {}
                                DICOMDIRReader      (const DICOMDIRReader &rhs) = delete;
```

```
                            DICOMDIRReader      (DICOMDIRReader &&rhs) = delete;
    DICOMDIRReader &        operator =          (const DICOMDIRReader &rhs) = delete;
    DICOMDIRReader &        operator =          (DICOMDIRReader &&rhs) = delete;
    virtual                 ~DICOMDIRReader     (void) {}

public:
    struct Common {
        int64_t child_offset;
        int64_t sibling_offset;
    };

    struct Image: public Common {
        std::string path;
    };

    struct Series: public Common {
        std::string modality;
        std::string description;

        std::vector<std::shared_ptr<Image>> children;
    };

    struct Study: public Common {
        std::string date;
        std::string description;

        std::vector<std::shared_ptr<Series>> children;
    };

    struct Patient: public Common {
        std::string name;
        std::string id;

        std::vector<std::shared_ptr<Study>> children;
    };

    struct Other: public Common {
    };

    const std::vector<std::shared_ptr<Patient>>&    load        (const std::string &path);

    const std::vector<std::shared_ptr<Patient>>&    patients    (void)  {   return _patients;   }

private:

    template <class T>
    std::string     get_string              (const T &ds, const gdcm::Tag &tag)
    {
        std::stringstream strm;
        if (ds.FindDataElement(tag)) {
            auto &de = ds.GetDataElement(tag);
            if (!de.IsEmpty() && !de.IsUndefinedLength())
                de.GetValue().Print(strm);
        }
        return trim(strm.str());
    }

    template <class P, class C, class O>
    void            reassemble_hierarchy    (P &parent_offsets, C &child_offsets, O &other_offsets)
    {
        for (auto &parent : parent_offsets) {
            int64_t sibling_offset;
            auto c = child_offsets[parent.second->child_offset];
            if (!c) {
                auto o = other_offsets[parent.second->child_offset];
                if (!o) {
                    continue;
                } else {
                    sibling_offset = o->sibling_offset;
                }
            } else {
                parent.second->children.push_back(c);
                sibling_offset = c->sibling_offset;
            }

            // Get all siblings
            while (sibling_offset) {
                c = child_offsets[sibling_offset];
                if (!c) {
                    auto o = other_offsets[sibling_offset];
                    if (!o) {
```

```
                            break;
                        } else {
                            sibling_offset = o->sibling_offset;
                        }
                    } else {
                        parent.second->children.push_back(c);
                        sibling_offset = c->sibling_offset;
                    }
                }
            }
        }

        std::vector<std::shared_ptr<Patient> _patients;
};

//=============================================================================
// This code could be put in an implementation file somewhere
//=============================================================================

const std::vector<std::shared_ptr<DICOMDIRReader::Patient>& DICOMDIRReader::load (const std::string &path)
{
    _patients.clear();

    //
    // Read the dataset from the DICOMDIR file
    //

    gdcm::Reader reader;
    reader.SetFileName(path.c_str());
    if(!reader.Read()) {
        throw std::runtime_error("Unable to read file");
    }

    // Retrieve information from file
    auto &file = reader.GetFile();
    auto &data_set = file.GetDataSet();
    auto &file_meta_information = file.GetHeader();

    // Retrieve and check the Media Storage class from file
    gdcm::MediaStorage media_storage;
    media_storage.SetFromFile(file);
    if(media_storage != gdcm::MediaStorage::MediaStorageDirectoryStorage) {
        throw std::runtime_error("This file is not a DICOMDIR");
    }

    auto media_storage_sop_class_uid = get_string(file_meta_information,
      gdcm::Tag(TAG_MEDIA_STORAGE_SOP_CLASS_UID));

    // Make sure we have a DICOMDIR file
    if (media_storage_sop_class_uid != "1.2.840.10008.1.3.10") {
        throw std::runtime_error("This file is not a DICOMDIR");
    }

    //
    // Offset to first item courtesy of Mihail Isakov
    //

    gdcm::VL first_item_offset = 0;
    auto it = data_set.Begin();
    for(; it != data_set.End() && it->GetTag() != gdcm::Tag(TAG_DIRECTORY_RECORD_SEQUENCE); ++it) {
        first_item_offset += it->GetLength<gdcm::ExplicitDataElement>();
    }
    // Tag (4 bytes)
    first_item_offset += it->GetTag().GetLength();
    // VR field
    first_item_offset += it->GetVR().GetLength();
    // VL field
    // For Explicit VR: adventitiously VL field length = VR field length,
    // for SQ 4 bytes:
    // http://dicom.nema.org/medical/dicom/current/output/html/part05.html#table_7.1-1
    first_item_offset += it->GetVR().GetLength();

    //
    // Iterate all data elements
    //

    // For each item in data set
    for(auto data_element : data_set.GetDES()) {

        // Only look at Directory sequence
        if (data_element.GetTag() != gdcm::Tag(TAG_DIRECTORY_RECORD_SEQUENCE))
```

```
        continue;

    auto item_sequence = data_element.GetValueAsSQ();
    auto num_items = item_sequence->GetNumberOfItems();

    //
    // Compute an offset table
    //

    // Start calculation of offset to each item courtesy of Mihail Isakov
    std::vector<int64_t> item_offsets(num_items+1);
    item_offsets[0] = file_meta_information.GetFullLength() + static_cast<int64_t>(first_item_offset);

    //
    // Extract out all of the items
    //

    std::unordered_map<int64_t, std::shared_ptr<Patient» patient_offsets;
    std::unordered_map<int64_t, std::shared_ptr<Study» study_offsets;
    std::unordered_map<int64_t, std::shared_ptr<Series» series_offsets;
    std::unordered_map<int64_t, std::shared_ptr<Image» image_offsets;
    std::unordered_map<int64_t, std::shared_ptr<Other» other_offsets;

    for (uint32_t item_index = 1; item_index <= num_items; ++item_index) {
        auto &item = item_sequence->GetItem(item_index);

        // Add offset for item to offset table
        item_offsets[item_index] = item_offsets[item_index-1] + item.GetLength<gdcm::ExplicitDataElement>();

        // Child offset
        gdcm::Attribute<TAG_REFERENCED_LOWER_LEVEL_DIRECTORY_ENTITY_OFFSET> child_offset;
        child_offset.SetFromDataElement(item.GetDataElement(gdcm::Tag
(TAG_REFERENCED_LOWER_LEVEL_DIRECTORY_ENTITY_OFFSET)));

        // Sibling offset
        gdcm::Attribute<TAG_NEXT_DIRECTORY_RECORD_OFFSET> sibling_offset;
        sibling_offset.SetFromDataElement(item.GetDataElement(gdcm::Tag
(TAG_NEXT_DIRECTORY_RECORD_OFFSET)));

        // Record Type
        auto record_type = trim(get_string(item, gdcm::Tag (TAG_DIRECTORY_RECORD_TYPE)));

        // std::cout « "record_type " « record_type « " at " « item_offsets[item_index-1] « std::endl;
        // std::cout « " child_offset " « child_offset.GetValue() « std::endl;
        // std::cout « " sibling_offset " « sibling_offset.GetValue() « std::endl;

        // Extract patient information
        if (record_type == "PATIENT") {
            auto patient = std::make_shared<Patient>();
            patient->name = get_string(item, gdcm::Tag (TAG_PATIENTS_NAME));
            patient->id = get_string(item, gdcm::Tag (TAG_PATIENT_ID));

            patient->child_offset = child_offset.GetValue();
            patient->sibling_offset = sibling_offset.GetValue();
            patient_offsets[item_offsets[item_index-1]] = patient;

        // Extract study information
        } else if (record_type == "STUDY") {
            auto study = std::make_shared<Study>();
            study->date = get_string(item, gdcm::Tag (TAG_STUDY_DATE));
            study->description = get_string(item, gdcm::Tag (TAG_STUDY_DESCRIPTION));

            study->child_offset = child_offset.GetValue();
            study->sibling_offset = sibling_offset.GetValue();
            study_offsets[item_offsets[item_index-1]] = study;

        // Extract series information
        } else if (record_type == "SERIES") {
            auto series = std::make_shared<Series>();
            series->modality = get_string(item, gdcm::Tag (TAG_MODALITY));
            series->description = get_string(item, gdcm::Tag (TAG_SERIES_DESCRIPTION));

            series->child_offset = child_offset.GetValue();
            series->sibling_offset = sibling_offset.GetValue();
            series_offsets[item_offsets[item_index-1]] = series;

        // Extract image information
        } else if (record_type == "IMAGE") {
            auto image = std::make_shared<Image>();
```

```
                image->path = get_string(item, gdcm::Tag (TAG_REFERENCED_FILE_ID));

                image->child_offset = child_offset.GetValue();
                image->sibling_offset = sibling_offset.GetValue();
                image_offsets[item_offsets[item_index-1]] = image;
            } else {
                auto other = std::make_shared<Other>();

                other->child_offset = child_offset.GetValue();
                other->sibling_offset = sibling_offset.GetValue();
                other_offsets[item_offsets[item_index-1]] = other;
            }
        }

        // Check validity
        if (patient_offsets.size() == 0)
            throw std::runtime_error("Unable to find patient record");

        reassemble_hierarchy(series_offsets, image_offsets, other_offsets);
        reassemble_hierarchy(study_offsets, series_offsets, other_offsets);
        reassemble_hierarchy(patient_offsets, study_offsets, other_offsets);

        // Set the new root
        for (auto &patient : patient_offsets) {
            _patients.push_back(patient.second);
        }
    }

    return _patients;
}

//=============================================================================
// Quick test
//=============================================================================

int main(int argc, const char *argv[]) {
    DICOMDIRReader reader;

    try {
        if (argc != 2)
            throw std::runtime_error("Wrong number of arguments");

        auto &patients = reader.load(argv[1]);

        for (auto &patient : patients) {

            std::cout « "PATIENT" « std::endl;
            std::cout « "NAME: " « patient->name « std::endl;
            std::cout « "ID: " « patient->id « std::endl;

            int x = 0;
            for (auto &study : patient->children) {
                std::cout « "    STUDY" « std::endl;
                std::cout « "    DESCRIPTION: " « study->description « std::endl;
                std::cout « "    DATE: " « study->date « std::endl;

                for (auto &series : study->children) {
                    x+=1;
                    std::cout « "        SERIES " « x « std::endl;
                    std::cout « "        DESCRIPTION: " « series->description « std::endl;
                    std::cout « "        MODALITY: " « series->modality « std::endl;

                    for (auto &image : series->children) {
                        std::cout « "            IMAGE PATH: " « image->path « std::endl;
                    }
                }
            }
        }
    }
    catch (...) {
        // TODO handle this
        return EXIT_FAILURE;
    }

    return EXIT_SUCCESS;
}
```

14.89 ReadAndPrintAttributes.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
/*
 * This small example will show how one can read and print
 * a DICOM Attribute using different technique (by tag or by name)
 */

#include "gdcmReader.h"
#include "gdcmGlobal.h"
#include "gdcmDicts.h"
#include "gdcmDict.h"
#include "gdcmAttribute.h"
#include "gdcmStringFilter.h"

#include <iostream>

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " input.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];

  // Instantiate the reader:
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }

  // The output of gdcm::Reader is a gdcm::File
  gdcm::File &file = reader.GetFile();

  // the dataset is the the set of element we are interested in:
  gdcm::DataSet &ds = file.GetDataSet();

  const gdcm::Global& g = gdcm::Global::GetInstance();
  const gdcm::Dicts &dicts = g.GetDicts();
  const gdcm::Dict &pubdict = dicts.GetPublicDict();

  using namespace gdcm;

  // In this example we will show why using name to lookup attribute can be
  // dangerous.
  Tag tPatientName(0x0,0x0);
  //const DictEntry &de1 =
  pubdict.GetDictEntryByName("Patient Name", tPatientName);

  std::cout « "Found: " « tPatientName « std::endl;

  // Indeed the attribute could not be found. Since DICOM 2003, Patient Name
  // has become Patient's Name.

  Tag tPatientsName;
  //const DictEntry &de2 =
  pubdict.GetDictEntryByName("Patient's Name", tPatientsName);

  std::cout « "Found: " « tPatientsName « std::endl;

  // Let's try to read an arbitrary DICOM Attribute:
  Tag tDoseGridScaling;
  //const DictEntry &de3 =
```

```
  pubdict.GetDictEntryByName("Dose Grid Scaling", tDoseGridScaling);

  std::cout « "Found: " « tDoseGridScaling « std::endl;

  if( ds.FindDataElement( tDoseGridScaling ) )
    {
    gdcm::StringFilter sf;
    sf.SetFile(file);
    std::cout « "Attribute Value as String: " « sf.ToString( tDoseGridScaling ) « std::endl;

    // Let's check the name again:
    std::pair<std::string, std::string> pss
      = sf.ToStringPair( tDoseGridScaling );
    std::cout « "Attribute Name Checked: " « pss.first « std::endl;
    std::cout « "Attribute Value (string): " « pss.second « std::endl;

    //const DataElement &dgs = ds.GetDataElement( tDoseGridScaling );

    // Let's assume for a moment we knew the tag number:
    Attribute<0x3004,0x000e> at;
    assert( at.GetTag() == tDoseGridScaling );
    at.SetFromDataSet( ds );
    // For the sake of long term maintenance, we will not write
    // that this particular attribute is stored as a double. What if
    // a user made a mistake. It is much safer to rely on GDCM internal
    // mechanism to deduce the VR::DS type (represented as a ieee double)
    Attribute<0x3004,0x000e>::ArrayType v = at.GetValue();
    std::cout « "DoseGridScaling=" « v « std::endl;
    }

  return 0;
}
```

14.90 ReadExplicitLengthSQIVR.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
#include "gdcmByteValue.h"
#include "gdcmDataSet.h"
#include "gdcmImplicitDataElement.h"
#include "gdcmPrivateTag.h"
#include "gdcmReader.h"
#include "gdcmSequenceOfItems.h"

using namespace gdcm;

int main(int argc, char *argv[])
{
  if ( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader r;
  r.SetFileName( filename );
  r.Read();


  //gdcm::PrivateTag pt(0xe1,0x42,"ELSCINT1");
  //gdcm::Tag pt(0x88,0x200);
  gdcm::Tag pt(0x8,0x1140);
  DataSet &ds = r.GetFile().GetDataSet();
  const DataElement &de = ds.GetDataElement( pt );

  std::cout « de « std::endl;
  const ByteValue *bv = de.GetByteValue();
  SmartPointer<SequenceOfItems> sqi = new SequenceOfItems;
  sqi->SetLength( bv->GetLength() );
```

```
  std::stringstream ss;
  ss.str( std::string( bv->GetPointer(), bv->GetLength() ) );
  sqi->Read<ImplicitDataElement,SwapperNoOp>( ss );

  std::cout « *sqi « std::endl;

  return 0;
}
```

14.91 ReadGEMSSDO.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
#include "gdcmReader.h"
#include "gdcmDataElement.h"
#include "gdcmPrivateTag.h"

#include <iostream>
#include <string>

using namespace gdcm;

struct SDOElement
{
  typedef std::vector<std::string>::size_type SizeType;
  const char *GetData(SizeType index) const {
    return Data[index].c_str();
  }
  SizeType GetNumberOfData() const {
    return Data.size();
  }
  void SetData(SizeType index, const char *data) {
    Data[index] = data;
  }
  const char *GetDataFormat() const {
    return DataFormat.c_str();
  }
  void SetDataFormat(const char *dataformat, SizeType num) {
    DataFormat = dataformat;
    Data.resize( num );
  }
  void Print( std::ostream &os ) const {
    os « DataFormat « ":" « std::endl;
    std::vector<std::string>::const_iterator it = Data.begin();
    size_t s = 0;
    for( ; it != Data.end(); ++it )
      {
      os « "  (" « s++ « ") " « *it « std::endl;
      }
  }
private:
  std::string DataFormat;
  std::vector<std::string> Data;
};

class SDOHeader
{
public:
  typedef std::vector<SDOElement> SDOElements;
  typedef SDOElements::size_type SizeType;
  SizeType GetNumberOfSDOElements() const {
  return InternalSDODataSet.size();
  }
  void AddSDOElement(SDOElement const &sdoelement) {
  InternalSDODataSet.push_back( sdoelement );
```

```
  }
  const SDOElement &GetSDOElement(SizeType index) const {
  return InternalSDODataSet[index];
  }
  const SDOElement &GetSDOElementByName(const char *) const {
    return InternalSDODataSet[0];
  }
  void LoadFromAttributes(std::string const &s1, std::string const &s2)
    {
  std::string tok;
  std::string tok2;
  std::stringstream strstr(s1);
  std::stringstream strstr2(s2);

  SDOElement element;
  // Do format
  size_t count = 0;
  while ( std::getline ( strstr2, tok, '\\' ) )
    {
    //std::cout << tok << " ";
    std::getline ( strstr2, tok2, '\\' );
    //std::cout << tok2 << std::endl;
    count += atoi( tok2.c_str() );
    element.SetDataFormat( tok.c_str(), atoi( tok2.c_str() ) );
    for( size_t t = 0; t < element.GetNumberOfData(); ++t )
      {
      std::getline ( strstr, tok, '\\' );
      element.SetData(t, tok.c_str() );
      }
    AddSDOElement( element );
    }
  //while ( std::getline ( strstr, tok, '^' ) )
//  while ( std::getline ( strstr, tok, '\\' ) )
//    {
//    std::cout << tok << std::endl;
//    count++;
//    }
//  std::cout << "Count: " << count << std::endl;
//  count = 0;

//  std::cout << "Count: " << count << std::endl;

    }
  void Print( std::ostream &os ) const {
    SDOElements::const_iterator it = InternalSDODataSet.begin();
    for( ; it != InternalSDODataSet.end(); ++it )
      {
      it->Print ( os );
      }
  }
private:
  SDOElements InternalSDODataSet;
};

bool sdo_decode( DataElement const &stringdata, DataElement const &stringdataformat )
{
  const char *sd = stringdata.GetByteValue()->GetPointer();
  const size_t len_sd = stringdata.GetByteValue()->GetLength();

  std::string s1 = std::string( sd, len_sd );

  const char *sdf = stringdataformat.GetByteValue()->GetPointer();
  const size_t len_sdf = stringdataformat.GetByteValue()->GetLength();

  std::string s2 = std::string( sdf, len_sdf );

//  std::cout << s1 << std::endl;
//  std::cout << s2 << std::endl;

  SDOHeader header;
  header.LoadFromAttributes( s1, s2 );

  header.Print( std::cout );

  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
```

```
    std::cerr « argv[0] « " input.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  File &file = reader.GetFile();
  DataSet &ds = file.GetDataSet();

  // StringData (0033,xx1F) 3 "GEMS_GENIE_1" List of SDO parameters stored as
  // list of strings
  const PrivateTag tstringdata(0x33,0x1f,"GEMS_GENIE_1");
  // StringDataFormat (0033,xx23) 3 "GEMS_GENIE_1" Format of string parameters;
  // contains information about name and number of strings in list
  const PrivateTag tstringdataformat(0x33,0x23,"GEMS_GENIE_1");

  if( !ds.FindDataElement( tstringdata ) ) return 1;
  const DataElement& stringdata = ds.GetDataElement( tstringdata );
  if( !ds.FindDataElement( tstringdataformat ) ) return 1;
  const DataElement& stringdataformat = ds.GetDataElement( tstringdataformat );

  sdo_decode( stringdata, stringdataformat );

  return 0;
}
```

14.92 ReadMultiTimesException.cxx

```
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=========================================================================*/
// The intention of this sample program is to provoke bad_alloc exceptions in gdcm code

#include "gdcmImageReader.h"

int main(int argc, char* argv[])
{
  // We pre-allocate some memory (about 1Gb) to help the issue to show up earlier
  char *dummyBuffer = new char[1024*1024*1100]; (void)dummyBuffer;
  // Check the number of parameters given
  if (argc < 3)
    {
    std::cerr « "Usage: " « argv[0] « " Filename numberOfTries" « std::endl;
    return 1;
    }

  std::cout « "We are going to read the file: " « argv[1] « " " « argv[2] « " times" « std::endl;
  // We hold the pointers in an array to avoid the memory to be released
  // We read the input file n-times
  for (int i = 0; i < atoi(argv[2]); ++i)
    {
    gdcm::ImageReader reader;
    std::cout « "Reading try: " « i « std::endl;
    // Read files
    reader.SetFileName(argv[1]);
    try
      {
      reader.Read();
      gdcm::Image & img = reader.GetImage();
      unsigned long len = img.GetBufferLength();
      char *buffer = new char[ len ];
```

```
      img.GetBuffer( buffer ); // do NOT de-allocate buffer !
      }
    catch (std::bad_alloc &ba)
      {
      (void)ba;
      std::cerr « "BAD ALLOC Exception caught!" « std::endl;
      }
    catch (...)
      {
      std::cerr « "Exception caught!" « std::endl;
      }
    }

  return 0;
}
```

14.93 ReadUTF8QtDir.cxx

```
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=========================================================================*/
/*
 * GDCM API expect a const char * as input for SetFileName
 * In order to use this API from Qt, here is a simple test that
 * shows how to do it in a portable manner:
 *
 * http://doc.qt.nokia.com/latest/qdir.html#navigation-and-directory-operations
 */

#include "gdcmReader.h"
#include "gdcmDirectory.h"

#include <QDir>
#include <QString>
#include <QCoreApplication>

#include <string>
#include <fstream>

#include <stdio.h> // fopen

static int TestBothFuncs(const char *info , const char *ba_str)
{
  int res = 0;
  FILE *f = fopen( ba_str, "r" );
  if( f )
    {
    std::cout « info « " fopen: " « ba_str « std::endl;
    fclose(f);
    ++res;
    }
  gdcm::Reader reader;
  std::ifstream is( ba_str, std::ios::binary );
  if( is.is_open() )
    {
    std::cout « info « " is_open: " « ba_str « std::endl;
    ++res;
    }
  reader.SetStream( is );
  if( reader.CanRead() == true )
    {
    std::cout « info « " SetStream/CanRead:" « ba_str « std::endl;
    ++res;
    }
  is.close();
  reader.SetFileName( ba_str );
```

```
  if( reader.CanRead() == true )
    {
    std::cout « info « " SetFileName/CanRead:" « ba_str « std::endl;
    ++res;
    }
  return 4 - res;
}

static int scanFolder(const char dirname[])
{
  int res = 0;
  gdcm::Directory dir;
  unsigned int nfiles = dir.Load( dirname, true );
  const gdcm::Directory::FilenamesType &filenames = dir.GetFilenames();

  for( unsigned int i = 0; i < nfiles; ++i )
    {
    const char *ba_str = filenames[i].c_str();
    res += TestBothFuncs("GDCM",ba_str);
    }
  return res;
}

static int scanFolderQt(QDir const &dir, QStringList& files)
{
  int res = 0;
  QFileInfoList children = dir.entryInfoList(QDir::AllEntries|QDir::NoDotAndDotDot);
  for ( int i=0; i<children.count(); i++ ) {
    QFileInfo file = children.at(i);
    if ( file.isDir() == true ) {
      res += scanFolderQt(QDir(file.absoluteFilePath()), files);
      continue;
    }
    // Convert back from the internal representation to 8bits
    // toLocal8Bit() returns by copy. Need to store explicitly the QByteArray
    QByteArray str = file.absoluteFilePath().toLocal8Bit();
    const char *ba_str1 = str.constData();
    res += TestBothFuncs("QString", ba_str1);
    }
  return res;
}

int main(int argc, char *argv[])
{
  // very important:
  QCoreApplication qCoreApp( argc , argv );
  if( argc < 2 )
    {
    std::cerr « argv[0] « " dir " « std::endl;
    return 1;
    }

  int res = 0;
  const char *dirname = argv[1];
  res += scanFolder( dirname );

  QDir dir( QString::fromLocal8Bit(dirname) );
  QStringList files;
  res += scanFolderQt( dir, files);

  if( res )
    std::cerr « "Problem with UTF-8" « std::endl;
  else
    std::cerr « "Success with UTF-8" « std::endl;

  return res;
}
```

14.94 SimpleScanner.cxx

```
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=========================================================================*/
/*
 * Simple example to show how to use Scanner API.
 * It exposes the three different cases:
 *  - DICOM Attribute is present and has a value
 *  - DICOM Attribute is present and has no value
 *  - DICOM Attribute is not present at all
 * It also shows the purpose of the function 'IsKey' to detect whether or
 * not the file has been read by the gdcm::Scanner. Technically most of the time
 * if a file is not a 'Key' this is because it is not a DICOM file. You need to use
 * gdcm::System::FileExists to decide whether or not the file actually exist on the disk.
 *
 * It was tested on this particular image:
 * ./SimpleScanner gdcmData/012345.002.050.dcm
 */

#include "gdcmStrictScanner.h"
#include "gdcmSimpleSubjectWatcher.h"
#include "gdcmFileNameEvent.h"

class MyFileWatcher : public gdcm::SimpleSubjectWatcher
{
public:
  MyFileWatcher(gdcm::Subject * s, const char *comment = ""):
    gdcm::SimpleSubjectWatcher(s,comment){}
  void ShowFileName(gdcm::Subject *, const gdcm::Event &evt) override
    {
    const gdcm::FileNameEvent &pe = dynamic_cast<const gdcm::FileNameEvent&>(evt);
    const char *fn = pe.GetFileName();
    std::cout « "FileName: " « fn « " FileSize: " « gdcm::System::FileSize( fn ) « std::endl;
    }
};

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    return 1;
    }
  const char *filename = argv[1];
  const char filename_invalid[] = "this is a file that may not exist on this disk.dcm";


  gdcm::SmartPointer<gdcm::StrictScanner> sp = new gdcm::StrictScanner;
  gdcm::StrictScanner &s = *sp;
  //gdcm::SimpleSubjectWatcher w(&s, "TestFileName" );
  MyFileWatcher w(&s, "TestFileName" );

  const gdcm::Tag tag_array[] = {
    gdcm::Tag(0x8,0x50),
    gdcm::Tag(0x8,0x51),
    gdcm::Tag(0x8,0x60),
    gdcm::Tag(0x8,0x80),
  };
  s.AddTag( tag_array[0] );
  s.AddTag( tag_array[1] );
  s.AddTag( tag_array[2] );
  s.AddTag( tag_array[3] );

  gdcm::Directory::FilenamesType filenames;
  filenames.push_back( filename );
  filenames.push_back( filename_invalid );

  if( !s.Scan( filenames ) )
    {
    return 1;
    }

  //s.Print( std::cout );


  for(gdcm::Directory::FilenamesType::const_iterator it = filenames.begin();
    it != filenames.end(); ++it )
    {
    if( s.IsKey( it->c_str() ) )
```

```
      {
      std::cout « "INFO:" « it->c_str() « " is a proper Key for the Scanner (this is a DICOM file)" « std::endl;
      }
    else
      {
      std::cout « "INFO:" « it->c_str() « " is not a proper Key for the Scanner (this is either not a DICOM file
      or file does not exist)" « std::endl;
      }
    }

  gdcm::StrictScanner::TagToValue const &ttv = s.GetMapping(filename);

  const gdcm::Tag *ptag = tag_array;
  for( ; ptag != tag_array + 3; ++ptag )
    {
    gdcm::StrictScanner::TagToValue::const_iterator it = ttv.find( *ptag );
    if( it != ttv.end() )
      {
      std::cout « *ptag « " was properly found in this file" « std::endl;
      // it contains a pair of value. the first one is the actual tag, so the following is always true:
      //  *ptag == it->first
      // The second part is the actual value (stored as RAW strings). You will have to reinterpret this string
      // if VR for *ptag is not VR::VRASCII !
      const char *value = it->second;
      if( *value )
        {
        std::cout « "  It has the value: " « value « std::endl;
        }
      else
        {
        std::cout « "  It has no value (empty)" « std::endl;
        }
      }
    else
      {
      std::cout « "Sorry " « *ptag « " could not be found in this file" « std::endl;
      }
    }

  return 0;
}
```

14.95 SortImage.cxx

```
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=========================================================================*/
/*
 */
#include "gdcmSorter.h"
#include "gdcmScanner.h"
#include "gdcmDataSet.h"
#include "gdcmAttribute.h"


bool mysort(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  //gdcm::Attribute<0x0020,0x0013> at1; // Instance Number
  gdcm::Attribute<0x0018,0x1060> at1; // Trigger Time
  gdcm::Attribute<0x0020,0x0032> at11; // Image Position (Patient)
  at1.Set( ds1 );
  at11.Set( ds1 );
  //gdcm::Attribute<0x0020,0x0013> at2;
  gdcm::Attribute<0x0018,0x1060> at2;
  gdcm::Attribute<0x0020,0x0032> at22;
  at2.Set( ds2 );
```

```
  at22.Set( ds2 );
  if( at11 == at22 )
    {
    return at1 < at2;
    }
  return at11 < at22;
}

bool mysort_part1(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  gdcm::Attribute<0x0018,0x1060> at1;
  at1.Set( ds1 );
  gdcm::Attribute<0x0018,0x1060> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

bool mysort_part2(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  gdcm::Attribute<0x0020,0x0032> at1;
  at1.Set( ds1 );
  gdcm::Attribute<0x0020,0x0032> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

// technically all files are in the same Frame of Reference, so this function
// should be a no-op
bool mysort_dummy(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  gdcm::Attribute<0x0020,0x0052> at1; // FrameOfReferenceUID
  at1.Set( ds1 );
  gdcm::Attribute<0x0020,0x0052> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

int main(int argc, char *argv[])
{
  if (argc < 2 ) return 1;
  const char *dirname = argv[1];
  gdcm::Directory dir;
  unsigned int nfiles = dir.Load( dirname );

  dir.Print( std::cout );

  gdcm::Sorter sorter;
  sorter.SetSortFunction( mysort );
  sorter.Sort( dir.GetFilenames() );

  std::cout « "Sorter:" « std::endl;
  sorter.Print( std::cout );

  gdcm::Sorter sorter2;
  sorter2.SetSortFunction( mysort_part1 );
  sorter2.StableSort( dir.GetFilenames() );
  sorter2.SetSortFunction( mysort_part2 );
  sorter2.StableSort( sorter2.GetFilenames() ); // IMPORTANT
  sorter2.SetSortFunction( mysort_dummy );
  sorter2.StableSort( sorter2.GetFilenames() ); // IMPORTANT

  std::cout « "Sorter2:" « std::endl;
  sorter2.Print( std::cout );

  gdcm::Scanner s;
  s.AddTag( gdcm::Tag(0x20,0x32) ); // Image Position (Patient)
  //s.AddTag( gdcm::Tag(0x20,0x37) ); // Image Orientation (Patient)
  s.Scan( dir.GetFilenames() );

  //s.Print( std::cout );

  // Count how many different IPP there are:
  const gdcm::Scanner::ValuesType &values = s.GetValues();
  size_t nvalues = values.size();
  std::cout « "There are " « nvalues « " different type of values" « std::endl;

  //std::cout « "nfiles=" « nfiles « std::endl;
  if( nfiles % nvalues != 0 )
    {
    std::cerr « "Impossible: this is a not a proper series" « std::endl;
    return 1;
```

```
    }
  std::cout « "Series is composed of " « (nfiles/nvalues) « " different 3D volumes" « std::endl;

  return 0;
}
```

14.96 StreamImageReaderTest.cxx

```
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=========================================================================*/
// This work was realised during the GSOC 2011 by Manoj Alwani

#include "gdcmStreamImageReader.h"
#include "gdcmFileMetaInformation.h"
#include "gdcmSystem.h"
#include "gdcmFilename.h"
#include "gdcmByteSwap.h"
#include "gdcmTrace.h"
#include "gdcmTesting.h"
#include "gdcmImageHelper.h"
#include "gdcmImageReader.h"
#include "gdcmImage.h"
#include "gdcmMediaStorage.h"
#include "gdcmRAWCodec.h"
#include "gdcmJPEGLSCodec.h"
#include "gdcmUIDGenerator.h"
#include "gdcmStreamImageWriter.h"
#include "gdcmAttribute.h"
#include "gdcmFile.h"
#include "gdcmTag.h"

bool StreamImageRead(gdcm::StreamImageWriter & theStreamWriter,
  const char* filename, const char* outfilename, int resolution)
{
  gdcm::StreamImageReader reader;

  reader.SetFileName( filename );

  if (!reader.ReadImageInformation())
    {
    std::cerr « "unable to read image information" « std::endl;
    return 1; //unable to read tags as expected.
    }
  //let's be tricky; each image will be read in portions, first the top half, then the bottom
  //that way, we can test how the stream handles fragmentation of the data
  //we could also loop this to get various different size combinations, but I'm not sure
  //that's useful, yet.
  std::vector<unsigned int> extent =
    gdcm::ImageHelper::GetDimensionsValue(reader.GetFile());
  // std::cout « extent[0];
  //at this point, these values aren't used, but may be in the future
  //unsigned short xmin = 0;
  //unsigned short xmax = extent[0];
  //unsigned short ymin = 0;
  //unsigned short ymax = extent[1];
  //unsigned short zmin = 0;
  //unsigned short zmax = extent[2];

  std::cout« "\n Row: "«extent[0] «"\n Col :"« extent[1]« "\n Resolution :"« extent[2] « std::endl;

  int a =1;
  for (int i=1; i<=(extent[2]-resolution);++i)
```

```
    a = a*2;

  reader.DefinePixelExtent(0, extent[0]/a, 0, extent[1]/a, resolution-1, resolution);

  unsigned long len = reader.DefineProperBufferLength();
  char* finalBuffer = new char[len];
  memset(finalBuffer, 0, sizeof(char)*len);

  if (reader.CanReadImage())
    {
    bool result = reader.Read(finalBuffer, len);
    if( !result )
      {
      std::cout « "res2 failure:" « filename « std::endl;
      delete [] finalBuffer;
      return 1;
      }
    else
      {
      std::cout« "Able to read";
      }
    }
  else
    {
    std::cerr« "Not able to put in buffer"« std::endl;
    }
/*
    //now, read in smaller buffer extents
    reader.DefinePixelExtent(xmin, xmax, ymin, ymax);
    len = reader.DefineProperBufferLength();

    char* buffer = new char[len];
    bool res2 = reader.Read(buffer, len);
    if( !res2 ){
      std::cerr « "res2 failure:" « filename « std::endl;
      return 1;
    }
    //copy the result into finalBuffer
    memcpy(finalBuffer, buffer, len);

    //now read the next half of the image
    ymin = ymax;
    ymax = extent[1];

    reader.DefinePixelExtent(xmin, xmax, ymin, ymax);

    //std::cerr « "Success to read image from file: " « filename « std::endl;
    unsigned long len2 = reader.DefineProperBufferLength();

    char* buffer2 = new char[len2];
    bool res3 = reader.Read(buffer2, len2);
    if( !res3 ){
      std::cerr « "res3 failure:" « filename « std::endl;
      return 1;
    }
    //copy the result into finalBuffer
    memcpy(&(finalBuffer[len]), buffer2, len2);

    delete [] buffer;
    delete [] buffer2;
*/

  gdcm::Writer w;
  gdcm::File &file = w.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  file.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  gdcm::UIDGenerator uid;
  gdcm::DataElement de( gdcm::Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( gdcm::VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, strlen(u) );
  ds.Insert( de );

  gdcm::DataElement de1( gdcm::Tag(0x8,0x16) );
  de1.SetVR( gdcm::VR::UI );
  gdcm::MediaStorage ms( gdcm::MediaStorage::VLWholeSlideMicroscopyImageStorage );
  de1.SetByteValue( ms.GetString(), strlen(ms.GetString()));
```

```
  ds.Insert( de1 );

  const char mystr[] = "MONOCHROME2 ";
  gdcm::DataElement de2( gdcm::Tag(0x28,0x04) );
  //de.SetTag(gdcm::Tag(0x28,0x04));
  de2.SetVR( gdcm::VR::CS );
  de2.SetByteValue(mystr, strlen(mystr));
  ds.Insert( de2 );

   gdcm::Attribute<0x0028,0x0008> Number_Of_Frames = {1};
   ds.Insert( Number_Of_Frames.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0010> row = {extent[0]/a};//
   ds.Insert( row.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0011> col = {extent[1]/a};//
   ds.Insert( col.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0100> at = {8};
   ds.Insert( at.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0002> at1 = {1};//
   ds.Insert( at1.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0101> at2 = {8};
   ds.Insert( at2.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0102> at3 = {7};
   ds.Insert( at3.GetAsDataElement() );
    /*
   ds1.Remove( gdcm::Tag(0x0028,0x0008) );

   gdcm::Attribute<0x0028,0x0008> Number_Of_Frames = {1};
   ds1.Insert( Number_Of_Frames.GetAsDataElement() );
*/
   theStreamWriter.SetFile(file);

   if (!theStreamWriter.WriteImageInformation())
     {
     std::cerr « "unable to write image information" « std::endl;
     return 1; //the CanWrite function should prevent getting here, else,
     //that's a test failure
     }
    std::vector<unsigned int> extent1 = gdcm::ImageHelper::GetDimensionsValue(file);

    unsigned short xmax = extent1[0];
    unsigned short ymax = extent1[1];
    unsigned short theChunkSize = 1;
    unsigned short ychunk = extent1[1]/theChunkSize; //go in chunk sizes of theChunkSize
    unsigned short zmax = 1;

    std::cout« "\n Row: "«extent1[0] «"\n Col :"« extent1[1]« "\n Resolution :"« extent1[2] « std::endl;

    if (xmax == 0 || ymax == 0)
      {
      std::cerr « "Image has no size, unable to write zero-sized image." « std::endl;
      return 0;
      }

    int z, y, nexty;
    unsigned long prevLen = 0; //when going through the char buffer, make sure to grab
    //the bytes sequentially.  So, store how far you got in the buffer with each iteration.

    for (z = 0; z < zmax; ++z){
      for (y = 0; y < ymax; y += ychunk){
        nexty = y + ychunk;
        if (nexty > ymax) nexty = ymax;
        theStreamWriter.DefinePixelExtent(0, xmax, y, nexty, z, z+1);
        unsigned long len = theStreamWriter.DefineProperBufferLength();
        std::cout « "\n" «len;
        char* finalBuffer1 = new char[len];
        memcpy(finalBuffer1, &(finalBuffer[prevLen]), len);
        std::cout « "\nable to write";

        if (!theStreamWriter.Write(finalBuffer1, len)){
          std::cerr « "writing failure:" « "output.dcm" « " at y = " « y « " and z= " « z « std::endl;
          delete [] finalBuffer1;
          delete [] finalBuffer;
          return 1;
        }
        delete [] finalBuffer1;
```

```
        prevLen += len;
      }
    }
   delete [] finalBuffer;
   std::cout « "all is set";

  return true;
}


int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm Resolution" « std::endl;
    return 1;
    }

  const char *filename = argv[1];
  const char *outfilename = argv[2];
  char *res = argv[3];

  int resolution = atoi(res);

  gdcm::StreamImageWriter theStreamWriter;

  std::ofstream of;
  of.open( outfilename, std::ios::out | std::ios::binary );
  theStreamWriter.SetStream(of);

  // else
  // First of get rid of warning/debug message
  gdcm::Trace::DebugOn();
  gdcm::Trace::WarningOn();

  if(!StreamImageRead( theStreamWriter, filename, outfilename, resolution))
    return 1;

  uint16_t firstTag1 =  0xfffe;
  uint16_t secondTag1 = 0xe0dd;
  uint32_t thirdTag1 =  0x00000000;
  //uint16_t fourthTag1 = 0xffff;
  const int theBufferSize1 = 2*sizeof(uint16_t)+sizeof(uint32_t);
  char* tmpBuffer2 = new char[theBufferSize1];
  memcpy(&(tmpBuffer2[0]), &firstTag1, sizeof(uint16_t));
  memcpy(&(tmpBuffer2[sizeof(uint16_t)]), &secondTag1, sizeof(uint16_t));
  memcpy(&(tmpBuffer2[2*sizeof(uint16_t)]), &thirdTag1, sizeof(uint32_t));
  //memcpy(&(tmpBuffer2[3*sizeof(uint16_t)]), &fourthTag1, sizeof(uint16_t));
  assert( of && !of.eof() && of.good() );
  of.write(tmpBuffer2, theBufferSize1);
  of.flush();
  assert( of );

  return 0;
}
```

14.97 TemplateEmptyImage.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
#include "gdcmFileStreamer.h"
#include "gdcmTag.h"
#include "gdcmTrace.h"
#include "gdcmImageRegionReader.h"
#include "gdcmImageHelper.h"
```

```
#include "gdcmWriter.h"
#include "gdcmImageWriter.h"
#include "gdcmTagKeywords.h"
#include "gdcmUIDGenerator.h"

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char * filename = argv[1];
  gdcm::ImageRegionReader irr;
  irr.SetFileName( filename );
  const bool b3 = irr.ReadInformation();
  std::cout « b3 « std::endl;
  gdcm::Image & img = irr.GetImage();
  std::cout « img « std::endl;
  //  const gdcm::Region & r = irr.GetRegion();
  //  std::cout « r « std::endl;
  gdcm::ImageWriter w;
  gdcm::File & file = w.GetFile();
  gdcm::DataSet & ds = file.GetDataSet();

  gdcm::UIDGenerator uid;
  namespace kwd = gdcm::Keywords;
  kwd::FrameOfReferenceUID frameref;
  frameref.SetValue( uid.Generate() );
  // ContentDate
  char date[22];
  const size_t datelen = 8;
  int res = gdcm::System::GetCurrentDateTime(date);
  (void)res;
  kwd::ContentDate contentdate;
  // Do not copy the whole cstring:
  contentdate.SetValue( gdcm::DAComp( date, datelen ) );
  ds.Insert( contentdate.GetAsDataElement() );
  // ContentTime
  const size_t timelen = 6 + 1 + 6; // time + milliseconds
  kwd::ContentTime contenttime;
  // Do not copy the whole cstring:
  contenttime.SetValue( gdcm::TMComp(date+datelen, timelen) );
  ds.Insert( contenttime.GetAsDataElement() );
  gdcm::MediaStorage ms0 = w.ComputeTargetMediaStorage();
  std::cout « ms0 « std::endl;
  kwd::SeriesNumber seriesnumber = { 1 };
  kwd::InstanceNumber instancenum = { 1 };
  kwd::StudyID studyid = { "St1" };
  kwd::PatientID patientid = { "P1" };
  kwd::SOPClassUID sopclassuid;
  kwd::PositionReferenceIndicator pri;
  //kwd::Laterality lat;
  //kwd::BodyPartExamined bodypartex = { "HEAD" };
  kwd::BodyPartExamined bodypartex = { "ANKLE" };
  kwd::PatientOrientation pator;
  kwd::BurnedInAnnotation bia = { "NO" };
  kwd::ConversionType convtype = { "SYN" };
  kwd::PresentationLUTShape plutshape = { "IDENTITY" }; // MONOCHROME2
  // gdcm will pick the Word in case Byte class is not compatible:
  gdcm::MediaStorage ms = gdcm::MediaStorage::MultiframeGrayscaleByteSecondaryCaptureImageStorage;
  sopclassuid.SetValue( ms.GetString() );
  ds.Insert( instancenum.GetAsDataElement() );
  ds.Insert( sopclassuid.GetAsDataElement() );
  ds.Insert( seriesnumber.GetAsDataElement() );
  ds.Insert( patientid.GetAsDataElement() );
  ds.Insert( studyid.GetAsDataElement() );
  ds.Insert( frameref.GetAsDataElement() );
  ds.Insert( pri.GetAsDataElement() );
  //ds.Insert( lat.GetAsDataElement() );
  ds.Insert( bodypartex.GetAsDataElement() );
  ds.Insert( pator.GetAsDataElement() );
  ds.Insert( bia.GetAsDataElement() );
  ds.Insert( convtype.GetAsDataElement() );
  ds.Insert( plutshape.GetAsDataElement() );
  //    gdcm::MediaStorage ms1 = w.ComputeTargetMediaStorage();
  //    std::cout « ms1 « std::endl;
  std::cout « ds « std::endl;
  gdcm::PixelFormat & pf = img.GetPixelFormat();
  pf.SetPixelRepresentation(0); // always overwrite
  img.SetSlope(1);
  img.SetIntercept(0);
  w.SetImage( img );
  w.SetFileName( "TemplateImage.dcm" );
  if( !w.Write() )
```

```
  {
    return 1;
  }

  return 0;
}
```

14.98 TraverseModules.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
/*
 */

#include "gdcmDefs.h"
#include "gdcmGlobal.h"
#include "gdcmIODs.h"
#include "gdcmIOD.h"
#include "gdcmMacros.h"
#include "gdcmIODEntry.h"
#include "gdcmModules.h"
#include "gdcmModule.h"
#include "gdcmAnonymizer.h"
#include "gdcmDicts.h"

int main(int , char *[])
{
  using namespace gdcm;
  static Global &g = Global::GetInstance();

  if( !g.LoadResourcesFiles() )
    {
    return 1;
    }

  static const Defs &defs = g.GetDefs();
  static const Modules &modules = defs.GetModules();
  static const IODs &iods = defs.GetIODs();
  static const Macros &macros = defs.GetMacros();
  static const Dicts &dicts = g.GetDicts();

  std::vector<Tag> tags = gdcm::Anonymizer::GetBasicApplicationLevelConfidentialityProfileAttributes();
  for( std::vector<Tag>::const_iterator tit = tags.begin(); tit != tags.end(); ++tit )
    {
    const Tag &tag = *tit;
    const DictEntry &dictentry = dicts.GetDictEntry(tag);
    std::cout << "Processing Attribute: " << tag << " " << dictentry << std::endl;

    IODs::IODMapTypeConstIterator it = iods.Begin();
    for( ; it != iods.End(); ++it )
      {
      const IODs::IODName &name = it->first;
      const IOD &iod = it->second;

      const size_t niods = iod.GetNumberOfIODs();
      // Iterate over each iod entry in order:
      for(unsigned int idx = 0; idx < niods; ++idx)
        {
        const IODEntry &iodentry = iod.GetIODEntry(idx);
        const char *ref = iodentry.GetRef();
        //Usage::UsageType ut = iodentry.GetUsageType();

        const Module &module = modules.GetModule( ref );
        if( module.FindModuleEntryInMacros(macros, tag ) )
```

```
          {
          const ModuleEntry &module_entry = module.GetModuleEntryInMacros(macros,tag);
          Type type = module_entry.GetType();
          std::cout « "IOD Name: " « name « std::endl;
          std::cout « "Type: " « type « std::endl;
          }
        }

      }
    }

  return 0;
}
```

14.99 VolumeSorter.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
/*
 */
#include "gdcmSorter.h"
#include "gdcmIPPSorter.h"
#include "gdcmScanner.h"
#include "gdcmDataSet.h"
#include "gdcmAttribute.h"
#include "gdcmTesting.h"


bool mysort1(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  gdcm::Attribute<0x0020,0x000d> at1;
  at1.Set( ds1 );
  gdcm::Attribute<0x0020,0x000d> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

bool mysort2(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  gdcm::Attribute<0x0020,0x000e> at1;
  at1.Set( ds1 );
  gdcm::Attribute<0x0020,0x000e> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

bool mysort3(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  // This is a floating point number is the comparison ok ?
  gdcm::Attribute<0x0020,0x0037> at1;
  at1.Set( ds1 );
  gdcm::Attribute<0x0020,0x0037> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

bool mysort4(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  // Do the IPP sorting here
  gdcm::Attribute<0x0020,0x0032> ipp1;
  gdcm::Attribute<0x0020,0x0037> iop1;
  ipp1.Set( ds1 );
  iop1.Set( ds1 );
  gdcm::Attribute<0x0020,0x0032> ipp2;
  gdcm::Attribute<0x0020,0x0037> iop2;
```

```
  ipp2.Set( ds2 );
  iop2.Set( ds2 );
  if( iop1 != iop2 )
    {
    return false;
    }

  // else
  double normal[3];
  normal[0] = iop1[1]*iop1[5] - iop1[2]*iop1[4];
  normal[1] = iop1[2]*iop1[3] - iop1[0]*iop1[5];
  normal[2] = iop1[0]*iop1[4] - iop1[1]*iop1[3];
  double dist1 = 0;
  for (int i = 0; i < 3; ++i) dist1 += normal[i]*ipp1[i];
  double dist2 = 0;
  for (int i = 0; i < 3; ++i) dist2 += normal[i]*ipp2[i];

  std::cout « dist1 « "," « dist2 « std::endl;
  return dist1 < dist2;

}


int main(int argc, char *argv[])
{
  const char *extradataroot = gdcm::Testing::GetDataExtraRoot();
  std::string dir1;
  if( argc < 2 )
    {
    if( !extradataroot )
      {
      return 1;
      }
    dir1 = extradataroot;
    dir1 += "/gdcmSampleData/ForSeriesTesting/VariousIncidences/ST1";
    }
  else
    {
    dir1 = argv[1];
    }

  gdcm::Directory d;
  d.Load( dir1, true ); // recursive !
  const gdcm::Directory::FilenamesType &l1 = d.GetFilenames();
  const size_t nfiles = l1.size();
  std::cout « nfiles « std::endl;

  //if( nfiles != 280 )
  //  {
  //  return 1;
  //  }

  //d.Print( std::cout );

  gdcm::Scanner s0;
  const gdcm::Tag t1(0x0020,0x000d); // Study Instance UID
  const gdcm::Tag t2(0x0020,0x000e); // Series Instance UID
  //const gdcm::Tag t3(0x0010,0x0010); // Patient's Name
  s0.AddTag( t1 );
  s0.AddTag( t2 );
  //s0.AddTag( t3 );
  //s0.AddTag( t4 );
  //s0.AddTag( t5 );
  //s0.AddTag( t6 );
  bool b = s0.Scan( d.GetFilenames() );
  if( !b )
    {
    std::cerr « "Scanner failed" « std::endl;
    return 1;
    }

  //s0.Print( std::cout );

  // Only get the DICOM files:
  gdcm::Directory::FilenamesType l2 = s0.GetKeys();
  const size_t nfiles2 = l2.size();
  std::cout « nfiles2 « std::endl;

  if ( nfiles2 > nfiles )
    {
    return 1;
```

```
    }


  gdcm::Sorter sorter;
  sorter.SetSortFunction( mysort1 );
  sorter.StableSort( l2 );

  sorter.SetSortFunction( mysort2 );
  sorter.StableSort( sorter.GetFilenames() );

  sorter.SetSortFunction( mysort3 );
  sorter.StableSort( sorter.GetFilenames() );

  sorter.SetSortFunction( mysort4 );
  sorter.StableSort( sorter.GetFilenames() );

  //sorter.Print( std::cout );

  // Let's try to check our result:
  // assume that IPP is precise enough so that we can test floating point equality:
  size_t nvalues = 0;
{
  gdcm::Scanner s;
  s.AddTag( gdcm::Tag(0x20,0x32) ); // Image Position (Patient)
  //s.AddTag( gdcm::Tag(0x20,0x37) ); // Image Orientation (Patient)
  s.Scan( d.GetFilenames() );

  //s.Print( std::cout );

  const gdcm::Scanner::ValuesType &values = s.GetValues();
  nvalues = values.size();
  std::cout « "There are " « nvalues « " different type of values" « std::endl;
  assert( nfiles2 % nvalues == 0 );
  std::cout « "Series is composed of " « (nfiles/nvalues) « " different 3D volumes" « std::endl;
}

  gdcm::Directory::FilenamesType sorted_files = sorter.GetFilenames();

  // Which means we can take nvalues files at a time and execute gdcm::IPPSorter on it:
  gdcm::IPPSorter ippsorter;
  gdcm::Directory::FilenamesType sub( sorted_files.begin(), sorted_files.begin() + nvalues);
  std::cout « sub.size() « std::endl;
  std::cout « sub[0] « std::endl;
  std::cout « sub[nvalues-1] « std::endl;
  ippsorter.SetComputeZSpacing( false );
  if( !ippsorter.Sort( sub ) )
    {
    std::cerr « "Could not sort" « std::endl;
    return 1;
    }

  std::cout « "IPPSorter:" « std::endl;
  ippsorter.Print( std::cout );


  return 0;
}
```

14.100 csa2img.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
/*
 * I do not know what the format is, just guessing from info found on the net:
 *
```

```
 * http://atonal.ucdavis.edu/matlab/fmri/spm5/spm_dicom_convert.m
 *
 * This example is an attempt at understanding the format used by SIEMENS
 * their "SIEMENS CSA NON-IMAGE" DICOM file (1.3.12.2.1107.5.9.1)
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 */
#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmCSAHeader.h"
#include "gdcmAttribute.h"
#include "gdcmPrivateTag.h"

#include <math.h>

int main(int argc, char *argv [])
{
  if( argc < 2 ) return 1;
  // gdcmDataExtra/gdcmNonImageData/exCSA_Non-Image_Storage.dcm
  // PHANTOM.MR.CARDIO_COEUR_S_QUENCE_DE_REP_RAGE.9.257.2008.03.20.14.53.25.578125.43151705.IMA
  const char *filename = argv[1];

  gdcm::Reader reader; // Do not use ImageReader
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }

  gdcm::CSAHeader csa;
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  const gdcm::PrivateTag &t1 = csa.GetCSAImageHeaderInfoTag();
  //std::cout « t1 « std::endl;
  //const gdcm::PrivateTag &t2 = csa.GetCSASeriesHeaderInfoTag();

  if( ds.FindDataElement( t1 ) )
    {
    csa.LoadFromDataElement( ds.GetDataElement( t1 ) );
    csa.Print( std::cout );
    }
  int dims[2] = {};
  if( csa.FindCSAElementByName( "Columns" ) )
    {
    const gdcm::CSAElement &csael = csa.GetCSAElementByName( "Columns" );
    std::cout « csael « std::endl;
    //const gdcm::ByteValue *bv = csael.GetByteValue();
    gdcm::Element<gdcm::VR::IS, gdcm::VM::VM1> el;
    el.Set( csael.GetValue() );
    dims[0] = el.GetValue();
    std::cout « "Columns:" « el.GetValue() « std::endl;
    }

  if( csa.FindCSAElementByName( "Rows" ) )
    {
    const gdcm::CSAElement &csael2 = csa.GetCSAElementByName( "Rows" );
    std::cout « csael2 « std::endl;
    gdcm::Element<gdcm::VR::IS, gdcm::VM::VM1> el2;
    el2.Set( csael2.GetValue() );
    dims[1] = el2.GetValue();
    std::cout « "Rows:" « el2.GetValue() « std::endl;
    }

  double spacing[2] = { 1. , 1. };
  bool spacingfound = false;
  if( csa.FindCSAElementByName( "PixelSpacing" ) )
    {
    const gdcm::CSAElement &csael3 = csa.GetCSAElementByName( "PixelSpacing" );
    if( !csael3.IsEmpty() )
      {
      std::cout « csael3 « std::endl;
      gdcm::Element<gdcm::VR::DS, gdcm::VM::VM2> el3;
      el3.Set( csael3.GetValue() );
      spacing[0] = el3.GetValue(0);
```

```
      spacing[1] = el3.GetValue(1);
      std::cout « "PixelSpacing:" « el3.GetValue() « "," « el3.GetValue(1) « std::endl;
      spacingfound = true;
      }
    }

  if( !spacingfound )
    {
    std::cerr « "Problem with PixelSpacing" « std::endl;
    //return 1;
    }
  if( !dims[0] || !dims[1] )
    {
    std::cerr « "Problem with dims" « std::endl;
    return 1;
    }

  gdcm::ImageWriter writer;

  gdcm::Image &image = writer.GetImage();
  image.SetNumberOfDimensions( 2 ); // good default
  image.SetDimension(0, dims[0] );
  image.SetDimension(1, dims[1] );
  image.SetSpacing(0, spacing[0] );
  image.SetSpacing(1, spacing[1] );
  gdcm::PixelFormat pixeltype = gdcm::PixelFormat::INT16; // bytepix = spm_type('int16','bits')/8;

  //unsigned long l = image.GetBufferLength();
  //const int p =  l / (dims[0] * dims[1]);

  //image.SetNumberOfDimensions( 3 );
  //image.SetDimension(2, p / pixeltype.GetPixelSize() );

  gdcm::PhotometricInterpretation pi;
  pi = gdcm::PhotometricInterpretation::MONOCHROME2;
  //pixeltype.SetSamplesPerPixel(  );
  image.SetPhotometricInterpretation( pi );
  image.SetPixelFormat( pixeltype );
  //image.SetIntercept( inputimage.GetIntercept() );
  //image.SetSlope( inputimage.GetSlope() );

  //gdcm::DataElement pixeldata( gdcm::Tag(0x7fe1,0x1010) );
  //pixeldata.SetByteValue( &outbuf[0], outbuf.size() );
  gdcm::PrivateTag csanonimaget(0x7fe1,0x10,"SIEMENS CSA NON-IMAGE");
  const gdcm::DataElement &pixeldata = ds.GetDataElement( csanonimaget );
  image.SetDataElement( pixeldata );

  std::string outfilename = "outcsa.dcm";
  //writer.SetFile( reader.GetFile() );
  writer.SetFileName( outfilename.c_str() );
  if( !writer.Write() )
    {
    std::cerr « "could not write: " « outfilename « std::endl;
    return 1;
    }


  return 0;
}
```

14.101 iU22tomultisc.cxx

```
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=========================================================================*/
/*
```

```
 * iU22 Raw Data extractor
 */
#include "gdcmReader.h"
#include "gdcmImageWriter.h"
#include "gdcmAttribute.h"
#include "gdcmPrivateTag.h"

#include <math.h>

int main(int argc, char *argv [])
{
  if( argc < 2 ) return 1;
  // IM_001
  const char *filename = argv[1];

  gdcm::Reader reader; // Do not use ImageReader
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }

 // * The data is simply 8-bit unsigned in the obvious x/y/z order
 // * 200D,300B contains the data
 // * 200D,3001 contains the no. of voxels (416,412,256 in this case)
 // * 200D,3003 contains the voxel sizes (0.156184527398215 /
 // 0.1223749613981957 / 0.328479990704639 in this case)

  const gdcm::File &file = reader.GetFile();
  const gdcm::DataSet &ds = file.GetDataSet();
  const gdcm::PrivateTag trawdataus( 0x200d, 0x0b, "Philips US Imaging DD 033" );
  const gdcm::DataElement &rawdataus = ds.GetDataElement( trawdataus );

  const gdcm::PrivateTag tcolsrowsframes( 0x200d, 0x01, "Philips US Imaging DD 036" );
  const gdcm::DataElement &colsrowsframes = ds.GetDataElement( tcolsrowsframes );
  // const gdcm::PrivateTag tcolsrowsframes( 0x200d, 0x02, "Philips US Imaging DD 036" );
  // this is just a duplicate previous tag.
  const gdcm::PrivateTag tvoxelspacing( 0x200d, 0x03, "Philips US Imaging DD 036" );
  const gdcm::DataElement &voxelspacing = ds.GetDataElement( tvoxelspacing );

  gdcm::Element<gdcm::VR::DS,gdcm::VM::VM3> dims; // Use DS to interpret value stored in LO
  dims.SetFromDataElement( colsrowsframes );

  gdcm::Element<gdcm::VR::DS,gdcm::VM::VM3> spacing;
  spacing.SetFromDataElement( voxelspacing );

  gdcm::ImageWriter writer;

  gdcm::Image &image = writer.GetImage();
  image.SetNumberOfDimensions( 3 ); // good default
  image.SetDimension(0, (unsigned int)dims[0] );
  image.SetDimension(1, (unsigned int)dims[1] );
  image.SetDimension(2, (unsigned int)dims[2] );
  image.SetSpacing(0, spacing[0] );
  image.SetSpacing(1, spacing[1] );
  image.SetSpacing(2, spacing[2] );
  gdcm::PixelFormat pixeltype = gdcm::PixelFormat::UINT8;

  gdcm::PhotometricInterpretation pi;
  pi = gdcm::PhotometricInterpretation::MONOCHROME2;
  image.SetPhotometricInterpretation( pi );
  image.SetPixelFormat( pixeltype );

  image.SetDataElement( rawdataus );

  std::string outfilename = "outiu22.dcm";

  gdcm::DataElement de( gdcm::Tag(0x8,0x16) ); // SOP Class UID
  de.SetVR( gdcm::VR::UI );
  gdcm::MediaStorage ms(
    gdcm::MediaStorage::UltrasoundMultiFrameImageStorage );
//    gdcm::MediaStorage::MultiframeGrayscaleByteSecondaryCaptureImageStorage );
  de.SetByteValue( ms.GetString(), (uint32_t)strlen(ms.GetString()));
  writer.GetFile().GetDataSet().Replace( de );

  writer.SetFileName( outfilename.c_str() );
  if( !writer.Write() )
    {
    std::cerr « "could not write: " « outfilename « std::endl;
    return 1;
```

```
    }

  return 0;
}
```

14.102 pmsct_rgb1.cxx

```
/*=========================================================================

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=========================================================================*/
/*
 * This example shows how to rewrite a ELSCINT1/PMSCT_RGB1 compressed
 * image so that it is readable by most 3rd party software (DICOM does
 * not specify this particular encoding).
 * This is required for the sake of interoperability with any standard
 * conforming DICOM system.
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Special thanks to:
 * Jean-Pierre Roux for providing the sample datasets
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"

void delta_decode(const unsigned char *data_in, size_t data_size,
  std::vector<unsigned char> &new_stream, unsigned short pc, size_t w, size_t h)
{
  const size_t plane_size = h * w;
  const size_t outputlen = 3 * plane_size;
  new_stream.resize( outputlen );

  assert( data_size != outputlen );
  if( data_size == outputlen )
    {
    return;
    }
  typedef unsigned char byte;
  enum {
    COLORMODE  = 0x81,
    ESCMODE    = 0x82,
    REPEATMODE = 0x83
  };

  const byte* src = (const byte*)data_in;
  byte* dest = (byte*)new_stream.data();
  union { byte gray; byte rgb[3]; } pixel;
  pixel.rgb[0] = pixel.rgb[1] = pixel.rgb[2] = 0;
  // always start in grayscale mode
  bool graymode = true;
  size_t dx = 1;
  size_t dy = 3;
  // algorithm works with both planar configuration
  // It does produce surprising greenish background color for planar
  // configuration is 0, while the nested Icon SQ display a nice black
  // background
```

```
if (pc)
  {
  dx = plane_size;
  dy = 1;
  }
size_t ps = plane_size;

// The following is highly unoptimized as we have nested if statement in a while loop
// we need to switch from one algorithm to the other (RGB <-> GRAY)
while (ps)
  {
  // next byte:
  byte b = *src++;
  assert( src < data_in + data_size );
  // mode selection:
  switch ( b )
    {
  case ESCMODE:
    // Used to treat a byte 81/82/83 as a normal byte
    if (graymode)
      {
      pixel.gray += *src++;
      dest[0*dx] = pixel.gray;
      dest[1*dx] = pixel.gray;
      dest[2*dx] = pixel.gray;
      }
    else
      {
      pixel.rgb[0] += *src++;
      pixel.rgb[1] += *src++;
      pixel.rgb[2] += *src++;
      dest[0*dx] = pixel.rgb[0];
      dest[1*dx] = pixel.rgb[1];
      dest[2*dx] = pixel.rgb[2];
      }
    dest += dy;
    ps--;
    break;
  case REPEATMODE:
    // repeat mode (RLE)
    b = *src++;
    ps -= b;
    if (graymode)
      {
      while (b-- > 0)
        {
        dest[0*dx] = pixel.gray;
        dest[1*dx] = pixel.gray;
        dest[2*dx] = pixel.gray;
        dest += dy;
        }
      }
    else
      {
      while (b-- > 0)
        {
        dest[0*dx] = pixel.rgb[0];
        dest[1*dx] = pixel.rgb[1];
        dest[2*dx] = pixel.rgb[2];
        dest += dy;
        }
      }
    break;
  case COLORMODE:
    // We are switching from one mode to the other. The stream contains an intermixed
    // compression of RGB codec and GRAY codec. Each one not knowing of the other
    // reset old value to 0.
    if (graymode)
      {
      graymode = false;
      pixel.rgb[0] = pixel.rgb[1] = pixel.rgb[2] = 0;
      }
    else
      {
      graymode = true;
      pixel.gray = 0;
      }
    break;
  default:
    // This is identical to ESCMODE, it would be nicer to use fall-through
    if (graymode)
```

```
        {
        pixel.gray += b;
        dest[0*dx] = pixel.gray;
        dest[1*dx] = pixel.gray;
        dest[2*dx] = pixel.gray;
        }
      else
        {
        pixel.rgb[0] += b;
        pixel.rgb[1] += *src++;
        pixel.rgb[2] += *src++;
        dest[0*dx] = pixel.rgb[0];
        dest[1*dx] = pixel.rgb[1];
        dest[2*dx] = pixel.rgb[2];
        }
      dest += dy;
      ps--;
      break;
      } // end switch
    } // end while
}

int main(int argc, char *argv [])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  // (07a1,1011) CS [PMSCT_RGB1]                                      # 10,1 Tamar Compression Type
  const gdcm::PrivateTag tcompressiontype(0x07a1,0x0011,"ELSCINT1");
  if( !ds.FindDataElement( tcompressiontype ) ) return 1;
  const gdcm::DataElement& compressiontype = ds.GetDataElement( tcompressiontype );
  if ( compressiontype.IsEmpty() ) return 1;
  const gdcm::ByteValue * bv = compressiontype.GetByteValue();
  std::string comprle = "PMSCT_RLE1";
  std::string comprgb = "PMSCT_RGB1";
  bool isrle = false;
  bool isrgb = false;
  if( strncmp( bv->GetPointer(), comprle.c_str(), comprle.size() ) == 0 )
    {
    isrle = true;
    return 1;
    }
  if( strncmp( bv->GetPointer(), comprgb.c_str(), comprgb.size() ) == 0 )
    {
    isrgb = true;
    }
  if( !isrgb && !isrle ) return 1;

  const gdcm::PrivateTag tcompressedpixeldata(0x07a1,0x000a,"ELSCINT1");
  if( !ds.FindDataElement( tcompressedpixeldata) ) return 1;
  const gdcm::DataElement& compressionpixeldata = ds.GetDataElement( tcompressedpixeldata);
  if ( compressionpixeldata.IsEmpty() ) return 1;
  const gdcm::ByteValue * bv2 = compressionpixeldata.GetByteValue();

  gdcm::Attribute<0x0028,0x0006> at0;
  at0.SetFromDataSet( ds );
  gdcm::Attribute<0x0028,0x0010> at1;
  at1.SetFromDataSet( ds );
  gdcm::Attribute<0x0028,0x0011> at2;
  at2.SetFromDataSet( ds );

  std::vector<unsigned char> buffer;
  delta_decode((const unsigned char*)bv2->GetPointer(), bv2->GetLength(), buffer,
    at0.GetValue(), at1.GetValue(), at2.GetValue() );

  gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
  pixeldata.SetVR( gdcm::VR::OW );
  pixeldata.SetByteValue( (char*)buffer.data(), (uint32_t)buffer.size() );
  // TODO we should check that decompress byte buffer match the expected size (row*col*...)

  // Add the pixel data element
```

```
  reader.GetFile().GetDataSet().Replace( pixeldata );

  reader.GetFile().GetHeader().SetDataSetTransferSyntax(
    gdcm::TransferSyntax::ExplicitVRLittleEndian);
  gdcm::Writer writer;
  writer.SetFile( reader.GetFile() );

  // Cleanup stuff:
  // remove the compressed pixel data:
  // FIXME: should I remove more private tags ? all of them ?
  // oh well this is just an example
  // use gdcm::Anonymizer::RemovePrivateTags if needed...
  writer.GetFile().GetDataSet().Remove( compressionpixeldata.GetTag() );
  std::string outfilename;
  if (argc > 2)
     outfilename = argv[2];
  else
     outfilename = "outrgb.dcm";
  writer.SetFileName( outfilename.c_str() );
  if( !writer.Write() )
    {
    std::cerr « "Failed to write" « std::endl;
    return 1;
    }

  std::cout « "success !" « std::endl;

  return 0;
}
```

14.103 rle2img.cxx

```
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=========================================================================*/
/*
 * This example shows how to rewrite a ELSCINT1/PMSCT_RLE1 compressed
 * image so that it is readable by most 3rd party software (DICOM does
 * not specify this particular encoding).
 * This is required for the sake of interoperability with any standard
 * conforming DICOM system.
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Special thanks to:
 * Mauro Maiorca for bringing to our attention on this new ELSCINT1
 * compression algorithm : PMSCT_RLE1 (different from the 'LOSSLESS RICE')
 * See post at:
 * http://groups.google.com/group/comp.protocols.dicom/msg/f2b99bf706a7f8ca
 *
 * Thanks to Jesus Spinola, for more datasets,
 * http://www.itk.org/pipermail/insight-users/2008-April/025571.html
 *
 * And last but not least, a very big thank to Ivo van Poorten, without
 * whom we would still be looking at this compressed byte stream as if
 * it was RLE compressed.
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
```

```
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"

/* FIXME: Why is PhilipsLosslessRice.dcm a 512x512 image ... */
void delta_decode(const char *inbuffer, size_t length, std::vector<unsigned short> &output)
{
  // RLE pass
  std::vector<char> temp;
  for(size_t i = 0; i < length; ++i)
    {
    if( inbuffer[i] == (char)0xa5 )
      {
      //unsigned char repeat = (unsigned char)inbuffer[i+1] + 1;
      //assert( (unsigned char)inbuffer[i+1] != 255 );
      int repeat = (unsigned char)inbuffer[i+1] + 1;
      char value = inbuffer[i+2];
      while(repeat)
        {
        temp.push_back( value );
        --repeat;
        }
      i+=2;
      }
    else
      {
      temp.push_back( inbuffer[i] );
      }
    }

  // Delta encoding pass
  unsigned short delta = 0;
  for(size_t i = 0; i < temp.size(); ++i)
    {
    if( temp[i] == 0x5a )
      {
      unsigned char v1 = (unsigned char)temp[i+1];
      unsigned char v2 = (unsigned char)temp[i+2];
      unsigned short value = (unsigned short)(v2 * 256 + v1);
      output.push_back( value );
      delta = value;
      i+=2;
      }
    else
      {
      unsigned short value = (unsigned short)(temp[i] + delta);
      output.push_back( value );
      delta = value;
      }
    //assert( output[output.size()-1] == ref[output.size()-1] );
    }

  if ( output.size() % 2 )
    {
    output.resize( output.size() - 1 );
    }
  std::cout << length << " -> " << output.size() * 2 << std::endl;
}

int main(int argc, char *argv [])
{
  if( argc < 2 )
    {
    std::cerr << argv[0] << "input.dcm [output.dcm]" << std::endl;
    std::cerr << "will default to 'outrle.dcm' unless output.dcm is specified."
      << std::endl;
    return 1;
    }
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr << "Failed to read: " << filename << std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  // (07a1,1011) CS [PMSCT_RLE1]                                      # 10,1 Tamar Compression Type
  const gdcm::PrivateTag tcompressiontype(0x07a1,0x0011,"ELSCINT1");
  if( !ds.FindDataElement( tcompressiontype ) ) return 1;
  const gdcm::DataElement& compressiontype = ds.GetDataElement( tcompressiontype );
```

```
if ( compressiontype.IsEmpty() ) return 1;
const gdcm::ByteValue * bv = compressiontype.GetByteValue();
std::string comprle = "PMSCT_RLE1";
std::string comprgb = "PMSCT_RGB1";
bool isrle = false;
bool isrgb = false;
if( strncmp( bv->GetPointer(), comprle.c_str(), comprle.size() ) == 0 )
  {
  isrle = true;
  }
if( strncmp( bv->GetPointer(), comprgb.c_str(), comprgb.size() ) == 0 )
  {
  isrgb = true;
  std::cerr « "See: pmsct_rgb1.cxx instead" « std::endl;
  return 1;
  }
if( !isrgb && !isrle ) return 1;

// check if compressed pixel data reside in private or standard tag
const gdcm::PrivateTag tprivatepixeldata(0x07a1,0x100a,"ELSCINT1");
const gdcm::Tag tstandardpixeldata(0x7fe0, 0x0010);
gdcm::Tag tpixeldata;
if(ds.FindDataElement(tprivatepixeldata)) tpixeldata = tprivatepixeldata;
else if(ds.FindDataElement(tstandardpixeldata)) tpixeldata = tstandardpixeldata;
if(!ds.FindDataElement(tpixeldata)) return 1;

const gdcm::DataElement& compressionpixeldata = ds.GetDataElement( tpixeldata);
if ( compressionpixeldata.IsEmpty() ) return 1;
const gdcm::ByteValue * bv2 = compressionpixeldata.GetByteValue();

gdcm::Attribute<0x0028,0x0010> at1;
at1.SetFromDataSet( ds );
gdcm::Attribute<0x0028,0x0011> at2;
at2.SetFromDataSet( ds );

gdcm::DataElement pixeldata;
// if standard voxel data element does not exist, create it
if( !reader.GetFile().GetDataSet().FindDataElement( tpixeldata ) )
{
  pixeldata = gdcm::DataElement( tpixeldata, 0, gdcm::VR::OW );
}
else{
  pixeldata = reader.GetFile().GetDataSet().GetDataElement( tpixeldata );
}

pixeldata.SetVR( gdcm::VR::OW );
gdcm::VL bv2l = bv2->GetLength();
gdcm::VL at1l = at1.GetValue() * at2.GetValue() * 2; /* sizeof(unsigned short) == 2 */
// Handle special case that is not compressed:
if( bv2l == at1l )
  {
  pixeldata.SetByteValue( bv2->GetPointer(), bv2->GetLength() );
  }
else
  {
  std::vector<unsigned short> buffer;
  delta_decode(bv2->GetPointer(), bv2->GetLength(), buffer);
  pixeldata.SetByteValue( (char*)buffer.data(), (uint32_t)(buffer.size() * sizeof( unsigned short )) );
  }
// TODO we should check that decompress byte buffer match the expected size (row*col*...)

// Add the pixel data element
if( reader.GetFile().GetDataSet().FindDataElement( tpixeldata ) )
{
  reader.GetFile().GetDataSet().Replace( pixeldata );
}
else
{
  reader.GetFile().GetDataSet().ReplaceEmpty( pixeldata );
}


reader.GetFile().GetHeader().SetDataSetTransferSyntax(
  gdcm::TransferSyntax::ExplicitVRLittleEndian);
gdcm::Writer writer;
writer.SetFile( reader.GetFile() );

// Cleanup stuff:
// This makes the code equivalent to Philips workstation IntelliSpace Portal
if( writer.GetFile().GetDataSet().FindDataElement( tcompressiontype ) )
{
```

```
    writer.GetFile().GetDataSet().Remove( gdcm::Tag(0x07a1,0x1011) );
  }
  if( writer.GetFile().GetDataSet().FindDataElement( tprivatepixeldata ) )
  {
    writer.GetFile().GetDataSet().Remove( gdcm::Tag(0x07a1,0x100a) );
  }

  std::string outfilename;
  if (argc > 2)
     outfilename = argv[2];
  else
     outfilename = "outrle.dcm";
  writer.SetFileName( outfilename.c_str() );
  if( !writer.Write() )
    {
    std::cerr « "Failed to write" « std::endl;
    return 1;
    }

  std::cout « "success !" « std::endl;

  return 0;
}
```

14.104 uid_unique.cxx

```
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=========================================================================*/
#include "gdcmUIDGenerator.h"

#include <iostream>
#include <string>
#include <set>

int main()
{
  gdcm::UIDGenerator uid;
  //const char myroot[] = "9876543210.9876543210.9876543210.9876543210.9876543210"; // fails in ~40000 tries
  const char myroot[] = "9876543210.9876543210.9876543210";
  uid.SetRoot( myroot );
  std::set<std::string> uids;
  uint64_t wrap = 0;
  uint64_t c = 0;
  while(true)
    {
    const char *unique = uid.Generate();
    //std::cout « unique « std::endl;
    if( c % 10000 == 0 )
      {
      std::cout « "wrap=" « wrap « ",c=" « c « std::endl;
      }
    ++c;
    if( c == 0 )
      {
      wrap++;
      }
    if ( uids.count(unique) == 1 )
      {
      std::cerr « "Failed with: " « unique « std::endl;
      return 1;
      }
    uids.insert( unique );
    }
}
```

14.105 DecompressImage.java

```
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=========================================================================*/

/*
 * This example will take in a DICOM file, and tries to decompress it (actually write it
 * as ImplicitVRLittleEndian Transfer Syntax).
 *
 * Compilation:
 * $ CLASSPATH=gdcm.jar javac ../../gdcm/Examples/Java/DecompressImage.java -d .
 *
 * Usage:
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java DecompressImage gdcmData/012345.002.050.dcm out.dcm
 */
import gdcm.*;

public class DecompressImage
{
  public static void main(String[] args) throws Exception
    {
    String file1 = args[0];
    String file2 = args[1];
    ImageReader reader = new ImageReader();
    reader.SetFileName( file1 );
    boolean ret = reader.Read();
    if( !ret )
      {
      throw new Exception("Could not read: " + file1 );
      }

    ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
    change.SetTransferSyntax( new TransferSyntax(TransferSyntax.TSType.ImplicitVRLittleEndian) );
    change.SetInput( reader.GetImage() );
    if( !change.Change() )
      {
      throw new Exception("Could not change: " + file1 );
      }

    Image out = change.GetOutput();
    System.out.println( out.toString() );

    // Set the Source Application Entity Title
    FileMetaInformation.SetSourceApplicationEntityTitle( "Just For Fun" );

    ImageWriter writer = new ImageWriter();
    writer.SetFileName( file2 );
    writer.SetFile( reader.GetFile() );
    writer.SetImage( out );
    ret = writer.Write();
    if( !ret )
      {
      throw new Exception("Could not write: " + file2 );
      }

    }
}
```

14.106 DecompressPixmap.java

```
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=========================================================================*/

/*
 * This example will take in a DICOM file, and tries to decompress it (actually write it
 * as ImplicitVRLittleEndian Transfer Syntax).
 *
 * Compilation:
 * $ CLASSPATH=gdcm.jar javac ../../gdcm/Examples/Java/DecompressPixmap.java -d .
 *
 * Usage:
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java DecompressPixmap gdcmData/012345.002.050.dcm out.dcm
 */
import gdcm.*;

public class DecompressPixmap
{
  public static void main(String[] args) throws Exception
    {
    String file1 = args[0];
    String file2 = args[1];
    PixmapReader reader = new PixmapReader();
    reader.SetFileName( file1 );
    boolean ret = reader.Read();
    if( !ret )
      {
      throw new Exception("Could not read: " + file1 );
      }

    ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
    change.SetTransferSyntax( new TransferSyntax(TransferSyntax.TSType.ImplicitVRLittleEndian) );
    PixmapToPixmapFilter filter = (PixmapToPixmapFilter)change;
    filter.SetInput( reader.GetPixmap() );
    if( !change.Change() )
      {
      throw new Exception("Could not change: " + file1 );
      }

    // The following does not work in Java/swig 2.0.7
    //Pixmap p = ((PixmapToPixmapFilter)change).GetOutput();
    Pixmap p = change.GetOutputAsPixmap();  // be explicit
    //System.out.println( p.toString() );

    // Set the Source Application Entity Title
    FileMetaInformation.SetSourceApplicationEntityTitle( "Just For Fun" );

    PixmapWriter writer = new PixmapWriter();
    writer.SetFileName( file2 );
    writer.SetFile( reader.GetFile() );
    writer.SetImage( p );
    ret = writer.Write();
    if( !ret )
      {
      throw new Exception("Could not write: " + file2 );
      }

    }
}
```

14.107 ExtractImageRegion.java

```
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```
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=========================================================================*/

/*
 * This small code shows how to use the gdcm.ImageRegionReader API
 * In this example we are taking each frame by frame and dump them to
 * /tmp/frame.raw.
 *
 * Usage:
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java ExtractImageRegion input.dcm
 */
import gdcm.*;
import java.io.FileOutputStream;

public class ExtractImageRegion
{
  public static void main(String[] args) throws Exception
    {
    String filename = args[0];

    // instantiate the reader:
    ImageRegionReader reader = new ImageRegionReader();
    reader.SetFileName( filename );

    // pull DICOM info:
    if (!reader.ReadInformation()) return;
    // Get file infos
    File f = reader.GetFile();

    // get some info about image
    UIntArrayType dims = ImageHelper.GetDimensionsValue(f);
    PixelFormat pf = ImageHelper.GetPixelFormatValue (f);
    int pixelsize = pf.GetPixelSize();

    // buffer to get the pixels
    long buffer_length = dims.get(0) * dims.get(1) * pixelsize;
    byte[] buffer = new byte[ (int)buffer_length ];

    // define a simple box region.
    BoxRegion box = new BoxRegion();
    for (int z = 0; z < dims.get(2); z++)
      {
      // Define that I want the image 0, full size (dimx x dimy pixels)
      // and do that for each z:
      box.SetDomain(0, dims.get(0) - 1, 0, dims.get(1) - 1, z, z);
      //System.Console.WriteLine( box.toString() );
      reader.SetRegion( box );

      // reader will try to load the uncompressed image region into buffer.
      // the call returns an error when buffer.Length is too small. For instance
      // one can call:
      // long buf_len = reader.ComputeBufferLength(); // take into account pixel size
      // to get the exact size of minimum buffer
      if (reader.ReadIntoBuffer(buffer, buffer_length))
        {
        FileOutputStream fos = new FileOutputStream("/tmp/frame.raw");
        fos.write(buffer);
        fos.close();
        }
      else
        {
        throw new Exception("can't read pixels error");
        }
      }

    }
}
```

14.108 FileAnonymize.java

```
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```

```
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=========================================================================*/

import gdcm.*;

public class FileAnonymize
{
  public static class MyWatcher extends SimpleSubjectWatcher
    {
    public MyWatcher(Subject s) { super(s,"Override String"); }
    protected void ShowProgress(Subject caller, Event evt)
      {
      ProgressEvent pe = ProgressEvent.Cast(evt);
      System.out.println( "This is my progress: " + pe.GetProgress() );
      }
    }

  public static void main(String[] args) throws Exception
    {
    String input = args[0];
    String output = args[1];

    FileAnonymizer fa = new FileAnonymizer();
    fa.SetInputFileName( input );
    fa.SetOutputFileName( output );

    // Empty Operations
    // It will create elements, since those tags are non-registered public elements (2011):
    fa.Empty( new Tag(0x0008,0x1313) );
    fa.Empty( new Tag(0x0008,0x1317) );
    // Remove Operations
    // The following Tag are actually carefully chosen, since they refer to SQ:
    fa.Remove( new Tag(0x0008,0x2112) );
    fa.Remove( new Tag(0x0008,0x9215) );
    // Replace Operations
    // do not call replace operation on SQ attribute !
    fa.Replace( new Tag(0x0018,0x5100), "MYVALUE " );
    fa.Replace( new Tag(0x0008,0x1160), "MYOTHERVAL" );

    if( !fa.Write() )
      {
      System.out.println( "Could not write" );
      return;
      }

    System.out.println( "success" );
    }
}
```

14.109 HelloSimple.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Compilation:
 * $ CLASSPATH=gdcm.jar javac ../../gdcm/Examples/Java/HelloSimple.java -d .
 *
 * Usage:
```

```
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java HelloSimple gdcmData/012345.002.050.dcm
 */
import gdcm.*;

public class HelloSimple
{
  public static void main(String[] args) throws Exception
    {
    String filename = args[0];
    Reader reader = new Reader();
    reader.SetFileName( filename );
    boolean ret = reader.Read();
    if( !ret )
      {
      throw new Exception("Could not read: " + filename );
      }
    File f = reader.GetFile();
    DataSet ds = f.GetDataSet();

    System.out.println( ds.toString() );

    System.out.println("Success reading: " + filename );
    }
}
```

14.110 ReadFiles.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
import gdcm.*;
import java.io.File;

public class ReadFiles
{
  static int i = 0;
  public static void process(String path)
    {
    //String path = file.getPath();
    assert PosixEmulation.FileExists(path) : "Problem converting to 8bits";

    System.out.println("Reading: " + path );
    System.out.println("File: " + i++);
    Reader r = new Reader();
    try
      {
      r.SetFileName( path );
      TagSetType skip = new TagSetType();
      skip.insert( new Tag(0x7fe0,0x10) );
      boolean b = r.ReadUpToTag( new Tag(0x88,0x200), skip );
      //System.out.println("DS:\n" + r.GetFile().GetDataSet().toString() );
      }
    finally
      {
      r.delete(); // will properly call C++ destructor and close file descriptor
      }
    }

  // Process only files under dir
  public static void visitAllFiles(File dir)
    {
    if (dir.isDirectory())
      {
      String[] children = dir.list();
      for (int i=0; i<children.length; i++)
        {
```

```
        visitAllFiles(new File(dir, children[i]));
        }
      }
    else
      {
      process(dir.getPath());
      }
    }

  public static void waiting (int n)
    {
    long t0, t1;
    t0 =  System.currentTimeMillis();
    do
      {
      t1 = System.currentTimeMillis();
      }
    while ((t1 - t0) < (n * 1000));
    }

  public static void main(String[] args) throws Exception
    {
    String directory = args[0];

    Directory gdir = new Directory();
    long n = gdir.Load( directory, true );
    System.out.println( gdir.toString() );
    FilenamesType files = gdir.GetFilenames();
    for( long i = 0; i < n; ++i )
      {
      String path = files.get( (int)i );
      process( path );
      }

    System.out.println( "Java API" );

    //waiting( 10 );
    for( int i = 0; i < 2; ++i )
      {
      File dir = new File(directory);
      visitAllFiles(dir);
      }
    }
}
```

14.111 ScanDirectory.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

import gdcm.*;
import gdcm.Reader;
import gdcm.LookupTable;
import java.io.File;
import java.io.*;
import java.awt.image.*;
import javax.imageio.ImageIO;

public class ScanDirectory
{
  public static class MyWatcher extends SimpleSubjectWatcher
    {
    public MyWatcher(Subject s) { super(s,"Override String"); }
    protected void ShowProgress(Subject caller, Event evt)
      {
```

```
    ProgressEvent pe = ProgressEvent.Cast(evt);
    System.out.println( "This is my progress: " + pe.GetProgress() );
    }
  }

public static byte[] GetAsByte(Bitmap input)
  {
  long len = input.GetBufferLength();
  byte[] buffer = new byte[ (int)len ];
  PhotometricInterpretation pi = input.GetPhotometricInterpretation();
  if( pi.GetType() == PhotometricInterpretation.PIType.MONOCHROME1 )
    {
    ImageChangePhotometricInterpretation icpi = new ImageChangePhotometricInterpretation();
    icpi.SetInput( input );
    icpi.SetPhotometricInterpretation(
      new PhotometricInterpretation(
        PhotometricInterpretation.PIType.MONOCHROME2 ) );
    if( icpi.Change() )
      {
      Bitmap output = icpi.GetOutput();
      output.GetArray( buffer );
      }
    return buffer;
    }
  else
    {
    input.GetArray( buffer );
    return buffer;
    }
  }
public static short[] GetAsShort(Bitmap input)
  {
  long len = input.GetBufferLength(); // length in bytes
  short[] buffer = new short[ (int)len / 2 ];
  PhotometricInterpretation pi = input.GetPhotometricInterpretation();
  if( pi.GetType() == PhotometricInterpretation.PIType.MONOCHROME1 )
    {
    ImageChangePhotometricInterpretation icpi = new ImageChangePhotometricInterpretation();
    icpi.SetInput( input );
    icpi.SetPhotometricInterpretation(
      new PhotometricInterpretation(
        PhotometricInterpretation.PIType.MONOCHROME2 ) );
    if( icpi.Change() )
      {
      Bitmap output = icpi.GetOutput();
      output.GetArray( buffer );
      }
    return buffer;
    }
  else
    {
    input.GetArray( buffer );
    return buffer;
    }
  }
public static boolean WritePNG(Bitmap input, String outfilename )
  {
  int imageType = BufferedImage.TYPE_CUSTOM;
  PixelFormat pf = input.GetPixelFormat();
  PhotometricInterpretation pi = input.GetPhotometricInterpretation();
  // We need to handle both public and private icon
  // It could well be that we are getting an RGB Icon or 16 bits Icon:
  ColorModel colorModel = null;
  if( pf.GetSamplesPerPixel() == 1 )
    {
    if( pi.GetType() == PhotometricInterpretation.PIType.MONOCHROME1
       || pi.GetType() == PhotometricInterpretation.PIType.MONOCHROME2 )
      {
      if( pf.GetScalarType() == PixelFormat.ScalarType.UINT8 )
        {
        imageType = BufferedImage.TYPE_BYTE_GRAY;
        }
      else if( pf.GetScalarType() == PixelFormat.ScalarType.UINT12 )
        {
        imageType = BufferedImage.TYPE_USHORT_GRAY;
        }
      else if( pf.GetScalarType() == PixelFormat.ScalarType.UINT16 )
        {
        imageType = BufferedImage.TYPE_USHORT_GRAY;
        }
      }
```

```
      else if( pi.GetType() == PhotometricInterpretation.PIType.PALETTE_COLOR )
        {
        LookupTable lut = input.GetLUT();
        long rl = lut.GetLUTLength( LookupTable.LookupTableType.RED );
        byte[] rbuf = new byte[ (int)rl ];
        long rl2 = lut.GetLUT( LookupTable.LookupTableType.RED, rbuf );
        assert rl == rl2;
        long gl = lut.GetLUTLength( LookupTable.LookupTableType.GREEN );
        byte[] gbuf = new byte[ (int)gl ];
        long gl2 = lut.GetLUT( LookupTable.LookupTableType.GREEN, gbuf );
        assert gl == gl2;
        long bl = lut.GetLUTLength( LookupTable.LookupTableType.BLUE );
        byte[] bbuf = new byte[ (int)bl ];
        long bl2 = lut.GetLUT( LookupTable.LookupTableType.BLUE, bbuf );
        assert bl == bl2;
        colorModel = new IndexColorModel(8, (int)rl, rbuf, gbuf, bbuf);
        // For code below
        imageType = BufferedImage.TYPE_BYTE_GRAY;
        }
      }
    else if( pf.GetSamplesPerPixel() == 3 )
      {
      if( pf.GetScalarType() == PixelFormat.ScalarType.UINT8 )
        {
        // FIXME should be TYPE_3BYTE_RGB
        imageType = BufferedImage.TYPE_3BYTE_BGR;
        }
      }
    //System.out.println( "pf: " + pf.toString() );
    //System.out.println( "pi: " + pi.toString() );
    long width  = input.GetDimension(0);
    long height = input.GetDimension(0);
    BufferedImage bi;
    if( pi.GetType() == PhotometricInterpretation.PIType.PALETTE_COLOR )
      {
      bi = new BufferedImage(colorModel,
        colorModel.createCompatibleWritableRaster((int)width, (int)height),
        false, null);
      }
    else
      {
      bi = new BufferedImage((int)width,(int)height,imageType);
      }
    WritableRaster wr = bi.getRaster();
    //System.out.println( "imagetype: " + imageType );
    if( imageType == BufferedImage.TYPE_BYTE_GRAY
      || imageType == BufferedImage.TYPE_3BYTE_BGR )
      {
      byte[] buffer = GetAsByte( input );
      wr.setDataElements (0, 0, (int)width, (int)height, buffer);
      }
    else if( imageType == BufferedImage.TYPE_USHORT_GRAY )
      {
      short[] buffer = GetAsShort( input );
      wr.setDataElements (0, 0, (int)width, (int)height, buffer);
      }

    File outputfile = new File( outfilename );
    try {
      ImageIO.write(bi, "png", outputfile);
    } catch (IOException e) {
      return false;
    }
    return true;
    }

  public static void main(String[] args) throws Exception
    {
    String directory = args[0];

    Directory d = new Directory();
    long nfiles = d.Load( directory, true );
    if(nfiles == 0)
      {
      throw new Exception("No files found");
      }
//    System.out.println( "Files:\n" + d.toString() );
    FilenamesType fns = d.GetFilenames();

    //Scanner s = new Scanner();
    SmartPtrScan sscan = Scanner.New();
```

```
Scanner s = sscan.__ref__();
//SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(s, "MySimple");
MyWatcher watcher = new MyWatcher(s);
Tag[] tagarray = {
  new Tag(0x0010, 0x0010),    // PatientName
  new Tag(0x0010, 0x0020),    // PatientID
  new Tag(0x0010, 0x0030),    // PatientBirthDate
  new Tag(0x0010, 0x0040),    // PatientSex
  new Tag(0x0010, 0x1010),    // PatientAge
  new Tag(0x0020, 0x000d),    // StudyInstanceUID
  new Tag(0x0020, 0x0010),    // StudyID
  new Tag(0x0008, 0x0020),    // StudyDate
  new Tag(0x0008, 0x1030),    // StudyDescription
  new Tag(0x0020, 0x000e),    // SeriesInstanceUID
  new Tag(0x0020, 0x0011),    // SeriesNumber
  new Tag(0x0008, 0x0021),    // SeriesDate
  new Tag(0x0008, 0x103e),    // SeriesDescription
  new Tag(0x0008, 0x0090),    // ReferringPhysicianName
  new Tag(0x0008, 0x0060),    // Modality
  new Tag(0x0054, 0x0400),    // ImageID ?? Should be Instance number ??
  new Tag(0x0008, 0x0018),    // SOPInstanceUID
  new Tag(0x0008, 0x0032),    // AcquisitionTime
  new Tag(0x0008, 0x0033),    // ContentTime
  new Tag(0x0020, 0x0013),    // InstanceNumber
  new Tag(0x0020, 0x1041),    // SliceLocation
  new Tag(0x0018, 0x0050),    // SliceThickness ?? Eg. Enhanced MR Image Storage
  new Tag(0x0008, 0x0080),    // InstitutionName
  new Tag(0x0028, 0x1050),    // WindowCenter
  new Tag(0x0028, 0x1051),    // WindowWidth
};
for( Tag t : tagarray ) {
  //System.out.println( "Tag: " + t.toString() );
  s.AddTag( t );
}
boolean b = s.Scan( fns );
if(!b)
  {
  throw new Exception("Could not scan");
  }
String fn0 = fns.get(0);
TagToValue mappings = s.GetMapping( fn0 );
System.out.println( "mappings size: " + mappings.size() );
for( Tag tag : tagarray ) {
  if( mappings.has_key( tag ) ) {
    String val = mappings.get( tag );
    System.out.println( "tag/val: " + tag + "->" + val );
  }
}

for( long idx = 0; idx < fns.size(); ++idx )
  {
  Reader r = new Reader();
  String fn = fns.get( (int)idx );
  String outfn = fn + ".png";
  r.SetFileName( fn );
  TagSetType tst = new TagSetType();
  tst.insert( new Tag(0x7fe0,0x10) );
  b = r.ReadUpToTag( new Tag(0x88,0x200), tst );
  UIntArrayType dims = ImageHelper.GetDimensionsValue( r.GetFile() );
  if( b )
    {
    IconImageFilter iif = new IconImageFilter();
    System.out.println( "Processing: " + fn );

    iif.SetFile( r.GetFile() );
    b = iif.Extract();
    if( b )
      {
      Bitmap icon = iif.GetIconImage(0);
      WritePNG(icon, outfn);
      }
    else
      {
      ImageReader ir = new ImageReader();
      ir.SetFileName( fn );
      if( ir.Read() )
        {
        Image img = ir.GetImage();
        StringFilter sf = new StringFilter();
        sf.SetFile( r.GetFile() );
        String strval = sf.ToString( new Tag(0x0028,0x0120) );
```

```
            IconImageGenerator iig = new IconImageGenerator();
            iig.SetPixmap( img );
            iig.AutoPixelMinMax( true );
            try {
              double val = Double.parseDouble( strval );
              iig.SetOutsideValuePixel( val );
            }
            catch ( NumberFormatException e) {
              }
            iig.ConvertRGBToPaletteColor( false );
            long idims[] = { 128, 128};
            iig.SetOutputDimensions( idims );
            iig.Generate();
            Bitmap icon = iig.GetIconImage();
            WritePNG(icon, outfn);
            }
          }
        }
      }

    System.out.println( "Scan:\n" + s.toString() );

    System.out.println( "success" );
    }
}
```

14.112 SimplePrint.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Compilation:
 * $ CLASSPATH=gdcm.jar javac ../../gdcm/Examples/Java/SimplePrint.java -d .
 *
 * Usage:
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java SimplePrint gdcmData/012345.002.050.dcm
 */
import gdcm.*;

public class SimplePrint
{
  public static void RecurseDataSet(File f, DataSet ds, String indent)
    {
    JavaDataSet cds = new JavaDataSet(ds);
    while(!cds.IsAtEnd())
      {
      DataElement de = cds.GetCurrent();
      // Compute VR from the toplevel file, and the currently processed dataset:
      VR vr = DataSetHelper.ComputeVR(f, ds, de.GetTag() );

      if( vr.Compatible( new VR(VR.VRType.SQ) ) )
        {
        long uvl = de.GetVL().GetValueLength(); // Test cast is ok
        System.out.println(  indent + de.GetTag().toString() + ":" + uvl ); // why not ?
        //SequenceOfItems sq = de.GetSequenceOfItems();
        // GetValueAsSQ handle more cases than GetSequenceOfItems
        SmartPtrSQ sq = de.GetValueAsSQ();
        long n = sq.GetNumberOfItems();
        for( long i = 1; i <= n; i++) // item starts at 1, not 0
          {
          Item item = sq.GetItem( i );
          DataSet nested = item.GetNestedDataSet();
          RecurseDataSet( f, nested, indent + "  " );
          }
        }
```

```
      else
        {
        System.out.println( indent + de.toString() );
        }
      cds.Next();
      }
    }

  public static void main(String[] args) throws Exception
    {
    String filename = args[0];
    Reader reader = new Reader();
    reader.SetFileName( filename );
    boolean ret = reader.Read();
    if( !ret )
      {
      throw new Exception("Could not read: " + filename );
      }
    File f = reader.GetFile();
    DataSet ds = f.GetDataSet();

    RecurseDataSet( f, ds, "" );
    }
}
```

14.113 AddPrivateAttribute.py

```
00001
00014
00015 """
00016 Usage:
00017
00018   python AddPrivateAttribute.py input.dcm output.dcm
00019
00020
00021 """
00022
00023 import sys
00024 import gdcm
00025
00026 if __name__ == "__main__":
00027
00028   file1 = sys.argv[1]
00029   file2 = sys.argv[2]
00030
00031   r = gdcm.Reader()
00032   r.SetFileName( file1 )
00033   if not r.Read():
00034     sys.exit(1)
00035
00036   f = r.GetFile()
00037   ds = f.GetDataSet()
00038
00039   # Create a dataelement
00040   de = gdcm.DataElement(gdcm.Tag(0x0051, 0x1011))
00041   de.SetByteStringValue("p2")
00042   de.SetVR(gdcm.VR(gdcm.VR.SH))
00043
00044   ds.Insert(de)
00045
00046   w = gdcm.Writer()
00047   w.SetFile( f )
00048   w.SetFileName( file2 )
00049   if not w.Write():
00050     sys.exit(1)
```

14.114 ConvertMPL.py

```
00001
00014
00015 """
00016 display a DICOM image with matPlotLib via numpy
```

```
00017
00018 Caveats:
00019 - Does not support UINT12/INT12
00020
00021 Usage:
00022
00023  python ConvertNumpy.py "IM000000"
00024
00025 Thanks:
00026   plotting example - Ray Schumacher 2009
00027 """
00028
00029 import gdcm
00030 import numpy
00031 from pylab import *
00032
00033
00034 def get_gdcm_to_numpy_typemap():
00035     """Returns the GDCM Pixel Format to numpy array type mapping."""
00036     _gdcm_np = {gdcm.PixelFormat.UINT8  :numpy.int8,
00037                 gdcm.PixelFormat.INT8   :numpy.uint8,
00038                 gdcm.PixelFormat.UINT16 :numpy.uint16,
00039                 gdcm.PixelFormat.INT16  :numpy.int16,
00040                 gdcm.PixelFormat.UINT32 :numpy.uint32,
00041                 gdcm.PixelFormat.INT32  :numpy.int32,
00042                 gdcm.PixelFormat.FLOAT32:numpy.float32,
00043                 gdcm.PixelFormat.FLOAT64:numpy.float64 }
00044     return _gdcm_np
00045
00046 def get_numpy_array_type(gdcm_pixel_format):
00047     """Returns a numpy array typecode given a GDCM Pixel Format."""
00048     return get_gdcm_to_numpy_typemap()[gdcm_pixel_format]
00049
00050 def gdcm_to_numpy(image):
00051     """Converts a GDCM image to a numpy array.
00052     """
00053     pf = image.GetPixelFormat().GetScalarType()
00054     print 'pf', pf
00055     print image.GetPixelFormat().GetScalarTypeAsString()
00056     assert pf in get_gdcm_to_numpy_typemap().keys(), \
00057            "Unsupported array type %s"%pf
00058     d = image.GetDimension(0), image.GetDimension(1)
00059     print 'Image Size: %d x %d' % (d[0], d[1])
00060     dtype = get_numpy_array_type(pf)
00061     gdcm_array = image.GetBuffer()
00062
00063     result = numpy.frombuffer(gdcm_array, dtype=dtype).astype(float)
00064
00068     result.shape = d
00069     return result
00070
00071 if __name__ == "__main__":
00072   import sys
00073   r = gdcm.ImageReader()
00074   filename = sys.argv[1]
00075   r.SetFileName( filename )
00076   if not r.Read():  sys.exit(1)
00077   numpy_array = gdcm_to_numpy( r.GetImage() )
00078
00079   subplot(111)# one plot, on left
00080   title(filename)
00081
00082   imshow(numpy_array, interpolation='bilinear', cmap=cm.jet)
00083
00084   subplots_adjust(bottom=0.1, right=0.8, top=0.9)
00085   cax = axes([0.85, 0.1, 0.075, 0.8])
00086   colorbar(cax=cax)
00087   title('values')
00088   get_current_fig_manager().window.title('plot')
00089   show()
```

14.115 ConvertNumpy.py

```
00001
00014
00015 """
```

```
00016 This module add support for converting a gdcm.Image to a numpy array.
00017
00018 Caveats:
00019 - Does not support UINT12/INT12
00020
00021 Removed:
00022 - float16 is defined in GDCM API but no implementation exist for it ...
00023 """
00024
00025 import gdcm
00026 import numpy
00027
00028 def get_gdcm_to_numpy_typemap():
00029     """Returns the GDCM Pixel Format to numpy array type mapping."""
00030     _gdcm_np = {gdcm.PixelFormat.UINT8  :numpy.uint8,
00031                 gdcm.PixelFormat.INT8   :numpy.int8,
00032                 #gdcm.PixelFormat.UINT12 :numpy.uint12,
00033                 #gdcm.PixelFormat.INT12  :numpy.int12,
00034                 gdcm.PixelFormat.UINT16 :numpy.uint16,
00035                 gdcm.PixelFormat.INT16  :numpy.int16,
00036                 gdcm.PixelFormat.UINT32 :numpy.uint32,
00037                 gdcm.PixelFormat.INT32  :numpy.int32,
00038                 #gdcm.PixelFormat.FLOAT16:numpy.float16,
00039                 gdcm.PixelFormat.FLOAT32:numpy.float32,
00040                 gdcm.PixelFormat.FLOAT64:numpy.float64 }
00041     return _gdcm_np
00042
00043 def get_numpy_array_type(gdcm_pixel_format):
00044     """Returns a numpy array typecode given a GDCM Pixel Format."""
00045     return get_gdcm_to_numpy_typemap()[gdcm_pixel_format]
00046
00047 def gdcm_to_numpy(image):
00048     """Converts a GDCM image to a numpy array.
00049     """
00050     pf = image.GetPixelFormat()
00051
00052     assert pf.GetScalarType() in get_gdcm_to_numpy_typemap().keys(), \
00053            "Unsupported array type %s"%pf
00054
00055     shape = image.GetDimension(0) * image.GetDimension(1), pf.GetSamplesPerPixel()
00056     if image.GetNumberOfDimensions() == 3:
00057       shape = shape[0] * image.GetDimension(2), shape[1]
00058
00059     dtype = get_numpy_array_type(pf.GetScalarType())
00060     gdcm_array = image.GetBuffer()
00061     result = numpy.frombuffer(gdcm_array, dtype=dtype)
00062     result.shape = shape
00063     return result
00064
00065 if __name__ == "__main__":
00066   import sys
00067   r = gdcm.ImageReader()
00068   filename = sys.argv[1]
00069   r.SetFileName( filename )
00070   if not r.Read():
00071     sys.exit(1)
00072
00073   numpy_array = gdcm_to_numpy( r.GetImage() )
00074   print numpy_array
```

14.116 ConvertPIL.py

```
00001
00014
00015 """
00016 save a DICOM image with PIL via numpy
00017
00018 Caveats:
00019 - Does not support UINT12/INT12
00020
00021 Usage:
00022
00023  python ConvertNumpy.py "IM000000"
00024
00025 Thanks:
00026   plotting example - Ray Schumacher 2009
```

```
00027 """
00028
00029 import gdcm
00030 import numpy
00031 from PIL import Image, ImageOps
00032
00033
00034 def get_gdcm_to_numpy_typemap():
00035     """Returns the GDCM Pixel Format to numpy array type mapping."""
00036     _gdcm_np = {gdcm.PixelFormat.UINT8  :numpy.int8,
00037                 gdcm.PixelFormat.INT8   :numpy.uint8,
00038                 gdcm.PixelFormat.UINT16 :numpy.uint16,
00039                 gdcm.PixelFormat.INT16  :numpy.int16,
00040                 gdcm.PixelFormat.UINT32 :numpy.uint32,
00041                 gdcm.PixelFormat.INT32  :numpy.int32,
00042                 gdcm.PixelFormat.FLOAT32:numpy.float32,
00043                 gdcm.PixelFormat.FLOAT64:numpy.float64 }
00044     return _gdcm_np
00045
00046 def get_numpy_array_type(gdcm_pixel_format):
00047     """Returns a numpy array typecode given a GDCM Pixel Format."""
00048     return get_gdcm_to_numpy_typemap()[gdcm_pixel_format]
00049
00050 def gdcm_to_numpy(image):
00051     """Converts a GDCM image to a numpy array.
00052     """
00053     pf = image.GetPixelFormat().GetScalarType()
00054     print 'pf', pf
00055     print image.GetPixelFormat().GetScalarTypeAsString()
00056     assert pf in get_gdcm_to_numpy_typemap().keys(), \
00057            "Unsupported array type %s"%pf
00058     d = image.GetDimension(0), image.GetDimension(1)
00059     print 'Image Size: %d x %d' % (d[0], d[1])
00060     dtype = get_numpy_array_type(pf)
00061     gdcm_array = image.GetBuffer()
00062     result = numpy.frombuffer(gdcm_array, dtype=dtype)
00063     maxV = float(result[result.argmax()])
00064
00067     result = numpy.log(result+50)
00068     maxV = float(result[result.argmax()])
00069     result = result*(2.**8/maxV)
00070     result.shape = d
00071     return result
00072
00073 if __name__ == "__main__":
00074   import sys
00075   r = gdcm.ImageReader()
00076   filename = sys.argv[1]
00077   r.SetFileName( filename )
00078   if not r.Read():  sys.exit(1)
00079   numpy_array = gdcm_to_numpy( r.GetImage() )
00080
00082   pilImage = Image.frombuffer('L',
00083                               numpy_array.shape,
00084                               numpy_array.astype(numpy.uint8),
00085                               'raw','L',0,1)
00086
00087   pilImage = ImageOps.autocontrast(pilImage, cutoff=.1)
00088   pilImage.save(sys.argv[1]+'.jpg')
```

14.117 CreateRAWStorage.py

```
00001
00014
00015 """
00016     <uid value="1.2.840.10008.5.1.4.1.1.66" name="Raw Data Storage" type="SOP Class" part="PS 3.4"
      retired="false"/>
00017 """
00018
00019 import gdcm
00020 import sys,os
00021
00022 if __name__ == "__main__":
00023   r = gdcm.Reader()
00024   # Will require Testing...
00025   dataroot = gdcm.Testing.GetDataRoot()
```

```
00026   filename = os.path.join( dataroot, '012345.002.050.dcm' )
00027   r.SetFileName( filename )
00028   r.Read()
00029   f = r.GetFile()
00030   ds = f.GetDataSet()
00031
00032   uid = "1.2.840.10008.5.1.4.1.1.66"
00033 #  f = gdcm.File()
00034 #  ds = f.GetDataSet()
00035   de = gdcm.DataElement( gdcm.Tag(0x0008,0x0016) )
00036   de.SetByteStringValue( uid )
00037   vr = gdcm.VR( gdcm.VR.UI )
00038   de.SetVR( vr )
00039   ds.Replace( de )
00040
00041   ano = gdcm.Anonymizer()
00042   ano.SetFile( r.GetFile() )
00043   ano.RemovePrivateTags()
00044   ano.RemoveGroupLength()
00045   taglist = [
00046   gdcm.Tag(0x0008,0x0008),
00047   gdcm.Tag(0x0008,0x0022),
00048   gdcm.Tag(0x0008,0x0032),
00049   gdcm.Tag(0x0008,0x2111),
00050   gdcm.Tag(0x0008,0x1150),
00051   gdcm.Tag(0x0008,0x1155),
00052   gdcm.Tag(0x0008,0x0100),
00053   gdcm.Tag(0x0008,0x0102),
00054   gdcm.Tag(0x0008,0x0104),
00055   gdcm.Tag(0x0040,0xa170),
00056   gdcm.Tag(0x0008,0x2112),
00057   gdcm.Tag(0x0008,0x0100),
00058   gdcm.Tag(0x0008,0x0102),
00059   gdcm.Tag(0x0008,0x0104),
00060   gdcm.Tag(0x0008,0x9215),
00061   gdcm.Tag(0x0018,0x0010),
00062   gdcm.Tag(0x0018,0x0022),
00063   gdcm.Tag(0x0018,0x0050),
00064   gdcm.Tag(0x0018,0x0060),
00065   gdcm.Tag(0x0018,0x0088),
00066   gdcm.Tag(0x0018,0x0090),
00067   gdcm.Tag(0x0018,0x1040),
00068   gdcm.Tag(0x0018,0x1100),
00069   gdcm.Tag(0x0018,0x1110),
00070   gdcm.Tag(0x0018,0x1111),
00071   gdcm.Tag(0x0018,0x1120),
00072   gdcm.Tag(0x0018,0x1130),
00073   gdcm.Tag(0x0018,0x1150),
00074   gdcm.Tag(0x0018,0x1151),
00075   gdcm.Tag(0x0018,0x1152),
00076   gdcm.Tag(0x0018,0x1160),
00077   gdcm.Tag(0x0018,0x1190),
00078   gdcm.Tag(0x0018,0x1210),
00079   gdcm.Tag(0x0020,0x0012),
00080   gdcm.Tag(0x0020,0x0032),
00081   gdcm.Tag(0x0020,0x0037),
00082   gdcm.Tag(0x0020,0x1041),
00083   gdcm.Tag(0x0020,0x4000),
00084   gdcm.Tag(0x0028,0x0002),
00085   gdcm.Tag(0x0028,0x0004),
00086   gdcm.Tag(0x0028,0x0010),
00087   gdcm.Tag(0x0028,0x0011),
00088   gdcm.Tag(0x0028,0x0030),
00089   gdcm.Tag(0x0028,0x0100),
00090   gdcm.Tag(0x0028,0x0101),
00091   gdcm.Tag(0x0028,0x0102),
00092   gdcm.Tag(0x0028,0x0103),
00093   gdcm.Tag(0x0028,0x1052),
00094   gdcm.Tag(0x0028,0x1053),
00095   gdcm.Tag(0x0028,0x2110),
00096   gdcm.Tag(0x0028,0x2112),
00097   gdcm.Tag(0x7fe0,0x0010),
00098   gdcm.Tag(0x0018,0x0020),
00099   gdcm.Tag(0x0018,0x0021),
00100   gdcm.Tag(0x0018,0x0023),
00101   gdcm.Tag(0x0018,0x0025),
00102   gdcm.Tag(0x0018,0x0080),
00103   gdcm.Tag(0x0018,0x0081),
00104   gdcm.Tag(0x0018,0x0083),
00105   gdcm.Tag(0x0018,0x0084),
00106   gdcm.Tag(0x0018,0x0085),
```

```
00107   gdcm.Tag(0x0018,0x0086),
00108   gdcm.Tag(0x0018,0x0087),
00109   gdcm.Tag(0x0018,0x0091),
00110   gdcm.Tag(0x0018,0x0093),
00111   gdcm.Tag(0x0018,0x0094),
00112   gdcm.Tag(0x0018,0x0095),
00113   gdcm.Tag(0x0018,0x1088),
00114   gdcm.Tag(0x0018,0x1090),
00115   gdcm.Tag(0x0018,0x1094),
00116   gdcm.Tag(0x0018,0x1250),
00117   gdcm.Tag(0x0018,0x1251),
00118   gdcm.Tag(0x0018,0x1310),
00119   gdcm.Tag(0x0018,0x1312),
00120   gdcm.Tag(0x0018,0x1314),
00121   gdcm.Tag(0x0018,0x1315),
00122   gdcm.Tag(0x0018,0x1316),
00123   gdcm.Tag(0x0020,0x0110),
00124   gdcm.Tag(0x0028,0x0120),
00125   gdcm.Tag(0x0028,0x1050),
00126   gdcm.Tag(0x0028,0x1051)
00127   ]
00128   for tag in taglist:
00129     #print tag
00130     ano.Remove( tag )
00131
00132   # special handling
00133   gen = gdcm.UIDGenerator()
00134   ano.Replace( gdcm.Tag(0x0008,0x9123), gen.Generate() )
00135   #ano.Empty( gdcm.Tag(0x0040,0x0555) )
00136
00137
00138 #
00139 #  uid = gen.Generate()
00140 #  de.SetTag( gdcm.Tag(0x0008,0x0018) )
00141 #  de.SetByteStringValue( uid )
00142 #  ds.Insert( de )
00143
00144   # init FMI now:
00145   #fmi = f.GetHeader()
00146   #ts = gdcm.TransferSyntax()
00147   #print ts
00148   #fmi.SetDataSetTransferSyntax( ts ) # default
00149   #print fmi.GetDataSetTransferSyntax()
00150   #de.SetTag( gdcm.Tag(0x0002,0x0010) )
00151   #uid = "1.2.840.10008.1.2"
00152   #de.SetByteStringValue( uid )
00153   #fmi.Insert( de )
00154 #  f.SetHeader( r.GetFile().GetHeader() )
00155
00156   writer = gdcm.Writer()
00157   writer.SetFile( ano.GetFile() )
00158   writer.SetFileName( "rawstorage.dcm" );
00159   writer.Write()
```

14.118 DecompressImage.py

```
00001
00014
00015 """
00016 Usage:
00017
00018  python DecompressImage.py gdcmData/012345.002.050.dcm decompress.dcm
00019 """
00020
00021 import gdcm
00022 import sys
00023
00024 if __name__ == "__main__":
00025
00026   file1 = sys.argv[1]
00027   file2 = sys.argv[2]
00028
00029   r = gdcm.ImageReader()
00030   r.SetFileName( file1 )
00031   if not r.Read():
00032     sys.exit(1)
```

```
00033
00034   # check GetFragment API:
00035   pd = r.GetFile().GetDataSet().GetDataElement(gdcm.Tag(0x7fe0, 0x0010))
00036   frags = pd.GetSequenceOfFragments();
00037   frags.GetFragment(0);
00038
00039   ir = r.GetImage()
00040   w = gdcm.ImageWriter()
00041   image = w.GetImage()
00042
00043   image.SetNumberOfDimensions( ir.GetNumberOfDimensions() );
00044   dims = ir.GetDimensions();
00045   print ir.GetDimension(0);
00046   print ir.GetDimension(1);
00047   print "Dims:",dims
00048
00049   #  Just for fun:
00050   dircos =  ir.GetDirectionCosines()
00051   t = gdcm.Orientation.GetType(tuple(dircos))
00052   l = gdcm.Orientation.GetLabel(t)
00053   print "Orientation label:",l
00054
00055   image.SetDimension(0, ir.GetDimension(0) );
00056   image.SetDimension(1, ir.GetDimension(1) );
00057
00058   pixeltype = ir.GetPixelFormat();
00059   image.SetPixelFormat( pixeltype );
00060
00061   pi = ir.GetPhotometricInterpretation();
00062   image.SetPhotometricInterpretation( pi );
00063
00064   pixeldata = gdcm.DataElement( gdcm.Tag(0x7fe0,0x0010) )
00065   str1 = ir.GetBuffer()
00066   #print ir.GetBufferLength()
00067   pixeldata.SetByteStringValue( str1 )
00068   image.SetDataElement( pixeldata )
00069
00070   w.SetFileName( file2 )
00071   w.SetFile( r.GetFile() )
00072   w.SetImage( image )
00073   if not w.Write():
00074     sys.exit(1)
```

14.119 DumbAnonymizer.py

```
00001
00014
00015 """
00016 This example shows how one can use the gdcm.Anonymizer in 'dumb' mode.
00017 This class becomes really handy when one knows which particular tag to fill in.
00018
00019 Usage:
00020
00021  python DumbAnonymizer.py gdcmData/012345.002.050.dcm out.dcm
00022
00023 """
00024
00025 import gdcm
00026
00027 # http://www.oid-info.com/get/1.3.6.1.4.17434
00028 THERALYS_ORG_ROOT = "1.3.6.1.4.17434"
00029
00030 tag_rules={
00031   # Value
00032   (0x0012,0x0010):("Value","MySponsorName"),
00033   (0x0012,0x0020):("Value","MyProtocolID"),
00034   (0x0012,0x0021):("Value","MyProtocolName"),
00035   (0x0012,0x0062):("Value","YES"),
00036   (0x0012,0x0063):("Value","MyDeidentificationMethod"),
00037
00038   # Method
00039   #(0x0002,0x0003):("Method","GenerateMSOPId"),
00040   #(0x0008,0x1155):("Method","GenerateMSOPId"),
00041   (0x0008,0x0018):("Method","GenerateMSOPId"),
00042   (0x0010,0x0010):("Method","GetSponsorInitials"),
00043   (0x0010,0x0020):("Method","GetSponsorId"),
```

```
00044   (0x0012,0x0030):("Method","GetSiteId"),
00045   (0x0012,0x0031):("Method","GetSiteName"),
00046   (0x0012,0x0040):("Method","GetSponsorId"),
00047   (0x0012,0x0050):("Method","GetTPId"),
00048   (0x0018,0x0022):("Method","KeepIfExist"),
00049   (0x0018,0x1315):("Method","KeepIfExist"),
00050   (0x0020,0x000d):("Method","GenerateStudyId"),
00051   (0x0020,0x000e):("Method","GenerateSeriesId"),
00052   (0x0020,0x1002):("Method","GetNumberOfFrames"),
00053   (0x0020,0x0020):("Method","GetPatientOrientation"),
00054   # Other:
00055   (0x0012,0x0051):("Patient Field","Type Examen"),
00056   (0x0018,0x1250):("Sequence Field","Receive Coil"),
00057   (0x0018,0x0088):("Sequence Field","Spacing Between Slice"),
00058   (0x0018,0x0095):("Sequence Field","Pixel Bandwidth"),
00059   (0x0018,0x0082):("Sequence Field","Inversion Time"),
00060 }
00061
00062 class MyAnon:
00063   def __init__(self):
00064     self.studyuid = None
00065     self.seriesuid = None
00066     generator = gdcm.UIDGenerator()
00067     if not self.studyuid:
00068       self.studyuid = generator.Generate()
00069     if not self.seriesuid:
00070       self.seriesuid = generator.Generate()
00071   def GetSponsorInitials(self):
00072     return "dummy^foobar"
00073   def GenerateStudyId(self):
00074     return self.studyuid
00075   def GenerateSeriesId(self):
00076     return self.seriesuid
00077   #def GenerateMSOPId(self):
00078   def GenerateMSOPId(self):
00079     generator = gdcm.UIDGenerator()
00080     return generator.Generate()
00081   def GetSiteId(self):
00082     return "MySiteId"
00083   def GetSiteName(self):
00084     return "MySiteName"
00085   def GetSponsorId(self):
00086     return "MySponsorId"
00087   def GetTPId(self):
00088     return "MyTP"
00089
00090 if __name__ == "__main__":
00091   import sys
00092   gdcm.FileMetaInformation.SetSourceApplicationEntityTitle( "DumbAnonymizer" )
00093   gdcm.UIDGenerator.SetRoot( THERALYS_ORG_ROOT )
00094
00095   r = gdcm.Reader()
00096   filename = sys.argv[1]
00097   r.SetFileName( filename )
00098   if not r.Read(): sys.exit(1)
00099
00100   obj = MyAnon()
00101
00102   w = gdcm.Writer()
00103   ano = gdcm.Anonymizer()
00104   ano.SetFile( r.GetFile() )
00105   ano.RemoveGroupLength()
00106   for tag,rule in tag_rules.items():
00107     if rule[0] == 'Value':
00108       print tag,rule
00109       ano.Replace( gdcm.Tag( tag[0], tag[1] ), rule[1] )
00110     elif rule[0] == 'Method':
00111       print tag,rule
00112       # result = locals()[rule[1]]()
00113       methodname = rule[1]
00114       if hasattr(obj, methodname):
00115         _member = getattr(obj, methodname)
00116         result = _member()
00117         ano.Replace( gdcm.Tag( tag[0], tag[1] ), result )
00118       else:
00119         print "Problem with: ", methodname
00120
00121   outfilename = sys.argv[2]
00122   w.SetFileName( outfilename )
00123   w.SetFile( ano.GetFile() )
00124   if not w.Write(): sys.exit(1)
```

14.120 ExtractImageRegion.py

```
00001
00014
00015 """
00016
00017  This small code shows how to use the gdcm.ImageRegionReader API
00018  In this example we are taking each frame by frame and dump them to
00019  /tmp/frame.raw.
00020
00021  Usage:
00022  $ ExtractImageRegion.py input.dcm
00023
00024  Example:
00025  $ ExtractImageRegion.py gdcmData/012345.002.050.dcm
00026  $ md5sum /tmp/frame.raw
00027  d594a5e2fde12f32b6633ca859b4d4a6  /tmp/frame.raw
00028  $ gdcminfo --md5sum gdcmData/012345.002.050.dcm
00029  [...]
00030  md5sum: d594a5e2fde12f32b6633ca859b4d4a6
00031 """
00032
00033 import gdcm
00034
00035 if __name__ == "__main__":
00036   import sys
00037   filename = sys.argv[1]
00038
00039   file_size = gdcm.System.FileSize(filename);
00040
00041   # instantiate the reader:
00042   reader = gdcm.ImageRegionReader();
00043   reader.SetFileName( filename );
00044
00045   # pull DICOM info:
00046   if not reader.ReadInformation():
00047     sys.exit(1)
00048
00049   # store current offset:
00050   cur_pos = reader.GetStreamCurrentPosition();
00051
00052   remaining = file_size - cur_pos;
00053
00054   print("Remaining bytes to read (Pixel Data): %d" % remaining );
00055
00056   # Get file infos
00057   f = reader.GetFile();
00058
00059   # get some info about image
00060   dims = gdcm.ImageHelper.GetDimensionsValue(f);
00061   print(dims)
00062   pf = gdcm.ImageHelper.GetPixelFormatValue (f);
00063   pixelsize = pf.GetPixelSize();
00064   pi = gdcm.ImageHelper.GetPhotometricInterpretationValue(f);
00065   print( pi );
00066
00067   # buffer to get the pixels
00068   buffer = bytearray( dims[0] * dims[1] * pixelsize )
00069
00070   # define a simple box region.
00071   box = gdcm.BoxRegion();
00072   for z in range(0, dims[2]):
00073     # Define that I want the image 0, full size (dimx x dimy pixels)
00074     # and do that for each z:
00075     box.SetDomain(0, dims[0] - 1, 0, dims[1] - 1, z, z);
00076     #print( box.toString() );
00077     reader.SetRegion( box );
00078
00079     # reader will try to load the uncompressed image region into buffer.
00080     # the call returns an error when buffer.Length is too small. For instance
00081     # one can call:
00082     # uint buf_len = reader.ComputeBufferLength(); // take into account pixel size
00083     # to get the exact size of minimum buffer
00084     if reader.ReadIntoBuffer(buffer):
00085       open('/tmp/frame.raw', 'wb').write(buffer)
00086     else:
00087       #throw new Exception("can't read pixels error");
00088       sys.exit(1)
```

14.121 FindAllPatientName.py

```
00001
00014 """
00015 This example shows how one can use the gdcm.CompositeNetworkFunctions class
00016 for executing a C-FIND query
00017 It will print the list of patient name found
00018
00019 Usage:
00020
00021  python FindAllPatientName.py
00022
00023 """
00024
00025 import gdcm
00026
00027 # Patient Name
00028 tag = gdcm.Tag(0x10,0x10)
00029 de = gdcm.DataElement(tag)
00030
00031 # Search all patient name where string match 'F*'
00032 de.SetByteStringValue('F*')
00033
00034 ds = gdcm.DataSet()
00035 ds.Insert(de)
00036
00037 cnf = gdcm.CompositeNetworkFunctions()
00038 theQuery = cnf.ConstructQuery (gdcm.ePatientRootType,gdcm.ePatient,ds)
00039
00040 #print theQuery.ValidateQuery()
00041
00042 # prepare the variable for output
00043 ret = gdcm.DataSetArrayType()
00044
00045 # Execute the C-FIND query
00046 cnf.CFind('dicom.example.com',11112,theQuery,ret,'GDCM_PYTHON','ANY-SCP')
00047
00048 for i in range(0,ret.size()):
00049   print "Patient #",i
00050   print ret[i]
```

14.122 FixCommaBug.py

```
00001
00014
00015 """
00016 Using LC_NUMERIC set to something not compatible with "C" it is possible to write out "," instead of
00017 "." as required by the DICOM standard
00018 Issue is still current (IMHO) with gdcm 2.0.9
00019 """
00020
00021 import gdcm
00022 import sys
00023
00024 filename = sys.argv[1]
00025 outname = sys.argv[2]
00026
00027 # read
00028 r = gdcm.Reader()
00029 r.SetFileName( filename )
00030 if not r.Read():
00031   print "not valid"
00032   sys.exit(1)
00033
00034 file = r.GetFile()
00035 dataset = file.GetDataSet()
00036
00037 ano = gdcm.Anonymizer()
00038 ano.SetFile( file )
00039
00040 tags = [
00041 gdcm.Tag(0x0018,0x1164),
00042 gdcm.Tag(0x0018,0x0088),
00043 gdcm.Tag(0x0018,0x0050),
00044 gdcm.Tag(0x0028,0x0030),
00045 ]
```

```
00046
00047 for tag in tags:
00048   print tag
00049   if dataset.FindDataElement( tag ):
00050     pixelspacing = dataset.GetDataElement( tag )
00051     #print pixelspacing
00052     bv = pixelspacing.GetByteValue()
00053     str = bv.GetBuffer()
00054     #print bv.GetLength()
00055     #print len(str)
00056     new_str = str.replace(",",".")
00057     # Need to explicitly pass bv.GetLength() to remove any trailing garbage
00058     ano.Replace( tag, new_str, bv.GetLength() )
00059
00060 #print dataset
00061
00062 w = gdcm.Writer()
00063 w.SetFile( file )
00064 w.SetFileName( outname )
00065 if not w.Write():
00066   print "Cannot write"
00067   sys.exit(1)
00068
00069 # paranoid:
00070 image_reader = gdcm.ImageReader()
00071 image_reader.SetFileName( outname )
00072 if not image_reader.Read():
00073   print "there is still a comma"
00074   sys.exit(1)
00075
00076 print "Success!"
00077 sys.exit(0) # success
```

14.123 GetPortionCSAHeader.py

```
00001
00014
00015 """
00016 Usage:
00017
00018  python GetPortionCSAHeader.py input.dcm
00019
00020 Footnote:
00021   SIEMENS is not publishing any information on the CSA header. So any info extracted
00022   is at your own risk.
00023 """
00024
00025 import sys
00026 import gdcm
00027
00028 if __name__ == "__main__":
00029
00030   file = sys.argv[1]
00031
00032   r = gdcm.Reader()
00033   r.SetFileName( file )
00034   if not r.Read():
00035     sys.exit(1)
00036
00037   ds = r.GetFile().GetDataSet()
00038   csa_t1 = gdcm.CSAHeader()
00039   csa_t2 = gdcm.CSAHeader()
00040   #print csa
00041   t1 = csa_t1.GetCSAImageHeaderInfoTag();
00042   print t1
00043   t2 = csa_t2.GetCSASeriesHeaderInfoTag();
00044   print t2
00045   # Let's do it for t1:
00046   if ds.FindDataElement( t1 ):
00047     csa_t1.LoadFromDataElement( ds.GetDataElement( t1 ) )
00048     print csa_t1
00049
00050   # Now let's pretend we are only interested in B_value and DiffusionGradientDirection entries:
00051   bvalues = csa_t1.GetCSAElementByName( "B_value" ) # WARNING: it is case sensitive !
00052   print bvalues
00053
```

```
00054   diffgraddir = csa_t1.GetCSAElementByName( "DiffusionGradientDirection" ) # WARNING: it is case sensitive
      !
00055   print diffgraddir
00056
00057   # repeat for t2 if you like it:
00058   if ds.FindDataElement( t2 ):
00059     csa_t2.LoadFromDataElement( ds.GetDataElement( t2 ) )
00060     # print csa_t2
00061
00062   gdt = csa_t2.GetCSAElementByName( "GradientDelayTime" )
00063   print gdt
00064
00065   bv = gdt.GetByteValue();
00066   #print bv
00067   str = bv.GetPointer()
00068   print str.split("\\")
```

14.124 HelloWorld.py

```
00001
00014
00015 """
00016 Hello World !
00017 """
00018
00019 import gdcm
00020 import sys
00021
00022 if __name__ == "__main__":
00023
00024   # verbosity:
00025   #gdcm.Trace.DebugOn()
00026   #gdcm.Trace.WarningOn()
00027   #gdcm.Trace.ErrorOn()
00028
00029   # Get the filename from the command line
00030   filename = sys.argv[1]
00031
00032   # Instantiate a gdcm.Reader
00033   # This is the main class to handle any type of DICOM object
00034   # You should check for gdcm.ImageReader for reading specifically DICOM Image file
00035   r = gdcm.Reader()
00036   r.SetFileName( filename )
00037   # If the reader fails to read the file, we should stop !
00038   if not r.Read():
00039     print "Not a valid DICOM file"
00040     sys.exit(1)
00041
00042   # Get the DICOM File structure
00043   file = r.GetFile()
00044
00045   # Get the DataSet part of the file
00046   dataset = file.GetDataSet()
00047
00048   # Ok let's print it !
00049   print dataset
00050
00051   # Use StringFilter to print a particular Tag:
00052   sf = gdcm.StringFilter()
00053   sf.SetFile(r.GetFile())
00054
00055   # Check if Attribute exist
00056   print dataset.FindDataElement( gdcm.Tag(0x0028,0x0010))
00057
00058   # Let's print it as string pair:
00059   print sf.ToStringPair(gdcm.Tag(0x0028,0x0010))
```

14.125 ManipulateFile.py

```
00001
00014
00015 """
```

```
00016 Usage:
00017
00018  python ManipulateFile.py input.dcm output.dcm
00019
00020 Footnote:
00021   GDCM 1.2.x would create incorrect Multiframes MR Image Storage file. Try to recover from
00022   the issues to recreate a MultiframeGrayscaleByteSecondaryCaptureImageStorage file.
00023   e.g:
00024
00025   python ManipulateFile.py Insight/Testing/Temporary/itkGDCMImageIOTest5-j2k.dcm manipulated.dcm
00026 """
00027
00028 import sys
00029 import gdcm
00030
00031 if __name__ == "__main__":
00032
00033   file1 = sys.argv[1]
00034   file2 = sys.argv[2]
00035
00036   r = gdcm.Reader()
00037   r.SetFileName( file1 )
00038   if not r.Read():
00039     sys.exit(1)
00040
00041   ano = gdcm.Anonymizer()
00042   ano.SetFile( r.GetFile() )
00043   ano.RemovePrivateTags()
00044   ano.Remove( gdcm.Tag(0x0032,0x1030) )
00045   ano.Remove( gdcm.Tag(0x008,0x14) )
00046   ano.Remove( gdcm.Tag(0x008,0x1111) )
00047   ano.Remove( gdcm.Tag(0x008,0x1120) )
00048   ano.Remove( gdcm.Tag(0x008,0x1140) )
00049   ano.Remove( gdcm.Tag(0x10,0x21b0) )
00050   ano.Empty( gdcm.Tag(0x10,0x10) )
00051   ano.Empty( gdcm.Tag(0x10,0x20) )
00052   ano.Empty( gdcm.Tag(0x10,0x30) )
00053   ano.Empty( gdcm.Tag(0x20,0x10) )
00054   ano.Empty( gdcm.Tag(0x32,0x1032) )
00055   ano.Empty( gdcm.Tag(0x32,0x1033) )
00056   ano.Empty( gdcm.Tag(0x40,0x241) )
00057   ano.Empty( gdcm.Tag(0x40,0x254) )
00058   ano.Empty( gdcm.Tag(0x40,0x253) )
00059   ano.Empty( gdcm.Tag(0x40,0x1001) )
00060   ano.Empty( gdcm.Tag(0x8,0x80) )
00061   ano.Empty( gdcm.Tag(0x8,0x50) )
00062   ano.Empty( gdcm.Tag(0x8,0x1030) )
00063   ano.Empty( gdcm.Tag(0x8,0x103e) )
00064   ano.Empty( gdcm.Tag(0x18,0x1030) )
00065   ano.Empty( gdcm.Tag(0x38,0x300) )
00066   g = gdcm.UIDGenerator()
00067   ano.Replace( gdcm.Tag(0x0008,0x0018), g.Generate() )
00068   ano.Replace( gdcm.Tag(0x0020,0x00d), g.Generate() )
00069   ano.Replace( gdcm.Tag(0x0020,0x00e), g.Generate() )
00070   ano.Replace( gdcm.Tag(0x0020,0x052), g.Generate() )
00071   #ano.Replace( gdcm.Tag(0x0008,0x0016), "1.2.840.10008.5.1.4.1.1.7.2" )
00072   """
00073   ano.Remove( gdcm.Tag(0x0018,0x0020) ) # ScanningSequence
00074   ano.Remove( gdcm.Tag(0x0018,0x0021) ) # SequenceVariant
00075   ano.Remove( gdcm.Tag(0x0018,0x0022) ) # ScanOptions
00076   ano.Remove( gdcm.Tag(0x0018,0x0023) ) # MRAcquisitionType
00077   ano.Remove( gdcm.Tag(0x0018,0x0050) ) # SliceThickness
00078   ano.Remove( gdcm.Tag(0x0018,0x0080) ) # RepetitionTime
00079   ano.Remove( gdcm.Tag(0x0018,0x0081) ) # EchoTime
00080   ano.Remove( gdcm.Tag(0x0018,0x0088) ) # SpacingBetweenSlices
00081   ano.Remove( gdcm.Tag(0x0018,0x0091) ) # EchoTrainLength
00082   ano.Remove( gdcm.Tag(0x0018,0x1164) ) # ImagerPixelSpacing
00083
00084   ano.Remove( gdcm.Tag(0x0020,0x0032) ) # Image Position (Patient)
00085   ano.Remove( gdcm.Tag(0x0020,0x0037) ) # Image Orientation (Patient)
00086   ano.Remove( gdcm.Tag(0x0020,0x0052) ) # Frame of Reference UID
00087   ano.Remove( gdcm.Tag(0x0020,0x1040) ) # Position Reference Indicator
00088
00089   ano.Replace( gdcm.Tag(0x0028,0x0301), "NO" ) # Burned In Annotation
00090
00091   ano.Empty( gdcm.Tag(0x0020,0x0020) )
00092
00093   ano.Remove( gdcm.Tag(0x7fe0,0x0000) )
00094
00095   #ano.Empty( gdcm.Tag(0x0028,0x0009) ) # Frame Increment Pointer
00096
```

```
00097   #ano.Empty( gdcm.Tag(0x0028,0x1052) )  #<entry group="0028" element="1052" vr="DS" vm="1" name="Rescale
      Intercept"/>
00098   #ano.Empty( gdcm.Tag(0x0028,0x1053) )  #<entry group="0028" element="1053" vr="DS" vm="1" name="Rescale
      Slope"/>
00099   #ano.Replace( gdcm.Tag(0x0028,0x1054), "US" )  #<entry group="0028" element="1054" vr="LO" vm="1"
      name="Rescale Type"/>
00100
00101   ano.Replace( gdcm.Tag(0x2050, 0x0020), "IDENTITY")
00102   """
00103
00104   w = gdcm.Writer()
00105   w.SetFile( ano.GetFile() )
00106   w.SetFileName( file2 )
00107   if not w.Write():
00108     sys.exit(1)
```

14.126 ManipulateSequence.py

```
00001
00014
00015 """
00016 Usage:
00017
00018  python ManipulateSequence.py input.dcm output.dcm
00019
00020 This was tested using:
00021
00022  python ManipulateSequence.py gdcmData/D_CLUNIE_CT1_J2KI.dcm myoutput.dcm
00023
00024 This is a dummy example on how to modify a value set in a nested-nested dataset
00025
00026 WARNING:
00027 Do not use as-is in production, this is just an example
00028 This example works in an undefined length Item only (you need to explicitly recompute the length
      otherwise)
00029 """
00030
00031 import sys
00032 import gdcm
00033
00034 if __name__ == "__main__":
00035
00036   file1 = sys.argv[1]
00037   file2 = sys.argv[2]
00038
00039   r = gdcm.Reader()
00040   r.SetFileName( file1 )
00041   if not r.Read():
00042     sys.exit(1)
00043
00044   f = r.GetFile()
00045   ds = f.GetDataSet()
00046   tsis = gdcm.Tag(0x0008,0x2112) # SourceImageSequence
00047   if ds.FindDataElement( tsis ):
00048     sis = ds.GetDataElement( tsis )
00049     #sqsis = sis.GetSequenceOfItems()
00050     # GetValueAsSQ handle more cases
00051     sqsis = sis.GetValueAsSQ()
00052     if sqsis.GetNumberOfItems():
00053       item1 = sqsis.GetItem(1)
00054       nestedds = item1.GetNestedDataSet()
00055       tprcs = gdcm.Tag(0x0040,0xa170) # PurposeOfReferenceCodeSequence
00056       if nestedds.FindDataElement( tprcs ):
00057         prcs = nestedds.GetDataElement( tprcs )
00058         sqprcs = prcs.GetSequenceOfItems()
00059         if sqprcs.GetNumberOfItems():
00060           item2 = sqprcs.GetItem(1)
00061           nestedds2 = item2.GetNestedDataSet()
00062           # (0008,0104) LO [Uncompressed predecessor]               #  24, 1 CodeMeaning
00063           tcm = gdcm.Tag(0x0008,0x0104)
00064           if nestedds2.FindDataElement( tcm ):
00065             cm = nestedds2.GetDataElement( tcm )
00066             mystr = "GDCM was here"
00067             cm.SetByteStringValue( mystr )
00068
00069   w = gdcm.Writer()
```

```
00070   w.SetFile( f )
00071   w.SetFileName( file2 )
00072   if not w.Write():
00073     sys.exit(1)
```

14.127 MergeFile.py

```
00001
00014
00015 """
00016 Usage:
00017
00018  python MergeFile.py input1.dcm input2.dcm
00019
00020   It will produce a 'merge.dcm' output file, which contains all meta information from input1.dcm
00021   and copy the Stored Pixel values from input2.dcm
00022   This script even works when input2.dcm is a Secondary Capture and does not contains information
00023   such as IOP and IPP...
00024 """
00025
00026 import sys
00027 import gdcm
00028
00029 if __name__ == "__main__":
00030
00031   file1 = sys.argv[1]
00032   file2 = sys.argv[2]
00033
00034   r1 = gdcm.ImageReader()
00035   r1.SetFileName( file1 )
00036   if not r1.Read():
00037     sys.exit(1)
00038
00039   r2 = gdcm.ImageReader()
00040   r2.SetFileName( file2 )
00041   if not r2.Read():
00042     sys.exit(1)
00043
00044   # Image from r2 could be Secondary Capture and thus would not contains neither IPP nor IOP
00045   # Instead always prefer to only copy the Raw Data Element.
00046   # Warning ! Image need to be identical ! Only the value of Stored Pixel can be different.
00047   r1.GetImage().SetDataElement( r2.GetImage().GetDataElement() )
00048
00049   w = gdcm.ImageWriter()
00050   w.SetFile( r1.GetFile() )
00051   #w.SetImage( r2.GetImage() )  # See comment above
00052   w.SetImage( r1.GetImage() )
00053
00054   w.SetFileName( "merge.dcm" )
00055   if not w.Write():
00056     sys.exit(1)
00057
00058   sys.exit(0)
```

14.128 NewSequence.py

```
00001
00014
00015 """
00016 Usage:
00017
00018   python NewSequence.py input.dcm output.dcm
00019
00020
00021 Thanks to Robert Irie for code
00022 """
00023
00024 import sys
00025 import gdcm
00026
00027 if __name__ == "__main__":
00028
```

```
00029   file1 = sys.argv[1]
00030   file2 = sys.argv[2]
00031
00032   r = gdcm.Reader()
00033   r.SetFileName( file1 )
00034   if not r.Read():
00035     sys.exit(1)
00036
00037   f = r.GetFile()
00038   ds = f.GetDataSet()
00039   #tsis = gdcm.Tag(0x0008,0x2112) # SourceImageSequence
00040
00041   # Create a dataelement
00042   de = gdcm.DataElement(gdcm.Tag(0x0010, 0x2180))
00043   de.SetByteStringValue("Occupation")
00044   de.SetVR(gdcm.VR(gdcm.VR.SH))
00045
00046   # Create an item
00047   it=gdcm.Item()
00048   it.SetVLToUndefined()       # Needed to not popup error message
00049   #it.InsertDataElement(de)
00050   nds=it.GetNestedDataSet()
00051   nds.Insert(de)
00052
00053   # Create a Sequence
00054   sq=gdcm.SequenceOfItems().New()
00055   sq.SetLengthToUndefined()
00056   sq.AddItem(it)
00057
00058   # Insert sequence into data set
00059   des=gdcm.DataElement(gdcm.Tag(0x0400,0x0550))
00060   des.SetVR(gdcm.VR(gdcm.VR.SQ))
00061   des.SetValue(sq.__ref__())
00062   des.SetVLToUndefined()
00063
00064   ds.Insert(des)
00065
00066   w = gdcm.Writer()
00067   w.SetFile( f )
00068   w.SetFileName( file2 )
00069   if not w.Write():
00070     sys.exit(1)
```

14.129 PhilipsPrivateRescaleInterceptSlope.py

```
00001
00014
00015 """
00016 Usage:
00017
00018  python
00019 """
00020
00021 import gdcm
00022 import sys
00023
00024 filename = sys.argv[1]
00025 tmpfile = "/tmp/philips_rescaled.dcm"
00026
00027
00028 # Need to access some private tags, read the file :
00029 reader = gdcm.Reader()
00030 reader.SetFileName( filename )
00031 if not reader.Read():
00032   sys.exit(1)
00033
00034 ds = reader.GetFile().GetDataSet()
00035
00036 #print ds
00037 # (2005,1409)     DS      4       0.0
00038 # (2005,140a)     DS      16      1.52283272283272
00039
00040 # (2005,0014)     LO      26      Philips MR Imaging DD 005
00041 tag1 = gdcm.PrivateTag(0x2005,0x09,"Philips MR Imaging DD 005")
00042 tag2 = gdcm.PrivateTag(0x2005,0x0a,"Philips MR Imaging DD 005")
00043 print tag1
```

```
00044 print tag2
00045
00046 # make sure to do a copy, we want the private tag to remain
00047 # otherwise gdcm gives us a reference
00048 el1 = gdcm.DataElement( ds.GetDataElement( tag1 ) )
00049 print el1
00050 el2 = gdcm.DataElement( ds.GetDataElement( tag2 ) )
00051 print el2
00052
00053 # (0028,1052) DS [-1000]                                  #   6, 1 RescaleIntercept
00054 # (0028,1053) DS [1]                                      #   2, 1 RescaleSlope
00055
00056 el1.SetTag( gdcm.Tag(0x0028,0x1052) )
00057 el2.SetTag( gdcm.Tag(0x0028,0x1053) )
00058
00059 ds.Insert( el1 )
00060 ds.Insert( el2 )
00061
00062 w = gdcm.Writer()
00063 w.SetCheckFileMetaInformation( False )
00064 w.SetFileName( tmpfile )
00065 w.SetFile( reader.GetFile() )
00066 if not w.Write():
00067   sys.exit(1)
00068
00069 print "success"
```

14.130 PlaySound.py

```
00001
00014
00015 """
00016 Usage:
00017
00018  python PlaySound.py input.dcm
00019 """
00020
00021 import gdcm
00022 import sys
00023
00024 #filename = "/home/mmalaterre/Creatis/gdcmDataExtra/gdcmNonImageData/audio_from_rafael_sanguinetti.dcm"
00025 filename = sys.argv[1]
00026 print filename
00027
00028 r = gdcm.Reader()
00029 r.SetFileName( filename )
00030 if not r.Read():
00031   sys.exit(1)
00032
00033 ds = r.GetFile().GetDataSet()
00034
00035 waveformtag = gdcm.Tag(0x5400,0x0100)
00036 waveformsq = ds.GetDataElement( waveformtag )
00037 #print waveformsq
00038
00039 #print dir(waveformsq)
00040
00041 items = waveformsq.GetSequenceOfItems()
00042
00043 if not items.GetNumberOfItems():
00044   sys.exit(1)
00045
00046 item = items.GetItem(1)
00047 #print item
00048
00049 waveformds = item.GetNestedDataSet()
00050 #print waveformds
00051
00052 waveformdatatag = gdcm.Tag(0x5400,0x1010)
00053 waveformdata = waveformds.GetDataElement( waveformdatatag )
00054
00055 #print waveformdata.GetPointer()
00056 bv = waveformdata.GetByteValue()
00057 print dir(bv)
00058
00059 #print bv.GetPointer()
```

```
00060 print bv.GetLength()
00061 l = 116838
00062
00063 file='test.wav'
00064 myfile = open(file, "wb")
00065 s = bv.GetPointer()
00066 for i in range(0, l):
00067   myfile.write(s[i])
00068 myfile.close()
00069
00070 # http://mail.python.org/pipermail/python-list/2004-October/288905.html
00071 if sys.platform.startswith('win'):
00072    from winsound import PlaySound, SND_FILENAME, SND_ASYNC
00073    PlaySound(file, SND_FILENAME|SND_ASYNC)
00074 elif sys.platform.find('linux')>-1:
00075    from wave import open as waveOpen
00076    from ossaudiodev import open as ossOpen
00077    s = waveOpen(file,'rb')
00078    (nc,sw,fr,nf,comptype, compname) = s.getparams( )
00079    dsp = ossOpen('/dev/dsp','w')
00080    try:
00081      from ossaudiodev import AFMT_S16_NE
00082    except ImportError:
00083      if byteorder == "little":
00084        AFMT_S16_NE = ossaudiodev.AFMT_S16_LE
00085      else:
00086        AFMT_S16_NE = ossaudiodev.AFMT_S16_BE
00087    dsp.setparameters(AFMT_S16_NE, nc, fr)
00088    data = s.readframes(nf)
00089    s.close()
00090    dsp.write(data)
00091    dsp.close()
```

14.131 PrivateDict.py

```
00001
00014
00015 """
00016 """
00017
00018 import gdcm
00019 import sys,os
00020
00021 if __name__ == "__main__":
00022   #gdcm.Trace.DebugOn()
00023   globInst = gdcm.Global.GetInstance()
00024   # Try to load Part3.xml file
00025   # This file is too big for being accessible directly at runtime.
00026   globInst.LoadResourcesFiles()
00027
00028
00029   # Get a private tag from the runtime dicts. LoadResourcesFiles could
00030   # have failed but this has no impact on the private dict
00031
00032   d = globInst.GetDicts()
00033   print d.GetDictEntry( gdcm.Tag(0x0029,0x0010) ,"SIEMENS CSA HEADER" )
00034   pd = d.GetPrivateDict()
00035   print pd.GetDictEntry( gdcm.PrivateTag(0x0029,0x0010,"SIEMENS CSA HEADER") )
```

14.132 ReWriteSCAsMR.py

```
00001
00014
00015 """
00016 GDCM 1.x would write out MR Image Storage as Secondary Capture Object while still setting Rescale
      Slope/Intercept
00017 and saving the Pixel Spacing in (0028,0030)
00018 """
00019
00020 import gdcm
00021 import sys,os
00022
```

```
00023 def CheckSecondaryCaptureObjectIsMRImageStorage(r):
00024   ds = r.GetFile().GetDataSet()
00025   # Check Source Image Sequence
00026   if ds.FindDataElement( gdcm.Tag(0x0008,0x2112) ):
00027     sis = ds.GetDataElement( gdcm.Tag(0x0008,0x2112) )
00028     sqsis = sis.GetSequenceOfItems()
00029     if sqsis.GetNumberOfItems():
00030       item1 = sqsis.GetItem(1)
00031       nestedds = item1.GetNestedDataSet()
00032       if nestedds.FindDataElement( gdcm.Tag(0x0008,0x1150) ):
00033         ReferencedSOPClassUID = nestedds.GetDataElement( gdcm.Tag(0x0008,0x1150) )
00034         raw = ReferencedSOPClassUID.GetByteValue().GetPointer()
00035         uids = gdcm.UIDs()
00036         # what is the actual object we are looking at ?
00037         ms = gdcm.MediaStorage()
00038         ms.SetFromDataSet(ds)
00039         msuid = ms.GetString()
00040         uids.SetFromUID( msuid )
00041         msuidname = uids.GetName() # real Media Storage Name
00042         uids.SetFromUID( raw )
00043         sqmsuidname = uids.GetName() # Source Image Sequence Media Storage Name
00044         # If object is SC and Source derivation is MRImageStorage then we can assume 'Pixel Spacing' is
      correct
00045         if( sqmsuidname == 'MR Image Storage' and msuidname == 'Secondary Capture Image Storage' ):
00046           return True
00047   # in all other case simply return the currentspacing:
00048   return False
00049
00050 if __name__ == "__main__":
00051   r = gdcm.ImageReader()
00052   filename = sys.argv[1]
00053   r.SetFileName( filename )
00054   if not r.Read():
00055     sys.exit(1)
00056   f = r.GetFile()
00057
00058   if( CheckSecondaryCaptureObjectIsMRImageStorage(r) ):
00059     # Special handling of the spacing:
00060     # GDCM 1.2.0 would not rewrite correctly DICOM Object and would always set them as 'Secondary Capture
      Image Storage'
00061     # while we would rather have 'MR Image Storage'
00062     gdcm.ImageHelper.SetForcePixelSpacing( True )
00063     mrspacing = gdcm.ImageHelper.GetSpacingValue( r.GetFile() )
00064     # TODO: I cannot do simply the following:
00065     #image.SetSpacing( mrspacing )
00066     image.SetSpacing(0, mrspacing[0] )
00067     image.SetSpacing(1, mrspacing[1] )
00068     image.SetSpacing(2, mrspacing[2] )
00069     gdcm.ImageHelper.SetForceRescaleInterceptSlope( True )
00070     ris = gdcm.ImageHelper.GetRescaleInterceptSlopeValue( r.GetFile() )
00071     image.SetIntercept( ris[0] )
00072     image.SetSlope( ris[1] )
00073
00074   outfilename = sys.argv[2]
00075   w = gdcm.ImageWriter()
00076   w.SetFileName( outfilename )
00077   w.SetFile( r.GetFile() )
00078   w.SetImage( image )
00079   if not w.Write():
00080     sys.exit(1)
00081
00082   sys.exit(0)
```

14.133 ReadAndDumpDICOMDIR.py

```
00001
00023
00024
00025
00026 import sys
00027 import gdcm
00028
00029 if __name__ == "__main__":
00030     # Check arguments
00031     if (len(sys.argv) < 2):
00032         # No filename passed
```

```
00033         print "No input filename found"
00034         quit()
00035
00036     filename = sys.argv[1]
00037
00038
00039     # Read file
00040     reader = gdcm.Reader()
00041     reader.SetFileName(filename)
00042     if (not reader.Read()):
00043         print "Unable to read %s" % (filename)
00044         quit()
00045
00046     file = reader.GetFile()
00047
00048     # Retrieve header information
00049     fileMetaInformation = file.GetHeader()
00050     print fileMetaInformation
00051
00052     # Retrieve data set
00053     dataSet = file.GetDataSet()
00054     #print dataSet
00055
00056     # Check media storage
00057     mediaStorage = gdcm.MediaStorage()
00058     mediaStorage.SetFromFile(file)
00059     if (gdcm.MediaStorage.GetMSType(str(mediaStorage)) != gdcm.MediaStorage.MediaStorageDirectoryStorage):
00060         # File is not a DICOMDIR
00061         print "This file is not a DICOMDIR (Media storage type: %s)" % (str(mediaStorage))
00062         quit()
00063
00064     # Check Media Storage SOP Class
00065     if (fileMetaInformation.FindDataElement(gdcm.Tag(0x0002, 0x0002))):
00066         sopClassUid = str(fileMetaInformation.GetDataElement(gdcm.Tag(0x0002, 0x0002)).GetValue())
00067         # Check SOP UID
00068         if (sopClassUid != "1.2.840.10008.1.3.10"):
00069             # File is not a DICOMDIR
00070             print "This file is not a DICOMDIR"
00071     else:
00072         # Not present
00073         print "Media Storage SOP Class not present"
00074         quit()
00075
00076     # Iterate through the DICOMDIR data set
00077     iterator = dataSet.GetDES().begin()
00078     while (not iterator.equal(dataSet.GetDES().end())):
00079         dataElement = iterator.next()
00080
00081         # Check the element tag
00082         if (dataElement.GetTag() == gdcm.Tag(0x004, 0x1220)):
00083             # The 'Directory Record Sequence' element
00084             sequence = dataElement.GetValueAsSQ()
00085
00086             # Loop through the sequence items
00087             itemNr = 1
00088             while (itemNr < sequence.GetNumberOfItems()):
00089                 item = sequence.GetItem(itemNr)
00090
00091                 # Check the element tag
00092                 if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
00093                     # The 'Directory Record Type' element
00094                     value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1430)).GetValue())
00095
00096                     # PATIENT
00097                     while (value.strip() == "PATIENT"):
00098                         print value.strip()
00099                         # Print patient name
00100                         if (item.FindDataElement(gdcm.Tag(0x0010, 0x0010))):
00101                             value = str(item.GetDataElement(gdcm.Tag(0x0010, 0x0010)).GetValue())
00102                             print value
00103
00104                         # Print patient ID
00105                         if (item.FindDataElement(gdcm.Tag(0x0010, 0x0020))):
00106                             value = str(item.GetDataElement(gdcm.Tag(0x0010, 0x0020)).GetValue())
00107                             print value
00108
00109                         # Next
00110                         itemNr = itemNr + 1
00111                         item = sequence.GetItem(itemNr)
00112                         if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
00113                             value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1430)).GetValue())
```

```
00114
00115                           # STUDY
00116                           while (value.strip() == "STUDY"):
00117                               print value.strip()
00118
00119                               # Print study UID
00120                               if (item.FindDataElement(gdcm.Tag(0x0020, 0x000d))):
00121                                   value = str(item.GetDataElement(gdcm.Tag(0x0020, 0x000d)).GetValue())
00122                                   print value
00123
00124                               # Print study date
00125                               if (item.FindDataElement(gdcm.Tag(0x0008, 0x0020))):
00126                                   value = str(item.GetDataElement(gdcm.Tag(0x0008, 0x0020)).GetValue())
00127                                   print value
00128
00129                               # Print study description
00130                               if (item.FindDataElement(gdcm.Tag(0x0008, 0x1030))):
00131                                   value = str(item.GetDataElement(gdcm.Tag(0x0008, 0x1030)).GetValue())
00132                                   print value
00133
00134                               # Next
00135                               itemNr = itemNr + 1
00136                               item = sequence.GetItem(itemNr)
00137                               if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
00138                                       value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1430)).GetValue())
00139
00140                               # SERIES
00141                               while (value.strip() == "SERIES"):
00142                                   print value.strip()
00143
00144                                   # Print series UID
00145                                   if (item.FindDataElement(gdcm.Tag(0x0020, 0x000e))):
00146                                       value = str(item.GetDataElement(gdcm.Tag(0x0020, 0x000e)).GetValue())
00147                                       print value
00148
00149                                   # Print series modality
00150                                   if (item.FindDataElement(gdcm.Tag(0x0008, 0x0060))):
00151                                       value = str(item.GetDataElement(gdcm.Tag(0x0008, 0x0060)).GetValue())
00152                                       print "Modality"
00153                                       print value
00154
00155                                   # Print series description
00156                                   if (item.FindDataElement(gdcm.Tag(0x0008, 0x103e))):
00157                                       value = str(item.GetDataElement(gdcm.Tag(0x0008, 0x103e)).GetValue())
00158                                       print "Description"
00159                                       print value
00160
00161                                   # Next
00162                                   itemNr = itemNr + 1
00163                                   item = sequence.GetItem(itemNr)
00164                                   if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
00165                                       value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1430)).GetValue())
00166
00167                                   # IMAGE
00168                                   while (value.strip() == "IMAGE"):
00169                                       print value.strip()
00170
00171                                       # Print image UID
00172                                       if (item.FindDataElement(gdcm.Tag(0x0004, 0x1511))):
00173                                           value = str(item.GetDataElement(gdcm.Tag(0x0004,
      0x1511)).GetValue())
00174                                           print value
00175
00176                                       # Next
00177                                       if (itemNr < sequence.GetNumberOfItems()):
00178                                           itemNr = itemNr + 1
00179                                       else:
00180                                           break
00181
00182                                       item = sequence.GetItem(itemNr)
00183                                       if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
00184                                               value = str(item.GetDataElement(gdcm.Tag(0x0004,
      0x1430)).GetValue())
00185
00186                   # Next
00187                   itemNr = itemNr + 1
```

14.134 RemovePrivateTags.py

```
00001
00014
00015 """
00016 Usage:
00017
00018  python RemovePrivateTags.py input.dcm output.dcm
00019 """
00020
00021 import sys
00022 import gdcm
00023
00024
00025 if __name__ == "__main__":
00026
00027   file1 = sys.argv[1]
00028   file2 = sys.argv[2]
00029
00030   # Instantiate the reader.
00031   r = gdcm.Reader()
00032   r.SetFileName( file1 )
00033   if not r.Read():
00034     sys.exit(1)
00035
00036   # Remove private tags
00037   ano = gdcm.Anonymizer()
00038   ano.SetFile( r.GetFile() )
00039   if not ano.RemovePrivateTags():
00040     sys.exit(1)
00041
00042   # Write DICOM file
00043   w = gdcm.Writer()
00044   w.SetFile( ano.GetFile() )
00045   #w.CheckFileMetaInformationOff() # Do not attempt to check meta header
00046   w.SetFileName( file2 )
00047   if not w.Write():
00048     sys.exit(1)
00049
00050   # It is usually a good idea to exit the script with an error, as gdcm does not remove partial
      (incorrect) DICOM file
00051   # (application level)
```

14.135 ScanDirectory.py

```
00001
00014
00015 import gdcm
00016 import sys,os
00017
00018 class ProgressWatcher(gdcm.SimpleSubjectWatcher):
00019   def ShowProgress(self, sender, event):
00020     pe = gdcm.ProgressEvent.Cast(event)
00021     print pe.GetProgress()
00022   def EndFilter(self):
00023     print "Yay ! I am done"
00024
00025 if __name__ == "__main__":
00026   directory = sys.argv[1]
00027
00028   # Define the set of tags we are interested in
00029   t1 = gdcm.Tag(0x8,0x8);
00030   t2 = gdcm.Tag(0x10,0x10);
00031
00032   # Iterate over directory
00033   d = gdcm.Directory();
00034   nfiles = d.Load( directory );
00035   if(nfiles == 0): sys.exit(1);
00036   # System.Console.WriteLine( "Files:\n" + d.toString() );
00037
00038   filenames = d.GetFilenames()
00039
00040   #  Get rid of any Warning while parsing the DICOM files
00041   gdcm.Trace.WarningOff()
00042
00043   # instantiate Scanner:
```

```
00044   sp = gdcm.Scanner.New();
00045   s = sp.__ref__()
00046   w = ProgressWatcher(s, 'Watcher')
00047
00048   s.AddTag( t1 );
00049   s.AddTag( t2 );
00050   b = s.Scan( filenames );
00051   if(not b): sys.exit(1);
00052
00053   print "success" ;
00054   #print s
00055
00056   pttv = gdcm.PythonTagToValue( s.GetMapping( filenames[1] ) )
00057   pttv.Start()
00058   # iterate until the end:
00059   while( not pttv.IsAtEnd() ):
00060     # get current value for tag and associated value:
00061     # if tag was not found, then it was simply not added to the internal std::map
00062     # Warning value can be None
00063     tag = pttv.GetCurrentTag()
00064     value = pttv.GetCurrentValue()
00065     print tag,"->",value
00066     # increment iterator
00067     pttv.Next()
00068
00069   sys.exit(0)
```

14.136 SortImage.py

```
00001
00014
00015 """
00016 Usage:
00017
00018  python SortImage.py dirname
00019 """
00020
00021 import gdcm
00022 import sys
00023
00024 def PrintProgress(object, event):
00025   assert event == "ProgressEvent"
00026   print "Progress:", object.GetProgress()
00027
00028 def MySort(ds1, ds2):
00029   # compare ds1
00030   return False
00031
00032 if __name__ == "__main__":
00033
00034   dirname = sys.argv[1]
00035   d = gdcm.Directory()
00036   d.Load( dirname )
00037
00038   print d
00039
00040   sorter = gdcm.Sorter()
00041   sorter.SetSortFunction( MySort )
00042   #sorter.AddObserver( "ProgressEvent", PrintProgress )
00043   sorter.Sort( d.GetFilenames() )
00044
00045   print "Sorter:"
00046   print sorter
```

14.137 WriteBuffer.py

```
00001
00014
00015 """
00016 Usage:
00017
00018 http://chuckhahm.com/Ischem/Zurich/XX_0134
```

```
00019
00020 (2005,1132) SQ (Sequence with undefined length #=8)     # u/l, 1 Unknown Tag & Data
00021   (fffe,e000) na (Item with undefined length #=9)        # u/l, 1 Item
00022     (2005,0011) LO [Philips MR Imaging DD 002]             #  26, 1 PrivateCreator
00023     (2005,1137) PN [PDF_CONTROL_GEN_PARS]                  #  20, 1 Unknown Tag & Data
00024     (2005,1138) PN (no value available)                    #   0, 0 Unknown Tag & Data
00025     (2005,1139) PN [IEEE_PDF]                              #   8, 1 Unknown Tag & Data
00026     (2005,1140) PN (no value available)                    #   0, 0 Unknown Tag & Data
00027     (2005,1141) PN (no value available)                    #   0, 0 Unknown Tag & Data
00028     (2005,1143) SL 3103                                    #   4, 1 Unknown Tag & Data
00029     (2005,1144) OW 0566\0000\013b\0000\0a4a\0000\000e\0000\0a7a\0000\0195\0000\0008... # 3104, 1 Unknown
      Tag & Data
00030     (2005,1147) CS [Y]                                     #   2, 1 Unknown Tag & Data
00031   (fffe,e00d) na (ItemDelimitationItem)                  #   0, 0 ItemDelimitationItem
00032   (fffe,e000) na (Item with undefined length #=9)        # u/l, 1 Item
00033     (2005,0011) LO [Philips MR Imaging DD 002]             #  26, 1 PrivateCreator
00034     (2005,1137) PN [PDF_CONTROL_PREP_PARS]                 #  22, 1 Unknown Tag & Data
00035     (2005,1138) PN (no value available)                    #   0, 0 Unknown Tag & Data
00036     (2005,1139) PN [IEEE_PDF]                              #   8, 1 Unknown Tag & Data
00037     (2005,1140) PN (no value available)                    #   0, 0 Unknown Tag & Data
00038     (2005,1141) PN (no value available)                    #   0, 0 Unknown Tag & Data
00039     (2005,1143) SL 7934                                    #   4, 1 Unknown Tag & Data
00040     (2005,1144) OW 19b6\0000\005f\0000\1b2a\0000\00f3\0000\1eee\0000\0000\0000\0008... # 7934, 1 Unknown
      Tag & Data
00041     (2005,1147) CS [Y]                                     #   2, 1 Unknown Tag & Data
00042   (fffe,e00d) na (ItemDelimitationItem)                  #   0, 0 ItemDelimitationItem
00043 ...
00044 """
00045
00046 import sys
00047 import gdcm
00048
00049 if __name__ == "__main__":
00050
00051   file1 = sys.argv[1]
00052   file2 = sys.argv[2]
00053
00054   r = gdcm.Reader()
00055   r.SetFileName( file1 )
00056   if not r.Read():
00057     sys.exit(1)
00058
00059   fg = gdcm.FilenameGenerator()
00060   f = r.GetFile()
00061   ds = f.GetDataSet()
00062   tsis = gdcm.Tag(0x2005,0x1132) #
00063   if ds.FindDataElement( tsis ):
00064     sis = ds.GetDataElement( tsis )
00065     #sqsis = sis.GetSequenceOfItems()
00066     # GetValueAsSQ handle more cases
00067     sqsis = sis.GetValueAsSQ()
00068     if sqsis.GetNumberOfItems():
00069       nitems = sqsis.GetNumberOfItems();
00070       fg.SetNumberOfFilenames( nitems )
00071       fg.SetPrefix( file2 )
00072       if not fg.Generate():
00073         print "problem"
00074         sys.exit(1)
00075       for i in range(0,nitems):
00076         item1 = sqsis.GetItem(i+1) # Item start at 1
00077         nestedds = item1.GetNestedDataSet()
00078         tprcs = gdcm.Tag(0x2005,0x1144) #
00079         if nestedds.FindDataElement( tprcs ):
00080           prcs = nestedds.GetDataElement( tprcs )
00081           bv = prcs.GetByteValue()
00082           print bv
00083           f = open( fg.GetFilename(i) , "w" )
00084           f.write( bv.WriteBuffer() )
```

14.138 HelloActiviz.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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```

```
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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using vtkgdcm;
using Kitware.VTK;
using System;
using System.Runtime.InteropServices;

/*
 * This example shows how vtkgdcm can be connected to Kitware.VTK Activiz product.
 * Three (3) arguments are required:
 * 1. Input DICOM file                      (SWIG)
 * 2. Temporary PNG (intermediate) file     (Activiz)
 * 3. Final DICOM file                      (SWIG)
 *
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz.exe ~/Creatis/gdcmData/test.acr out.png toto.dcm
 *
 * Footnote:
 * this test originally used vtkBMPWriter / vtkBMPReader combination to store intermediate
 * image file, but BMP file are 24bits by default. Instead use PNG format which supports seems
 * to be closer to what was expected in this simple test.
 */
public class HelloActiviz
{
  // Does not work with ActiViz.NET-5.4.0.455-Linux-x86_64-Personal
/*
  static void ConnectSWIGToActiviz(Kitware.VTK.vtkImageExport imgin, Kitware.VTK.vtkImageImport imgout)
    {
    imgout.SetUpdateInformationCallback(imgin.GetUpdateInformationCallback());
    imgout.SetPipelineModifiedCallback(imgin.GetPipelineModifiedCallback());
    imgout.SetWholeExtentCallback(imgin.GetWholeExtentCallback());
    imgout.SetSpacingCallback(imgin.GetSpacingCallback());
    imgout.SetOriginCallback(imgin.GetOriginCallback());
    imgout.SetScalarTypeCallback(imgin.GetScalarTypeCallback());
    imgout.SetNumberOfComponentsCallback(imgin.GetNumberOfComponentsCallback());
    imgout.SetPropagateUpdateExtentCallback(imgin.GetPropagateUpdateExtentCallback());
    imgout.SetUpdateDataCallback(imgin.GetUpdateDataCallback());
    imgout.SetDataExtentCallback(imgin.GetDataExtentCallback());
    imgout.SetBufferPointerCallback(imgin.GetBufferPointerCallback());
    imgout.SetCallbackUserData(imgin.GetCallbackUserData());
    }
*/

  static Kitware.VTK.vtkImageData ConnectSWIGToActiviz(vtkgdcm.vtkImageData imgin)
    {
    HandleRef rawCppThis = imgin.GetCppThis();
    Kitware.VTK.vtkImageData imgout = new Kitware.VTK.vtkImageData( rawCppThis.Handle, false, false);
    return imgout;
    }

  static vtkgdcm.vtkImageData ConnectActivizToSWIG(Kitware.VTK.vtkImageData imgin)
    {
    HandleRef rawCppThis = imgin.GetCppThis();
    vtkgdcm.vtkImageData imgout = new vtkgdcm.vtkImageData( rawCppThis );
    return imgout;
    }


  public static int Main(string[] args)
    {
    string filename = args[0];
    string outfilename = args[1];

    // Step 1. Test SWIG -> Activiz
    vtkGDCMImageReader reader = vtkGDCMImageReader.New();
    reader.SetFileName( filename );
    //reader.Update(); // DO NOT call Update to check pipeline execution

    Kitware.VTK.vtkImageData imgout = ConnectSWIGToActiviz(reader.GetOutput());

    System.Console.WriteLine( imgout.ToString() ); // not initialized as expected

    vtkPNGWriter writer = new vtkPNGWriter();
    writer.SetInput( imgout );
    writer.SetFileName( outfilename );
```

```
    writer.Write();

    // Step 2. Test Activiz -> SWIG
    vtkPNGReader bmpreader = new vtkPNGReader();
    bmpreader.SetFileName( outfilename );
    //bmpreader.Update(); // DO NOT update to check pipeline execution

    System.Console.WriteLine( bmpreader.GetOutput().ToString() ); // not initialized as expected

    vtkgdcm.vtkImageData imgout2 = ConnectActivizToSWIG(bmpreader.GetOutput());

    System.Console.WriteLine( imgout2.ToString() ); // not initialized as expected


    Kitware.VTK.vtkMedicalImageProperties prop = new Kitware.VTK.vtkMedicalImageProperties();
    prop.SetModality( "MR" );

    string outfilename2 = args[2];
    vtkGDCMImageWriter writer2 = vtkGDCMImageWriter.New();
    writer2.SetMedicalImageProperties( prop.CastToActiviz() );
    writer2.SetFileName( outfilename2 );
    writer2.SetInput( imgout2 );
    writer2.Write();

    return 0;
    }
}
```

14.139 HelloActiviz2.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

/*
 * Usage:
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz2.exe gdcmData/test.acr bla.png bla2.dcm
 */

/*
 * From the outside view, no-one can detect that object pass to/from
 * vtkGDCMImageWriter/vtkGDCMImageReader are not Activiz object.
 *
 * TODO: Test Command/Observer
 */
public class HelloActiviz2
{
  public static int Main(string[] args)
    {
    string filename = args[0];
    string outfilename = args[1];
    string outfilename2 = args[2];

    vtkGDCMImageReader reader = new Kitware.VTK.GDCM.vtkGDCMImageReader();
    reader.SetFileName( filename );

    // When calling multiple times creation of C# object from the same C++ object it triggers a:
//error: potential refcounting error: Duplicate rawCppThis - weak reference that is still alive. Attempting to
      add '0x00b2dc10' again.
//       Allowing new wrapped object to take over table key...
//       Original object should *not* have been destroyed while we still had it in our table without notifying
      us...
    //reader.GetOutput();
```

```
    //reader.GetOutput();

    System.Console.WriteLine( reader.ToString() ); // Test the ToString compat with Activiz

    vtkGDCMImageWriter writer = new vtkGDCMImageWriter();
    writer.SetInput( reader.GetOutput() );
    writer.SetFileName( outfilename2 );
    writer.Write();

    System.Console.WriteLine( reader.GetOutput().ToString() ); // Test the ToString compat with Activiz

    System.Console.WriteLine( writer.ToString() ); // Test the ToString compat with Activiz

    vtkPNGWriter pngwriter = new vtkPNGWriter();
    pngwriter.SetInput( reader.GetOutput() );
    pngwriter.SetFileName( outfilename );
    pngwriter.Write();

    // at that point the .Write() should have triggered an Update() on the reader:
    if( reader.GetImageFormat() == vtkgdcm.VTK_LUMINANCE ) // MONOCHROME2
      {
      System.Console.WriteLine( "Image is MONOCHROME2" ); //
      }

    vtkPNGReader bmpreader = new vtkPNGReader();
    bmpreader.SetFileName( outfilename );

    vtkMedicalImageProperties prop = new vtkMedicalImageProperties();
    prop.SetModality( "MR" );

    vtkMatrix4x4 dircos = reader.GetDirectionCosines();
    dircos.Invert();

    vtkGDCMImageWriter writer2 = new vtkGDCMImageWriter();
    writer2.SetFileName( outfilename2 );
    writer2.SetDirectionCosines( dircos );
    writer2.SetMedicalImageProperties( prop );
    writer2.SetInput( bmpreader.GetOutput() );
    writer2.Write();

    return 0;
    }
}
```

14.140 HelloActiviz3.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

/*
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz3.exe ~/Creatis/gdcmData/test.acr
 */
public class HelloActiviz3
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    vtkGDCMImageReader reader = vtkGDCMImageReader.New();
    vtkStringArray array = vtkStringArray.New();
    array.InsertNextValue(filename);

    reader.SetFileNames(array);
```

```
    reader.Update();

    //System.Console.Write(reader.GetOutput());

    vtkRenderWindowInteractor iren = vtkRenderWindowInteractor.New();

    vtkImageViewer2 viewer = vtkImageViewer2.New();
    viewer.SetInput(reader.GetOutput());
    viewer.SetupInteractor(iren);
    viewer.SetSize(600, 600);
    viewer.Render();

    iren.Initialize();
    iren.Start();

    return 0;
    }
}
```

14.141 HelloActiviz4.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

/*
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz4.exe ~/Creatis/gdcmData/test.acr
 */
public class HelloActiviz4
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    vtkStringArray array = vtkStringArray.New();
    array.InsertNextValue(filename);

    reader.SetFileNames(array);
    reader.Update();

    //System.Console.Write(reader.GetOutput());

    vtkRenderWindowInteractor iren = vtkRenderWindowInteractor.New();

    vtkImageViewer viewer = vtkImageViewer.New();
    viewer.SetInput(reader.GetOutput());
    viewer.SetupInteractor(iren);
    viewer.SetSize(600, 600);
    viewer.Render();

    iren.Initialize();
    iren.Start();

    return 0;
    }
}
```

14.142 HelloActiviz5.cs

```
/*=========================================================================
```

```
  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

// The command line arguments are:
// -I        => run in interactive mode; unless this is used, the program will
//              not allow interaction and exit
// -D <path> => path to the data; the data should be in <path>/Data/

/*
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz5.exe -I
 */
public class HelloActiviz5
{
  public static int Main(string[] args)
    {
    vtkTesting testHelper = vtkTesting.New();
    for ( int cc = 0; cc < args.Length; cc++ )
      {
      //testHelper.AddArguments(argc,const_cast<const char **>(argv));
      //System.Console.Write( "args: " + args[cc] + "\n" );
      testHelper.AddArgument( args[cc] );
      }
    if ( testHelper.IsFlagSpecified("-D") != 0 )
      {
      string VTK_DATA_ROOT = vtkGDCMTesting.GetVTKDataRoot();
      if( VTK_DATA_ROOT != null )
        {
        //System.Console.Write( "VTK_DATA_ROOT: " + VTK_DATA_ROOT  + "\n" );
        testHelper.SetDataRoot(VTK_DATA_ROOT);
        testHelper.AddArgument("-D");
        testHelper.AddArgument(VTK_DATA_ROOT);
        }
      }

    string dataRoot = testHelper.GetDataRoot();
    string filename = dataRoot;
    filename += "/Data/mr.001";

    vtkDirectory dir = vtkDirectory.New();
    if( dir.FileIsDirectory( dataRoot ) == 0 )
      {
      filename = vtkGDCMTesting.GetGDCMDataRoot() + "/test.acr";
      }
    //System.Console.Write( "dataRoot: " + dataRoot + "\n" );
    System.Console.Write( "filename being used is: " + filename + "\n" );

    vtkGDCMImageReader reader = vtkGDCMImageReader.New();
    vtkStringArray array = vtkStringArray.New();
    array.InsertNextValue(filename);
    reader.SetFileNames(array);
    reader.Update();

    System.Console.Write(reader.GetOutput());

    vtkRenderWindowInteractor iren = vtkRenderWindowInteractor.New();

    vtkRenderer ren1 = vtkRenderer.New();
    vtkRenderWindow renWin = vtkRenderWindow.New();
    renWin.AddRenderer(ren1);

    vtkImageActor actor = vtkImageActor.New();

    vtkImageMapToWindowLevelColors coronalColors = vtkImageMapToWindowLevelColors.New();
    coronalColors.SetInput(reader.GetOutput());

    actor.SetInput(coronalColors.GetOutput());

    ren1.AddActor(actor);
```

```
    iren.SetRenderWindow(renWin);

    iren.Initialize();

    renWin.Render();

    int retVal = testHelper.IsInteractiveModeSpecified();

    if( retVal != 0 )
      {
      iren.Start();
      }

    return 0;
    }
}
```

14.143 HelloVTKWorld.cs

```
/*=========================================================================

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=========================================================================*/
using vtkgdcm;

/*
 * This test only test the SWIG/VTK part, you do not need Activiz
 */
public class HelloVTKWorld
{
  public static int Main(string[] args)
    {
    string filename = args[0];
    vtkGDCMImageReader reader = vtkGDCMImageReader.New();
    reader.SetFileName( filename );
    reader.Update();

    vtkMedicalImageProperties prop = reader.GetMedicalImageProperties();
    System.Console.WriteLine( prop.GetPatientName() ); //

    if( reader.GetImageFormat() == vtkgdcm.vtkgdcm.VTK_LUMINANCE ) // MONOCHROME2
      {
      System.Console.WriteLine( "Image is MONOCHROME2" ); //
      }

    // Just for fun, invert the direction cosines, output should reflect that:
    vtkMatrix4x4 dircos = reader.GetDirectionCosines();
    dircos.Invert();

    string outfilename = args[1];
    vtkGDCMImageWriter writer = vtkGDCMImageWriter.New();
    writer.SetMedicalImageProperties( reader.GetMedicalImageProperties() );
    writer.SetDirectionCosines( dircos );
    writer.SetShift( reader.GetShift() );
    writer.SetScale( reader.GetScale() );
    writer.SetImageFormat( reader.GetImageFormat() );
    writer.SetFileName( outfilename );
    writer.SetInputConnection( reader.GetOutputPort() );
    writer.Write();

    return 0;
    }
}
```

14.144 HelloVTKWorld2.cs

```
/*=========================================================================

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=========================================================================*/
using vtkgdcm;

/*
 * This test only test the SWIG/VTK part, you do not need Activiz
 */
public class HelloVTKWorld2
{
  public static int Main(string[] args)
    {
    string VTK_DATA_ROOT = vtkGDCMTesting.GetVTKDataRoot();

    vtkVolume16Reader reader = vtkVolume16Reader.New();
    reader.SetDataDimensions(64, 64);
    reader.SetDataByteOrderToLittleEndian();
    reader.SetFilePrefix(VTK_DATA_ROOT + "/Data/headsq/quarter");
    reader.SetImageRange(1, 93);
    reader.SetDataSpacing(3.2, 3.2, 1.5);

    vtkImageCast cast = vtkImageCast.New();
    cast.SetInputConnection( reader.GetOutputPort() );
    cast.SetOutputScalarTypeToUnsignedChar();

    // By default this is creating a Multiframe Grayscale Word Secondary Capture Image Storage
    vtkGDCMImageWriter writer = vtkGDCMImageWriter.New();
    writer.SetFileName( "headsq.dcm" );
    writer.SetInputConnection( reader.GetOutputPort() );
    // cast -> Multiframe Grayscale Byte Secondary Capture Image Storage
    // writer.SetInputConnection( cast.GetOutputPort() );
    writer.SetFileDimensionality( 3 );
    writer.Write();

    return 0;
    }
}
```

14.145 MetaImageMD5Activiz.cs

```
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=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;
using gdcm;

/*
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/MetaImageMD5Activiz.exe gdcmData/012345.002.050.dcm
 */
public class MetaImageMD5Activiz
{
  public static int ProcessOneMHDMD5(string filename)
```

```
  {
  vtkGDCMImageReader reader = vtkGDCMImageReader.New();
  reader.FileLowerLeftOn();
  reader.DebugOff();
  int canread = reader.CanReadFile( filename );
  if( canread == 0 )
    {
    string refms = gdcm.Testing.GetMediaStorageFromFile(filename);
    if( gdcm.MediaStorage.IsImage( gdcm.MediaStorage.GetMSType(refms) ) )
      {
      System.Console.Write( "Problem with file: " + filename + "\n" );
      return 1;
      }
    // not an image
    return 0;
    }

  reader.SetFileName( filename );
  reader.Update();

  // System.Console.Write(reader.GetOutput());

  vtkMetaImageWriter writer = vtkMetaImageWriter.New();
  writer.SetCompression( false );
  writer.SetInput( reader.GetOutput() );
  string subdir = "MetaImageMD5Activiz";
  string tmpdir = gdcm.Testing.GetTempDirectory( subdir );
  if( !gdcm.PosixEmulation.FileIsDirectory( tmpdir ) )
    {
    gdcm.PosixEmulation.MakeDirectory( tmpdir );
    }
  string mhdfile = gdcm.Testing.GetTempFilename( filename, subdir );

  string rawfile = mhdfile;
  mhdfile += ".mhd";
  rawfile += ".raw";
  writer.SetFileName( mhdfile );
  writer.Write();

  string digestmhd = gdcm.Testing.ComputeFileMD5( mhdfile );
  string digestraw = gdcm.Testing.ComputeFileMD5( rawfile );

  string mhdref = vtkGDCMTesting.GetMHDMD5FromFile(filename);
  string rawref = vtkGDCMTesting.GetRAWMD5FromFile(filename);

  if( mhdref != digestmhd )
    {
    System.Console.Write( "Problem with mhd file: " + filename + "\n" );
    System.Console.Write( digestmhd );
    System.Console.Write( "\n" );
    System.Console.Write( mhdref );
    System.Console.Write( "\n" );
    return 1;
    }
  if( rawref != digestraw )
    {
    System.Console.Write( "Problem with raw file: " + filename + "\n" );
    System.Console.Write( digestraw );
    System.Console.Write( "\n" );
    System.Console.Write( rawref );
    System.Console.Write( "\n" );
    return 1;
    }

  return 0;
  }
public static int Main(string[] args)
  {
  if ( args.Length  == 1 )
    {
    string filename = args[0];
    return ProcessOneMHDMD5( filename );
    }
  // Loop over all gdcmData
  gdcm.Trace.DebugOff();
  gdcm.Trace.WarningOff();
  gdcm.Trace.ErrorOff();

  uint n = gdcm.Testing.GetNumberOfFileNames();
  int ret = 0;
  for( uint i = 0; i < n; ++i )
```

```
      {
      string filename = gdcm.Testing.GetFileName( i );
      ret += ProcessOneMHDMD5( filename );
      }
    return ret;
    }
}
```

14.146 RefCounting.cs

```
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=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

/*
 * this is not so much an example but simply a test to make sure cstor / dstor work as expected
 * and call the ::New and ->Delete() of VTK style.
 */
public class RefCounting
{
  public static int Main(string[] args)
    {
    vtkGDCMTesting testing1 = vtkGDCMTesting.New();
    vtkGDCMTesting testing2 = new vtkGDCMTesting(); // just in case people do not read STYLE documentation

    vtkGDCMImageReader reader1 = vtkGDCMImageReader.New();
    vtkGDCMImageReader reader2 = new vtkGDCMImageReader();

    vtkGDCMImageWriter writer1 = vtkGDCMImageWriter.New();
    vtkGDCMImageWriter writer2 = new vtkGDCMImageWriter();

    using (vtkGDCMTesting testing3 = new vtkGDCMTesting())
      {
      System.Console.Write( "GetReferenceCount: " + testing1.GetReferenceCount() + "\n");
      System.Console.Write( "GetReferenceCount: " + testing2.GetReferenceCount() + "\n");
      System.Console.Write( "GetReferenceCount: " + testing3.GetReferenceCount() + "\n");
      }

    using (vtkGDCMImageReader reader3 = new vtkGDCMImageReader())
      {
      System.Console.Write( "GetReferenceCount: " + reader3.GetReferenceCount() + "\n");
      }

    using (vtkGDCMImageWriter writer3 = vtkGDCMImageWriter.New())
      {
      System.Console.Write( "GetReferenceCount: " + writer3.GetReferenceCount() + "\n");
      }

    // C# destructor will call ->Delete on all C++ object as expected.
    return 0;
    }
}
```

14.147 Compute3DSpacing.cxx

```
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```

```
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=========================================================================*/
#include "vtkGDCMImageReader2.h"
#include "vtkImageChangeInformation.h"
#include "vtkStringArray.h"
#include "vtkVersion.h"
#include "gdcmIPPSorter.h"

#ifndef vtkFloatingPointType
#define vtkFloatingPointType double
#endif

/*
 * Simple example to check computation of spacing within vtkGDCMImageReader2
 * This is a direct implementation of:
 *
 *
      http://gdcm.sourceforge.net/wiki/index.php/Using_GDCM_API#Automatic_ordering_of_slices_for_vtkGDCMImageReader.SetFileNames
 *
 * For more advanced information on how 3D spacing is being computed see:
 *
 *  - http://gdcm.sourceforge.net/html/classgdcm_1_1IPPSorter.html
 *
 * Usage:
 *
 * $ Compute3DSpacing SIEMENS_MAGNETOM-12-MONO2-FileSeq0.dcm \
 *     SIEMENS_MAGNETOM-12-MONO2-FileSeq1.dcm \
 *     SIEMENS_MAGNETOM-12-MONO2-FileSeq2.dcm \
 *     SIEMENS_MAGNETOM-12-MONO2-FileSeq3.dcm
 */

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;

  std::vector<std::string> filenames;
  for( int  i = 1; i < argc; ++i )
    {
    filenames.push_back( argv[i] );
    }

  gdcm::IPPSorter s;
  s.SetComputeZSpacing( true );
  s.SetZSpacingTolerance( 1e-3 );
  bool b = s.Sort( filenames );
  if( !b )
    {
    std::cerr « "Failed to sort files" « std::endl;
    return 1;
    }
  std::cout « "Sorting succeeded:" « std::endl;
  //s.Print( std::cout );

  std::cout « "Found z-spacing:" « std::endl;
  std::cout « s.GetZSpacing() « std::endl;
  const double ippzspacing = s.GetZSpacing();

  const std::vector<std::string> & sorted = s.GetFilenames();
  vtkGDCMImageReader2 * reader = vtkGDCMImageReader2::New();
  vtkStringArray *files = vtkStringArray::New();
  std::vector< std::string >::const_iterator it = sorted.begin();
  for( ; it != sorted.end(); ++it)
    {
    const std::string &f = *it;
    files->InsertNextValue( f.c_str() );
    }
  reader->SetFileNames( files );
  reader->Update();

  const vtkFloatingPointType *spacing = reader->GetOutput()->GetSpacing();
  vtkImageChangeInformation *v16 = vtkImageChangeInformation::New();
#if (VTK_MAJOR_VERSION >= 6)
  v16->SetInputConnection( reader->GetOutputPort() );
#else
  v16->SetInput( reader->GetOutput() );
```

```
#endif
  v16->SetOutputSpacing( spacing[0], spacing[1], ippzspacing );
  v16->Update();

  v16->GetOutput()->Print( std::cout );

  return 0;
}
```

14.148 Convert16BitsTo8Bits.cxx

```
/*=========================================================================

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=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkImageCast.h"
#include "vtkVersion.h"

#include "gdcmTesting.h"
// The following file is 16/16/15 but the scalar range of the image is [0,192]
// it could be safely stored as 8bits instead:
// gdcmData/012345.002.050.dcm

int main(int, char *[])
{
  const char *directory = gdcm::Testing::GetDataRoot();
  if(!directory) return 1;
  std::string file = std::string(directory) + "/012345.002.050.dcm";
  std::cout << file << std::endl;

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( file.c_str() );
  reader->Update();
  //reader->GetOutput()->Print( std::cout );

  vtkImageCast *cast = vtkImageCast::New();
#if (VTK_MAJOR_VERSION >= 6)
  cast->SetInputConnection( reader->GetOutputPort() );
#else
  cast->SetInput( reader->GetOutput() );
#endif
  cast->SetOutputScalarTypeToUnsignedChar();


  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  writer->SetFileName( "/tmp/cast.dcm" );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputConnection( cast->GetOutputPort() );
#else
  writer->SetInput( cast->GetOutput() );
#endif
  writer->SetImageFormat( reader->GetImageFormat() );
  writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
  writer->SetDirectionCosines( reader->GetDirectionCosines() );
  writer->SetShift( reader->GetShift() );
  writer->SetScale( reader->GetScale() );
  writer->Write();

  reader->Delete();
  cast->Delete();
  writer->Delete();

  return 0;
}
```

14.149 ConvertMultiFrameToSingleFrame.cxx

```
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=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkStringArray.h"
#include "vtkVersion.h"

#include "gdcmTesting.h"
#include "gdcmFilenameGenerator.h"

int main(int argc, char *argv[])
{
  std::string filename;
  if( argc <= 1 )
    {
    const char *directory = gdcm::Testing::GetDataRoot();
    if(!directory) return 1;
    std::string file = std::string(directory) + "/US-PAL-8-10x-echo.dcm";
    filename = file;
    }
  else
    {
    filename = argv[1];
    }
  std::cout « "file: " « filename « std::endl;

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( filename.c_str() );
  reader->Update();
  //reader->GetOutput()->Print( std::cout );

  int dims[3];
  reader->GetOutput()->GetDimensions( dims );

  std::ostringstream os;
  os « "singleframe";
  os « "%04d.dcm";
  gdcm::FilenameGenerator fg;
  fg.SetPattern( os.str().c_str() );
  unsigned int nfiles = dims[2];
  fg.SetNumberOfFilenames( nfiles );
  bool b = fg.Generate();
  if( !b )
    {
    std::cerr « "FilenameGenerator::Generate() failed" « std::endl;
    return 1;
    }
  if( !fg.GetNumberOfFilenames() )
    {
    std::cerr « "FilenameGenerator::Generate() failed somehow..." « std::endl;
    return 1;
    }

  // By default write them as Secondary Capture (for portability)
  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  vtkStringArray *filenames = vtkStringArray::New();
  for(unsigned int i = 0; i < fg.GetNumberOfFilenames(); ++i)
    {
    filenames->InsertNextValue( fg.GetFilename(i) );
    }
  assert( filenames->GetNumberOfValues() == (int)fg.GetNumberOfFilenames() );
  writer->SetFileNames( filenames );
  filenames->Delete();
  writer->SetFileDimensionality( 2 );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputConnection( reader->GetOutputPort() );
```

```
#else
  writer->SetInput( reader->GetOutput() );
#endif
  writer->SetImageFormat( reader->GetImageFormat() );
  writer->Write();

  reader->Delete();
  writer->Delete();

  return 0;
}
```

14.150 ConvertRGBToLuminance.cxx

```
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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkImageLuminance.h"
#include "vtkVersion.h"

#include "gdcmTesting.h"

// There is no such thing as MR Image Storage + Photometric Interpretation = RGB
// let's rewrite that into a proper single component image:
int main(int, char *[])
{
  const char *directory = gdcm::Testing::GetDataRoot();
  if(!directory) return 1;
  std::string file = std::string(directory) + "/SIEMENS-MR-RGB-16Bits.dcm";
  std::cout << file << std::endl;

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( file.c_str() );
  reader->Update();
  //reader->GetOutput()->Print( std::cout );

  vtkImageLuminance *luminance = vtkImageLuminance::New();
#if (VTK_MAJOR_VERSION >= 6)
  luminance->SetInputConnection( reader->GetOutputPort() );
#else
  luminance->SetInput( reader->GetOutput() );
#endif


  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  writer->SetFileName( "/tmp/bla.dcm" );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputConnection( luminance->GetOutputPort() );
#else
  writer->SetInput( luminance->GetOutput() );
#endif
  //writer->SetImageFormat( reader->GetImageFormat() ); // Do NOT pass image format
  writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
  writer->SetDirectionCosines( reader->GetDirectionCosines() );
  writer->SetShift( reader->GetShift() );
  writer->SetScale( reader->GetScale() );
  writer->Write();

  // TODO:
  //vtkImageAppendComponents.h

  reader->Delete();
  luminance->Delete();
```

```
  writer->Delete();

  return 0;
}
```

14.151 ConvertSingleBitTo8Bits.cxx

```
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=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkImageCast.h"
#include "vtkPointData.h"
#include "vtkBitArray.h"
#include "vtkUnsignedCharArray.h"
#include "vtkVersion.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( filename );
  reader->Update();
  //reader->GetOutput()->Print( std::cout );

  vtkDataArray* array = reader->GetOutput()->GetPointData()->GetScalars();
  vtkBitArray *barray = vtkBitArray::SafeDownCast( array );
  if( !barray ) return false;
  vtkIdType nvalues = array->GetNumberOfTuples();
  vtkUnsignedCharArray *uarray = vtkUnsignedCharArray::New();
  uarray->SetNumberOfTuples( nvalues );
  for(vtkIdType i = 0; i < nvalues; ++i)
    {
    uarray->SetValue( i, (unsigned char)barray->GetValue(i) );
    }

  vtkImageData *copy = vtkImageData::New();
  // http://www.vtk.org/Wiki/VTK/VTK_6_Migration/Changes_to_Scalars_Manipulation_Functions#AllocateScalars.28.29
  copy->SetExtent( reader->GetOutput()->GetExtent() );
#if (VTK_MAJOR_VERSION >= 6)
  copy->AllocateScalars(VTK_UNSIGNED_CHAR, 3);
#else
  copy->SetScalarType( VTK_UNSIGNED_CHAR );
  copy->AllocateScalars();
#endif

  //uarray->Print( std::cout );
  //copy->GetPointData()->GetScalars()->Print( std::cout );
  copy->GetPointData()->SetScalars( uarray );
  uarray->Delete();

  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  writer->SetFileName( outfilename );
  //writer->SetInput( cast->GetOutput() );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputData( copy );
#else
  writer->SetInput( copy );
```

```
#endif
  writer->SetImageFormat( reader->GetImageFormat() );
  writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
  writer->SetDirectionCosines( reader->GetDirectionCosines() );
  writer->SetShift( reader->GetShift() );
  writer->SetScale( reader->GetScale() );
  writer->SetFileDimensionality( reader->GetFileDimensionality( ) );
  writer->Write();

  reader->Delete();
  copy->Delete();
  writer->Delete();

  return 0;
}
```

14.152 CreateFakePET.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageWriter.h"
#include "vtkImageReader.h"
#include "vtkImageCast.h"
#include "vtkImageData.h"
#include "vtkPointData.h"
#include "vtkDataArray.h"
#include "vtkMedicalImageProperties.h"
#include "vtkStringArray.h"
#include "vtkVersion.h"

#include "gdcmTrace.h"
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"
#include "gdcmFilenameGenerator.h"

/*
 * Minimal example to create a fake RTDOSE file. The data contains a sphere
 * just for testing.
 * The vtkMedicalImageProperties is not properly filled, but only contains a
 * single field which is required to set the proper SOP Class
 */
int main(int, char *[])
{
  gdcm::Trace::DebugOn();

  const vtkIdType xSize = 512;
  const vtkIdType ySize = 512;
  const vtkIdType zSize = 512;

  // Create the filenames in advance to supply to the vtkGDCMImageWriter
  std::ostringstream os;
  os « "PT";
  os « "%03d.dcm";
  gdcm::FilenameGenerator fg;
  fg.SetPattern( os.str().c_str() );
  unsigned int nfiles = zSize;
  fg.SetNumberOfFilenames( nfiles );
  bool b = fg.Generate();
  if( !b )
    {
    std::cerr « "FilenameGenerator::Generate() failed" « std::endl;
    return 1;
    }
  if( !fg.GetNumberOfFilenames() )
```

```
    {
    std::cerr « "FilenameGenerator::Generate() failed somehow..." « std::endl;
    return 1;
    }

  vtkStringArray *filenames = vtkStringArray::New();
  for(unsigned int i = 0; i < fg.GetNumberOfFilenames(); ++i)
    {
    filenames->InsertNextValue( fg.GetFilename(i) );
    }

  vtkImageData *image = vtkImageData::New();
  image->SetDimensions(xSize,ySize,zSize);
  image->SetOrigin(-350.684,350.0,890.76);
  image->SetSpacing(5.4688,-5.4688,-3.27);
#if VTK_MAJOR_VERSION <= 5
  image->SetNumberOfScalarComponents(1);
  image->SetScalarTypeToDouble();
#else
  image->AllocateScalars(VTK_DOUBLE ,1);
#endif

  double pt[3];
  for( int z = 0; z < zSize; ++z )
    for( int y = 0; y < ySize; ++y )
      for( int x = 0; x < xSize; ++x )
        {
        pt[0] = x;
        pt[1] = y;
        pt[2] = z;
        pt[0] -= xSize / 2;
        pt[1] -= ySize / 2;
        pt[2] -= zSize / 2;
        pt[0] /= xSize / 2;
        pt[1] /= ySize / 2;
        pt[2] /= zSize / 2;
        const double unit = pt[0] * pt[0] + pt[1] * pt[1] + pt[2] * pt[2];
        const double inval = unit <= 1. ? (3 * unit + 7) : 0.; // just for fun => max == 10.
        double* pixel= static_cast<double*>(image->GetScalarPointer(x,y,z));
        pixel[0] = inval;
        }


  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  writer->SetFileDimensionality( 2 );
  writer->SetFileNames(filenames);
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputData( image );
#else
  writer->SetInput( image );
#endif
  writer->GetMedicalImageProperties()->SetSliceThickness("1.5");
  writer->GetMedicalImageProperties()->SetModality( "PT" );
  writer->SetScale( 0.0042 ); // why not
  writer->Write();

  image->Delete();
  writer->Delete();

  return 0;
}
```

14.153 CreateFakeRTDOSE.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.
```

```
=========================================================================*/
#include "vtkGDCMImageWriter.h"
#include "vtkImageReader.h"
#include "vtkImageCast.h"
#include "vtkImageData.h"
#include "vtkPointData.h"
#include "vtkDataArray.h"
#include "vtkMedicalImageProperties.h"
#include "vtkVersion.h"

#include "gdcmTrace.h"
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"

/*
 * Minimal example to create a fake RTDOSE file. The data contains a sphere
 * just for testing.
 * The vtkMedicalImageProperties is not properly filled, but only contains a
 * single field which is required to set the proper SOP Class
 */
int main(int, char *[])
{
  //gdcm::Trace::DebugOn();

  const vtkIdType xSize = 512;
  const vtkIdType ySize = 512;
  const vtkIdType zSize = 512;

  vtkImageData *image = vtkImageData::New();
  image->SetDimensions(xSize,ySize,zSize);
  image->SetOrigin(-350.684,350.0,890.76);
  image->SetSpacing(5.4688,-5.4688,-3.27);
#if VTK_MAJOR_VERSION <= 5
  image->SetNumberOfScalarComponents(1);
  image->SetScalarTypeToDouble();
#else
  image->AllocateScalars(VTK_DOUBLE ,1);
#endif

  double pt[3];
  for( int z = 0; z < zSize; ++z )
    for( int y = 0; y < ySize; ++y )
      for( int x = 0; x < xSize; ++x )
        {
        pt[0] = x;
        pt[1] = y;
        pt[2] = z;
        pt[0] -= xSize / 2;
        pt[1] -= ySize / 2;
        pt[2] -= zSize / 2;
        pt[0] /= xSize / 2;
        pt[1] /= ySize / 2;
        pt[2] /= zSize / 2;
        const double unit = pt[0] * pt[0] + pt[1] * pt[1] + pt[2] * pt[2];
        const double inval = unit <= 1. ? (3 * unit + 7) : 0.; // just for fun => max == 10.
        double* pixel= static_cast<double*>(image->GetScalarPointer(x,y,z));
        pixel[0] = inval;
        }


  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  writer->SetFileDimensionality( 3 );
  writer->SetFileName( "rtdose.dcm" );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputData( image );
#else
  writer->SetInput( image );
#endif
  writer->GetMedicalImageProperties()->SetSliceThickness("1.5");
  writer->GetMedicalImageProperties()->AddUserDefinedValue( "Dose Units", "GY");
  writer->GetMedicalImageProperties()->AddUserDefinedValue( "Dose Summation Type", "PLAN");
  writer->GetMedicalImageProperties()->AddUserDefinedValue( "Dose Type", "PHYSICAL");
  writer->GetMedicalImageProperties()->AddUserDefinedValue( "Frame of Reference UID",
      "1.3.12.2.1107.5.6.1.68100.30270111041215391275000000001");
  writer->GetMedicalImageProperties()->SetModality( "RTDOSE" );
  //writer->GetMedicalImageProperties()->SetModality( "PT" ); // debug
  writer->SetScale( 0.0042 ); // why not
  writer->Write();

  image->Delete();
```

```
  writer->Delete();


  // BEGIN HACK
  // In GDCM version 2.4.3 and before, the following tag was missing which caused issue with some RTDose
      software:

  // Open the DICOM file that was temporarily created. This will allows me to used
  // GDCM to append specific tags that allows the RTDOSE to be associated with the
  // relevant CT images.
  gdcm::Reader reader2;
  reader2.SetFileName("rtdose.dcm" );
  reader2.Read();
  gdcm::File &file = reader2.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  // Required by some software and not automagically added by GDCM in old version
  gdcm::Attribute<0x0028,0x0009> framePointer;
  framePointer.SetNumberOfValues(1);
  framePointer.SetValue( gdcm::Tag(0x3004,0x000C) );
  ds.Replace( framePointer.GetAsDataElement() );

  gdcm::Writer writer2;
  writer2.CheckFileMetaInformationOff();
  writer2.SetFileName("rtdose2.dcm");
  writer2.SetFile( file );
  writer2.Write();
  // END HACK

  return 0;
}
```

14.154 GenerateRTSTRUCT.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMPolyDataWriter.h"
#include "vtkGDCMPolyDataReader.h"
#include "vtkPolyData.h"
#include "vtkPolyDataReader.h"
#include "vtkMedicalImageProperties.h"
#include "vtkRTStructSetProperties.h"
#include "vtkStringArray.h"
#include "vtkAppendPolyData.h"
#include "vtkPolyDataWriter.h"
#include "vtkPolyDataMapper.h"
#include "vtkPolyDataMapper2D.h"
#include "vtkActor2D.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkMedicalImageProperties.h"
#include "vtkRenderWindow.h"
#include "vtkRenderer.h"
#include "vtkCamera.h"
#include "vtkProperty.h"
#include "vtkProperty2D.h"
#include "vtkImageData.h"
#include "vtkVersion.h"

#include <algorithm> //for std::find

#include "gdcmDirectoryHelper.h"

using namespace gdcm;

//view each organ independently of the others, to make sure that
```

```
//organ names correspond to actual segmentations.
void ShowOrgan(vtkPolyData* inData)
{
  // Now we'll look at it.
  vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
#if (VTK_MAJOR_VERSION >= 6)
  cubeMapper->SetInputData( inData );
#else
  cubeMapper->SetInput( inData );
#endif
  cubeMapper->SetScalarRange(0,7);
  vtkActor *cubeActor = vtkActor::New();
  cubeActor->SetMapper(cubeMapper);
  vtkProperty * property = cubeActor->GetProperty();
  property->SetRepresentationToWireframe();

  vtkRenderer *renderer = vtkRenderer::New();
  vtkRenderWindow *renWin = vtkRenderWindow::New();
  renWin->AddRenderer(renderer);

  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
  iren->SetRenderWindow(renWin);

  renderer->AddActor(cubeActor);
  renderer->ResetCamera();
  renderer->SetBackground(1,1,1);

  renWin->SetSize(300,300);

  renWin->Render();
  iren->Start();

  cubeMapper->Delete();
  cubeActor->Delete();
  renderer->Delete();
  renWin->Delete();
  iren->Delete();
}

/*
 * Full application which ... RTSTUCT
 */
int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " directory-with-rtstruct-and-ct-images\n";
    return 1;
    }
  std::string theDirName(argv[1]);
  Directory::FilenamesType theRTSeries =
    DirectoryHelper::GetRTStructSeriesUIDs(theDirName);

  gdcm::Directory theDir;
  theDir.Load(argv[1]);

  if (theRTSeries.empty())
    {
    std::cerr « "No RTStructs found for the test, ending." « std::endl;
    return 1;
    }

  for (size_t q = 0; q < theRTSeries.size(); q++)
    {
    Directory::FilenamesType theRTNames =
      DirectoryHelper::GetFilenamesFromSeriesUIDs(theDirName, theRTSeries[q]);

    if (theRTNames.empty()){
      std::cerr « "Unable to load RT Series " « theRTSeries[q] « ", continuing. " « std::endl;
      continue;
    }

    vtkGDCMPolyDataReader * reader = vtkGDCMPolyDataReader::New();
    reader->SetFileName( theRTNames[0].c_str() );
    reader->Update();

    //std::cout « reader->GetMedicalImageProperties()->GetStudyDate() « std::endl;

    vtkGDCMPolyDataWriter * writer = vtkGDCMPolyDataWriter::New();
    int numMasks = reader->GetNumberOfOutputPorts() + 1;//add a blank one in
    writer->SetNumberOfInputPorts( numMasks );
```

```
    std::string thePotentialName = theDirName + "/" + "GDCMTestRTStruct." +  theRTSeries[q] + ".dcm";
    gdcm::Directory::FilenamesType theFileNames = theDir.GetFilenames();
    //keep renaming the output until we get something that doesn't overwrite what was there already
    int count = 0;
    while (std::find(theFileNames.begin(), theFileNames.end(), thePotentialName) != theFileNames.end())
      {
        char buff[255];
        snprintf(buff,sizeof(buff),"%d",count);
        thePotentialName = theDirName + "/" + "GDCMTestRTStruct." + buff + "." + theRTSeries[q] + ".dcm";
      }
    writer->SetFileName( thePotentialName.c_str());
    writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
    //this line is cheating, we won't have the same stuff, and may not have a struct
    //to start with.
    //have to go back to the original data to reconstruct the RTStructureSetProperties
    //writer->SetRTStructSetProperties( reader->GetRTStructSetProperties() );
    //writer->Write();

    //loop through the outputs in order to write them out as if they had been created and appended
    vtkStringArray* roiNames = vtkStringArray::New();
    vtkStringArray* roiAlgorithms = vtkStringArray::New();
    vtkStringArray* roiTypes = vtkStringArray::New();
    roiNames->SetNumberOfValues(numMasks);
    roiAlgorithms->SetNumberOfValues(numMasks);
    roiTypes->SetNumberOfValues(numMasks);
    vtkAppendPolyData* append = vtkAppendPolyData::New();

    //ok, now we'll add a blank organ
    //the blank organ is to test to ensure that blank organs work; there have been crash reports
    //this code is added at the beginning to ensure that the blank organs are read
    //and preserved as individual organs.
    vtkPolyData* blank = vtkPolyData::New();
#if (VTK_MAJOR_VERSION >= 6)
    writer->SetInputData(0, blank);
#else
    writer->SetInput(0, blank);
#endif
    roiNames->InsertValue(0, "blank");
    roiAlgorithms->InsertValue(0, "blank");
    roiTypes->InsertValue(0, "ORGAN");

    //note the offsets used to place the blank rtstruct at the beginning of the newly generated RT.
    //the idea is to run the program twice; first to generate an rtstruct with a blank mask (making
    //sure that that functionality works), and then a second time to make sure that everything is
    //being read properly.  Multiple organs with the same name could cause some strangenesses.
    for (int i = 1; i < numMasks; ++i)
      {
#if (VTK_MAJOR_VERSION >= 6)
      writer->SetInputConnection(i, reader->GetOutputPort(i-1));
      append->AddInputConnection(reader->GetOutputPort(i-1));
#else
      writer->SetInput(i, reader->GetOutput(i-1));
      append->AddInput(reader->GetOutput(i-1));
#endif
      std::string theString = reader->GetRTStructSetProperties()->GetStructureSetROIName(i-1);
      roiNames->InsertValue(i, theString);
      theString = reader->GetRTStructSetProperties()->GetStructureSetROIGenerationAlgorithm(i-1);
      roiAlgorithms->InsertValue(i, theString);
      theString = reader->GetRTStructSetProperties()->GetStructureSetRTROIInterpretedType(i-1);
      roiTypes->InsertValue(i, theString);

      ShowOrgan(reader->GetOutput(i-1));
      }

    vtkRTStructSetProperties* theProperties = vtkRTStructSetProperties::New();
    writer->SetRTStructSetProperties(theProperties);
    writer->InitializeRTStructSet(theDirName,
      reader->GetRTStructSetProperties()->GetStructureSetLabel(),
      reader->GetRTStructSetProperties()->GetStructureSetName(),
      roiNames, roiAlgorithms, roiTypes);

    writer->SetRTStructSetProperties(theProperties);
    writer->Write();

    // print reader output:
    reader->Print( std::cout );
    // print first output:
    reader->GetOutput()->Print( std::cout );

    reader->Delete();
    append->Delete();
```

```
    roiNames->Delete();
    roiTypes->Delete();
    theProperties->Delete();
    roiAlgorithms->Delete();
    blank->Delete();

    writer->Delete();
  }
  return 0;
}
```

14.155 MagnifyFile.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkImageMagnify.h"
#include "vtkImageCast.h"
#include "vtkVersion.h"

#include "gdcmTesting.h"
#include "gdcmSystem.h"

// This is a simple test to magnify an image that is known to give excellent
// compression ratio. This will be our test for those large image
int main(int, char *[])
{
  const char *directory = gdcm::Testing::GetDataRoot();
  if(!directory) return 1;
  std::string file = std::string(directory) + "/test.acr";
  std::cout << file << std::endl;
  if( !gdcm::System::FileExists( file.c_str() ) ) return 1;

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( file.c_str() );
  reader->Update();
  //reader->GetOutput()->Print( std::cout );

  vtkImageCast *cast = vtkImageCast::New();
#if (VTK_MAJOR_VERSION >= 6)
  cast->SetInputConnection( reader->GetOutputPort() );
#else
  cast->SetInput( reader->GetOutput() );
#endif
  cast->SetOutputScalarTypeToUnsignedShort();

  vtkImageMagnify *magnify = vtkImageMagnify::New();
#if (VTK_MAJOR_VERSION >= 6)
  magnify->SetInputConnection( cast->GetOutputPort() );
#else
  magnify->SetInput( cast->GetOutput() );
#endif
  magnify->SetInterpolate( 1 );
  magnify->SetInterpolate( 0 );
  int factor = 100;
  magnify->SetMagnificationFactors (factor, factor, 1);

  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  writer->SetFileName( "/tmp/bla.dcm" );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputConnection( magnify->GetOutputPort() );
#else
  writer->SetInput( magnify->GetOutput() );
```

```
#endif
  writer->SetImageFormat( reader->GetImageFormat() );
  writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
  writer->SetDirectionCosines( reader->GetDirectionCosines() );
  writer->SetShift( reader->GetShift() );
  writer->SetScale( reader->GetScale() );
  writer->Write();

  // TODO:
  //vtkImageAppendComponents.h

  reader->Delete();
  magnify->Delete();
  writer->Delete();

  return 0;
}
```

14.156 gdcmorthoplanes.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#include "vtkActor.h"
#include "vtkCamera.h"
#include "vtkMatrix4x4.h"
#include "vtkTransform.h"
#include "vtkAssembly.h"
#include "vtkCellPicker.h"
#include "vtkCommand.h"
#include "vtkImageActor.h"
#include "vtkImageMapToColors.h"
#include "vtkImageOrthoPlanes.h"
#include "vtkImagePlaneWidget.h"
#include "vtkImageReader.h"
#include "vtkInteractorEventRecorder.h"
#include "vtkLookupTable.h"
#include "vtkOutlineFilter.h"
#include "vtkPolyDataMapper.h"
#include "vtkProperty.h"
#include "vtkRenderWindow.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkRenderer.h"
#include "vtkVolume16Reader.h"
#include "vtkImageData.h"
#include "vtkImageChangeInformation.h"
#include "vtkOrientationMarkerWidget.h"
#include "vtkAnnotatedCubeActor.h"
#include "vtkAxesActor.h"
#include "vtkCaptionActor2D.h"
#include "vtkTextProperty.h"
#include "vtkPropAssembly.h"

#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkStringArray.h"
#include "vtkVersion.h"

#include "gdcmSystem.h"
#include "gdcmDirectory.h"
#include "gdcmIPPSorter.h"

#ifndef vtkFloatingPointType
#define vtkFloatingPointType double
```

```
#endif

//----------------------------------------------------------------------------
class vtkOrthoPlanesCallback : public vtkCommand
{
public:
  static vtkOrthoPlanesCallback *New()
  { return new vtkOrthoPlanesCallback; }

  void Execute( vtkObject *caller, unsigned long vtkNotUsed( event ),
                void *callData )
  {
    vtkImagePlaneWidget* self =
      reinterpret_cast< vtkImagePlaneWidget* >( caller );
    if(!self) return;

    double* wl = static_cast<double*>( callData );

    if ( self == this->WidgetX )
      {
      this->WidgetY->SetWindowLevel(wl[0],wl[1],1);
      this->WidgetZ->SetWindowLevel(wl[0],wl[1],1);
      }
    else if( self == this->WidgetY )
      {
      this->WidgetX->SetWindowLevel(wl[0],wl[1],1);
      this->WidgetZ->SetWindowLevel(wl[0],wl[1],1);
      }
    else if (self == this->WidgetZ)
      {
      this->WidgetX->SetWindowLevel(wl[0],wl[1],1);
      this->WidgetY->SetWindowLevel(wl[0],wl[1],1);
      }
  }

  vtkOrthoPlanesCallback():WidgetX( 0 ), WidgetY( 0 ), WidgetZ ( 0 ) {}

  vtkImagePlaneWidget* WidgetX;
  vtkImagePlaneWidget* WidgetY;
  vtkImagePlaneWidget* WidgetZ;
};

int main( int argc, char *argv[] )
{
  //char* fname = vtkTestUtilities::ExpandDataFileName(argc, argv, "Data/headsq/quarter");

  //vtkVolume16Reader* v16 =  vtkVolume16Reader::New();
  //  v16->SetDataDimensions( 64, 64);
  //  v16->SetDataByteOrderToLittleEndian();
  //  v16->SetImageRange( 1, 93);
  //  v16->SetDataSpacing( 3.2, 3.2, 1.5);
  //  v16->SetFilePrefix( fname );
  //  v16->SetDataMask( 0x7fff);
  //  v16->Update();
  std::vector<std::string> filenames;
  if( argc < 2 )
    {
    std::cerr « argv[0] « " filename1.dcm [filename2.dcm ...]\n";
    return 1;
    }
  else
    {
    // Is it a single directory ? If so loop over all files contained in it:
    const char *filename = argv[1];
    if( argc == 2 && gdcm::System::FileIsDirectory( filename ) )
      {
      std::cout « "Loading directory: " « filename « std::endl;
      bool recursive = false;
      gdcm::Directory d;
      d.Load(filename, recursive);
      gdcm::Directory::FilenamesType const &files = d.GetFilenames();
      for( gdcm::Directory::FilenamesType::const_iterator it = files.begin(); it != files.end(); ++it )
        {
        filenames.push_back( it->c_str() );
        }
      }
    else // list of files passed directly on the cmd line:
        // discard non-existing or directory
      {
      for(int i=1; i < argc; ++i)
        {
```

```
        filename = argv[i];
        if( gdcm::System::FileExists( filename ) )
          {
          if( gdcm::System::FileIsDirectory( filename ) )
            {
            std::cerr « "Discarding directory: " « filename « std::endl;
            }
          else
            {
            filenames.push_back( filename );
            }
          }
        else
          {
          std::cerr « "Discarding non existing file: " « filename « std::endl;
          }
        }
      }
    //names->Print( std::cout );
    }

  vtkGDCMImageReader * reader = vtkGDCMImageReader::New();
  double ippzspacing;
  if( filenames.size() > 1 )
    {
    //gdcm::Trace::DebugOn();
    //gdcm::Trace::WarningOn();
    gdcm::IPPSorter s;
    s.SetComputeZSpacing( true );
    s.SetZSpacingTolerance( 1e-3 );
    bool b = s.Sort( filenames );
    if( !b )
      {
      std::cerr « "Failed to sort files" « std::endl;
      return 1;
      }
    std::cout « "Sorting succeeded:" « std::endl;
    s.Print( std::cout );

    std::cout « "Found z-spacing:" « std::endl;
    std::cout « s.GetZSpacing() « std::endl;
    ippzspacing = s.GetZSpacing();

    const std::vector<std::string> & sorted = s.GetFilenames();
    vtkStringArray *files = vtkStringArray::New();
    std::vector< std::string >::const_iterator it = sorted.begin();
    for( ; it != sorted.end(); ++it)
      {
      const std::string &f = *it;
      files->InsertNextValue( f.c_str() );
      }
    reader->SetFileNames( files );
    //reader->SetFileLowerLeft( 1 );
    reader->Update(); // important
    files->Delete();
    }
  else
    {
    reader->SetFileName( argv[1] );
    reader->Update(); // important
    ippzspacing = reader->GetOutput()->GetSpacing()[2];
    ippzspacing = 4;
    }

  //reader->GetOutput()->Print( std::cout );
  //vtkFloatingPointType range[2];
  //reader->GetOutput()->GetScalarRange(range);
  //std::cout « "Range: " « range[0] « " " « range[1] « std::endl;

  const vtkFloatingPointType *spacing = reader->GetOutput()->GetSpacing();

  vtkImageChangeInformation *v16 = vtkImageChangeInformation::New();
#if (VTK_MAJOR_VERSION >= 6)
  v16->SetInputConnection( reader->GetOutputPort() );
#else
  v16->SetInput( reader->GetOutput() );
#endif
  v16->SetOutputSpacing( spacing[0], spacing[1], ippzspacing );
  v16->Update();

#if 0
```

```
    vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
    writer->SetInput( v16->GetOutput() );
    writer->SetFileLowerLeft( reader->GetFileLowerLeft() );
    writer->SetDirectionCosines( reader->GetDirectionCosines() );
    writer->SetImageFormat( reader->GetImageFormat() );
    writer->SetFileDimensionality( 3); //reader->GetFileDimensionality() );
    writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
    writer->SetShift( reader->GetShift() );
    writer->SetScale( reader->GetScale() );
    writer->SetFileName( "out.dcm" );
    writer->Write();
#endif


  vtkOutlineFilter* outline = vtkOutlineFilter::New();
    outline->SetInputConnection(v16->GetOutputPort());

  vtkPolyDataMapper* outlineMapper = vtkPolyDataMapper::New();
    outlineMapper->SetInputConnection(outline->GetOutputPort());

  vtkActor* outlineActor =  vtkActor::New();
    outlineActor->SetMapper( outlineMapper);

  vtkRenderer* ren1 = vtkRenderer::New();
  vtkRenderer* ren2 = vtkRenderer::New();

  vtkRenderWindow* renWin = vtkRenderWindow::New();
    renWin->AddRenderer(ren2);
    renWin->AddRenderer(ren1);

  vtkRenderWindowInteractor* iren = vtkRenderWindowInteractor::New();
    iren->SetRenderWindow(renWin);

  vtkCellPicker* picker = vtkCellPicker::New();
    picker->SetTolerance(0.005);

  vtkProperty* ipwProp = vtkProperty::New();
   //assign default props to the ipw's texture plane actor

  vtkImagePlaneWidget* planeWidgetX = vtkImagePlaneWidget::New();
    planeWidgetX->SetInteractor( iren);
    planeWidgetX->SetKeyPressActivationValue('x');
    planeWidgetX->SetPicker(picker);
    planeWidgetX->RestrictPlaneToVolumeOn();
    planeWidgetX->GetPlaneProperty()->SetColor(1,0,0);
    planeWidgetX->SetTexturePlaneProperty(ipwProp);
    planeWidgetX->TextureInterpolateOff();
    planeWidgetX->SetResliceInterpolateToNearestNeighbour();
#if (VTK_MAJOR_VERSION >= 6)
    planeWidgetX->SetInputConnection(v16->GetOutputPort());
#else
    planeWidgetX->SetInput(v16->GetOutput());
#endif
    planeWidgetX->SetPlaneOrientationToXAxes();
    //planeWidgetX->SetSliceIndex(32);
    planeWidgetX->DisplayTextOn();
    planeWidgetX->On();
    planeWidgetX->InteractionOff();
    planeWidgetX->InteractionOn();

  vtkImagePlaneWidget* planeWidgetY = vtkImagePlaneWidget::New();
    planeWidgetY->SetInteractor( iren);
    planeWidgetY->SetKeyPressActivationValue('y');
    planeWidgetY->SetPicker(picker);
    planeWidgetY->GetPlaneProperty()->SetColor(1,1,0);
    planeWidgetY->SetTexturePlaneProperty(ipwProp);
    planeWidgetY->TextureInterpolateOn();
    planeWidgetY->SetResliceInterpolateToLinear();
#if (VTK_MAJOR_VERSION >= 6)
    planeWidgetY->SetInputConnection(v16->GetOutputPort());
#else
    planeWidgetY->SetInput(v16->GetOutput());
#endif
    planeWidgetY->SetPlaneOrientationToYAxes();
    //planeWidgetY->SetSlicePosition(102.4);
    planeWidgetY->SetLookupTable( planeWidgetX->GetLookupTable());
    planeWidgetY->DisplayTextOn();
    planeWidgetY->UpdatePlacement();
    planeWidgetY->On();

  vtkImagePlaneWidget* planeWidgetZ = vtkImagePlaneWidget::New();
```

```
    planeWidgetZ->SetInteractor( iren);
    planeWidgetZ->SetKeyPressActivationValue('z');
    planeWidgetZ->SetPicker(picker);
    planeWidgetZ->GetPlaneProperty()->SetColor(0,0,1);
    planeWidgetZ->SetTexturePlaneProperty(ipwProp);
    planeWidgetZ->TextureInterpolateOn();
    planeWidgetZ->SetResliceInterpolateToCubic();
#if (VTK_MAJOR_VERSION >= 6)
    planeWidgetZ->SetInputConnection(v16->GetOutputPort());
#else
    planeWidgetZ->SetInput(v16->GetOutput());
#endif
    planeWidgetZ->SetPlaneOrientationToZAxes();
    //planeWidgetZ->SetSliceIndex(25);
    planeWidgetZ->SetLookupTable( planeWidgetX->GetLookupTable());
    planeWidgetZ->DisplayTextOn();
    planeWidgetZ->On();

  vtkImageOrthoPlanes *orthoPlanes = vtkImageOrthoPlanes::New();
    orthoPlanes->SetPlane(0, planeWidgetX);
    orthoPlanes->SetPlane(1, planeWidgetY);
    orthoPlanes->SetPlane(2, planeWidgetZ);
    orthoPlanes->ResetPlanes();

   vtkOrthoPlanesCallback* cbk = vtkOrthoPlanesCallback::New();
   cbk->WidgetX = planeWidgetX;
   cbk->WidgetY = planeWidgetY;
   cbk->WidgetZ = planeWidgetZ;
   planeWidgetX->AddObserver( vtkCommand::EndWindowLevelEvent, cbk );
   planeWidgetY->AddObserver( vtkCommand::EndWindowLevelEvent, cbk );
   planeWidgetZ->AddObserver( vtkCommand::EndWindowLevelEvent, cbk );
   cbk->Delete();

  double wl[2];
  planeWidgetZ->GetWindowLevel(wl);

  // Add a 2D image to test the GetReslice method
  //
  vtkImageMapToColors* colorMap = vtkImageMapToColors::New();
    colorMap->PassAlphaToOutputOff();
    colorMap->SetActiveComponent(0);
    colorMap->SetOutputFormatToLuminance();
#if (VTK_MAJOR_VERSION >= 6)
    colorMap->SetInputData(planeWidgetZ->GetResliceOutput());
#else
    colorMap->SetInput(planeWidgetZ->GetResliceOutput());
#endif
    colorMap->SetLookupTable(planeWidgetX->GetLookupTable());

  vtkImageActor* imageActor = vtkImageActor::New();
    imageActor->PickableOff();
#if (VTK_MAJOR_VERSION >= 6)
    imageActor->SetInputData(colorMap->GetOutput());
#else
    imageActor->SetInput(colorMap->GetOutput());
#endif

  // Add the actors
  //
  ren1->AddActor( outlineActor);
  ren2->AddActor( imageActor);

  ren1->SetBackground( 0.1, 0.1, 0.2);
  ren2->SetBackground( 0.2, 0.1, 0.2);

  renWin->SetSize( 600, 350);

  ren1->SetViewport(0,0,0.58333,1);
  ren2->SetViewport(0.58333,0,1,1);

  // Set the actors' positions
  //
  renWin->Render();
  //iren->SetEventPosition( 175,175);
  //iren->SetKeyCode('r');
  //iren->InvokeEvent(vtkCommand::CharEvent,NULL);
  //iren->SetEventPosition( 475,175);
  //iren->SetKeyCode('r');
  //iren->InvokeEvent(vtkCommand::CharEvent,NULL);
```

```
//renWin->Render();

//ren1->GetActiveCamera()->Elevation(110);
//ren1->GetActiveCamera()->SetViewUp(0, 0, -1);
//ren1->GetActiveCamera()->Azimuth(45);
//ren1->GetActiveCamera()->Dolly(1.15);
ren1->ResetCameraClippingRange();

vtkAnnotatedCubeActor* cube = vtkAnnotatedCubeActor::New();
cube->SetXPlusFaceText ( "R" );
cube->SetXMinusFaceText( "L" );
cube->SetYPlusFaceText ( "A" );
cube->SetYMinusFaceText( "P" );
cube->SetZPlusFaceText ( "H" );
cube->SetZMinusFaceText( "F" );
cube->SetFaceTextScale( 0.666667 );

vtkAxesActor* axes2 = vtkAxesActor::New();

vtkMatrix4x4 *invert = vtkMatrix4x4::New();
invert->DeepCopy( reader->GetDirectionCosines() );
invert->Invert();

// simulate a left-handed coordinate system
//
vtkTransform *transform = vtkTransform::New();
transform->Identity();
//transform->RotateY(90);
transform->Concatenate(invert);
axes2->SetShaftTypeToCylinder();
axes2->SetUserTransform( transform );
cube->GetAssembly()->SetUserTransform( transform );

axes2->SetTotalLength( 1.5, 1.5, 1.5 );
axes2->SetCylinderRadius( 0.500 * axes2->GetCylinderRadius() );
axes2->SetConeRadius    ( 1.025 * axes2->GetConeRadius() );
axes2->SetSphereRadius  ( 1.500 * axes2->GetSphereRadius() );

vtkTextProperty* tprop = axes2->GetXAxisCaptionActor2D()->
  GetCaptionTextProperty();
tprop->ItalicOn();
tprop->ShadowOn();
tprop->SetFontFamilyToTimes();

axes2->GetYAxisCaptionActor2D()->GetCaptionTextProperty()->ShallowCopy( tprop );
axes2->GetZAxisCaptionActor2D()->GetCaptionTextProperty()->ShallowCopy( tprop );

vtkPropAssembly* assembly = vtkPropAssembly::New();
assembly->AddPart( axes2 );
assembly->AddPart( cube );

vtkOrientationMarkerWidget* widget = vtkOrientationMarkerWidget::New();
widget->SetOutlineColor( 0.9300, 0.5700, 0.1300 );
widget->SetOrientationMarker( assembly );
widget->SetInteractor( iren );
widget->SetViewport( 0.0, 0.0, 0.4, 0.4 );
widget->SetEnabled( 1 );
widget->InteractiveOff();
widget->InteractiveOn();

// Playback recorded events
//
//vtkInteractorEventRecorder *recorder = vtkInteractorEventRecorder::New();
//recorder->SetInteractor(iren);
//recorder->ReadFromInputStringOn();
//recorder->SetInputString(IOPeventLog);

// Interact with data
// Render the image
//
iren->Initialize();
renWin->Render();

// Test SetKeyPressActivationValue for one of the widgets
//
//iren->SetKeyCode('z');
//iren->InvokeEvent(vtkCommand::CharEvent,NULL);
//iren->SetKeyCode('z');
//iren->InvokeEvent(vtkCommand::CharEvent,NULL);

//int retVal = vtkRegressionTestImage( renWin );
```

```
  //
  //if ( retVal == vtkRegressionTester::DO_INTERACTOR)
    {
    iren->Start();
    }

  // Clean up
  //
  //recorder->Off();
  //recorder->Delete();

  ipwProp->Delete();
  orthoPlanes->Delete();
  planeWidgetX->Delete();
  planeWidgetY->Delete();
  planeWidgetZ->Delete();
  colorMap->Delete();
  imageActor->Delete();
  picker->Delete();
  outlineActor->Delete();
  outlineMapper->Delete();
  outline->Delete();
  iren->Delete();
  renWin->Delete();
  ren1->Delete();
  ren2->Delete();
  v16->Delete();
  reader->Delete();

  return 0;
}
```

14.157 gdcmreslice.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"

#include "vtkRenderer.h"
#include "vtkAssembly.h"
#include "vtkImageFlip.h"
#include "vtkImageReslice.h"
#include "vtkRenderWindow.h"
#include "vtkAnnotatedCubeActor.h"
#include "vtkTransform.h"
#include "vtkAxesActor.h"
#include "vtkTextProperty.h"
#include "vtkCaptionActor2D.h"
#include "vtkPropAssembly.h"
#include "vtkOrientationMarkerWidget.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkPolyDataMapper.h"
#include "vtkActor.h"
#include "vtkImageData.h"
#include "vtkLookupTable.h"
#include "vtkTexture.h"
#include "vtkPlaneSource.h"
#include "vtkVersion.h"

int main( int argc, char *argv[] )
{
  if( argc < 2 ) return 1;
  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( argv[1] );
  //reader->FileLowerLeftOn();
```

```
  reader->Update();

  vtkImageFlip *flip = vtkImageFlip::New();
#if (VTK_MAJOR_VERSION >= 6)
  flip->SetInputConnection(reader->GetOutputPort());
#else
  flip->SetInput(reader->GetOutput());
#endif
  flip->SetFilteredAxis(0);
  flip->Update();

  vtkImageReslice *reslice = vtkImageReslice::New();
  //reslice->SetInput(reader->GetOutput());
#if (VTK_MAJOR_VERSION >= 6)
  reslice->SetInputConnection(flip->GetOutputPort());
#else
  reslice->SetInput(flip->GetOutput());
#endif
  //reslice->SetResliceAxesDirectionCosines()
  reader->GetDirectionCosines()->Print(std::cout);
  vtkMatrix4x4 *invert = vtkMatrix4x4::New();
  invert->DeepCopy( reader->GetDirectionCosines() );
  invert->Invert();

  //reslice->SetResliceAxes( reader->GetDirectionCosines() );
  reslice->SetResliceAxes( invert );
  reslice->Update();
  vtkImageData* ima = reslice->GetOutput();

  vtkLookupTable* table = vtkLookupTable::New();
  table->SetNumberOfColors(1000);
  table->SetTableRange(0,1000);
  table->SetSaturationRange(0,0);
  table->SetHueRange(0,1);
  table->SetValueRange(0,1);
  table->SetAlphaRange(1,1);
  table->Build();

  // Texture
  vtkTexture* texture = vtkTexture::New();
#if (VTK_MAJOR_VERSION >= 6)
  texture->SetInputData(ima);
#else
  texture->SetInput(ima);
#endif
  texture->InterpolateOn();
  texture->SetLookupTable(table);

  // PlaneSource
  vtkPlaneSource* plane = vtkPlaneSource::New();

  // PolyDataMapper
  vtkPolyDataMapper *planeMapper = vtkPolyDataMapper::New();
#if (VTK_MAJOR_VERSION >= 6)
  planeMapper->SetInputConnection(plane->GetOutputPort());
#else
  planeMapper->SetInput(plane->GetOutput());
#endif

  // Actor
  vtkActor* planeActor = vtkActor::New();
  planeActor->SetTexture(texture);
  planeActor->SetMapper(planeMapper);
  planeActor->PickableOn();

  // Final rendering with simple interactor:
  vtkRenderer        *ren = vtkRenderer::New();
  vtkRenderWindow *renwin = vtkRenderWindow::New();
  renwin->AddRenderer(ren);
  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
  iren->SetRenderWindow(renwin);
  ren->AddActor(planeActor);
  ren->SetBackground(0,0,0.5);

  // DICOM is RAH:
  vtkAnnotatedCubeActor* cube = vtkAnnotatedCubeActor::New();
  cube->SetXPlusFaceText ( "R" );
  cube->SetXMinusFaceText( "L" );
  cube->SetYPlusFaceText ( "A" );
  cube->SetYMinusFaceText( "P" );
  cube->SetZPlusFaceText ( "H" );
```

```
  cube->SetZMinusFaceText( "F" );

  vtkAxesActor* axes2 = vtkAxesActor::New();

  vtkTransform *transform = vtkTransform::New();
  transform->Identity();
  //reader->GetDirectionCosines()->Print(std::cout);
  transform->Concatenate(invert);
  //axes2->SetShaftTypeToCylinder();
  axes2->SetUserTransform( transform );
  cube->GetAssembly()->SetUserTransform( transform ); // can't get it to work

  vtkPropAssembly* assembly = vtkPropAssembly::New();
  assembly->AddPart( axes2 );
  assembly->AddPart( cube );

  vtkOrientationMarkerWidget* widget = vtkOrientationMarkerWidget::New();
  widget->SetOrientationMarker( assembly );
  widget->SetInteractor( iren );
  widget->SetEnabled( 1 );
  widget->InteractiveOff();
  widget->InteractiveOn();

  renwin->Render();
  iren->Start();

  // Clean up:
  reader->Delete();
  table->Delete();
  texture->Delete();
  plane->Delete();
  planeMapper->Delete();
  planeActor->Delete();
  ren->Delete();
  renwin->Delete();
  iren->Delete();

  return 0;
}
```

14.158 gdcmrtionplan.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkImageData.h"
#include "vtkPointData.h"
#include "vtkPolyData.h"
#include "vtkProperty.h"
#include "vtkPolyDataMapper.h"
#include "vtkActor.h"
#include "vtkRenderer.h"
#include "vtkCellArray.h"
#include "vtkPoints.h"
#include "vtkDoubleArray.h"
#include <vtkXMLImageDataWriter.h>
#include <vtkXMLPolyDataWriter.h>
#include <vtkRenderWindowInteractor.h>
#include <vtkImageColorViewer.h>
#include "vtkVersion.h"

#include "gdcmReader.h"
#include "gdcmAttribute.h"

/*
 This example is just for fun. We found a RT Ion Plan Storage and simply extracted the viz stuff for VTK
```

```
    RTIonPlanStorage, // 1.2.840.10008.5.1.4.1.1.481.8
*/
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " filename.dcm outfile.vti\n";
    return 1;
    }
  const char * filename = argv[1];
  const char * outfilename = argv[2];
  const char * outfilename2 = argv[3];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::MediaStorage ms;
  ms.SetFromFile( reader.GetFile() );
  if( ms != gdcm::MediaStorage::RTIonPlanStorage )
    {
    return 1;
    }

/*
(300a,03a2) SQ                                          # u/l,1 Ion Beam Sequence
  (fffe,e000) na (Item with undefined length)
    (0008,1040) LO [Test]                               # 4,1 Institutional Department Name
    (300a,00b2) SH (no value)                           # 0,1 Treatment Machine Name
    (300a,00b3) CS [MU]                                 # 2,1 Primary Dosimeter Unit
    (300a,00c0) IS [1 ]                                 # 2,1 Beam Number
    (300a,00c2) LO [1 ]                                 # 2,1 Beam Name
    (300a,00c4) CS [STATIC]                             # 6,1 Beam Type
    (300a,00c6) CS [PROTON]                             # 6,1 Radiation Type
    (300a,00ce) CS [TREATMENT ]                         # 10,1 Treatment Delivery Type
    (300a,00d0) IS [0 ]                                 # 2,1 Number of Wedges
    (300a,00e0) IS [1 ]                                 # 2,1 Number of Compensators
    (300a,00ed) IS [0 ]                                 # 2,1 Number of Boli
    (300a,00f0) IS [1 ]                                 # 2,1 Number of Blocks
    (300a,0110) IS [2 ]                                 # 2,1 Number of Control Points
    (300a,02ea) SQ                                      # u/l,1 Ion Range Compensator Sequence
      (fffe,e000) na (Item with undefined length)
        (300a,00e1) SH [lucite]                         # 6,1 Material ID
        (300a,00e4) IS [1 ]                             # 2,1 Compensator Number
        (300a,00e5) SH [75hdhe5 ]                       # 8,1 Compensator ID
        (300a,00e7) IS [35]                             # 2,1 Compensator Rows
        (300a,00e8) IS [37]                             # 2,1 Compensator Columns
        (300a,00e9) DS [3.679991\4.249288 ]             # 18,2 Compensator Pixel Spacing
        (300a,00ea) DS [-76.00\62.50]                   # 12,2 Compensator Position
        (300a,00ec) DS
      [52.13\52.13\52.13\53.18\54.04\54.04\47.11\40.06\40.06\38.79\34.87\33.28\33.28\33.28\33.28\35.43\35.43\34.54\34.54\34.71\36.
      # 7618,1-n Compensator Thickness Data
        (300a,02e0) CS [ABSENT]                         # 6,1 Compensator Divergence
        (300a,02e1) CS [SOURCE_SIDE ]                   # 12,1 Compensator Mounting Position
        (300a,02e4) FL 39.2                             # 4,1 Isocenter to Compensator Tray Distance
        (300a,02e5) FL 2.12                             # 4,1 Compensator Column Offset
        (300a,02e8) FL 4.76                             # 4,1 Compensator Milling Tool Diameter
      (fffe,e00d)
*/
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();
  gdcm::Tag tbeamsq(0x300a,0x03a2);
  if( !ds.FindDataElement( tbeamsq ) )
    {
    return 1;
    }
  const gdcm::DataElement &beamsq = ds.GetDataElement( tbeamsq );
  //std::cout « beamsq « std::endl;
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi = beamsq.GetValueAsSQ();
  if( !sqi || !sqi->GetNumberOfItems() )
    {
    return 1;
    }

  //for(unsigned int pd = 0; pd < sqi->GetNumberOfItems(); ++pd)
  //  {
    //const gdcm::Item & item = sqi->GetItem(1); // Item start at #1
    const gdcm::Item & item = sqi->GetItem(1); // Item start at #1
```

```
    const gdcm::DataSet& nestedds = item.GetNestedDataSet();
    //std::cout « nestedds « std::endl;
    gdcm::Tag tcompensatorsq(0x300a,0x02ea);
    if( !nestedds.FindDataElement( tcompensatorsq ) )
      {
      return 1;
      }
    const gdcm::DataElement &compensatorsq = nestedds.GetDataElement( tcompensatorsq );
    //std::cout « compensatorsq « std::endl;
    gdcm::SmartPointer<gdcm::SequenceOfItems> ssqi = compensatorsq.GetValueAsSQ();
    const gdcm::Item & item2 = ssqi->GetItem(1); // Item start at #1
    const gdcm::DataSet& nestedds2 = item2.GetNestedDataSet();
    //std::cout « nestedds2 « std::endl;
    gdcm::Tag tcompensatorthicknessdata(0x300a,0x00ec);
    if( !nestedds2.FindDataElement( tcompensatorthicknessdata ) )
      {
      return 1;
      }
    const gdcm::DataElement &compensatorthicknessdata = nestedds2.GetDataElement( tcompensatorthicknessdata );
    //  std::cout « compensatorthicknessdata « std::endl;
    gdcm::Attribute<0x300a,0x00ec> at;
    at.SetFromDataElement( compensatorthicknessdata );
    const double* pts = at.GetValues();
    //        (300a,00e7) IS [35]                                     # 2,1 Compensator Rows
    gdcm::Attribute<0x300a,0x00e7> at1;
    const gdcm::DataElement &compensatorrows = nestedds2.GetDataElement( at1.GetTag() );
    at1.SetFromDataElement( compensatorrows );
    std::cout « at1.GetValue() « std::endl;
    //        (300a,00e8) IS [37]                                     # 2,1 Compensator Columns
    gdcm::Attribute<0x300a,0x00e8> at2;
    const gdcm::DataElement &compensatorcols = nestedds2.GetDataElement( at2.GetTag() );
    at2.SetFromDataElement( compensatorcols );
    std::cout « at2.GetValue() « std::endl;

        // (300a,00e9) DS [3.679991\4.249288 ]                      # 18,2 Compensator Pixel Spacing
    gdcm::Attribute<0x300a,0x00e9> at3;
    const gdcm::DataElement &compensatorpixelspacing = nestedds2.GetDataElement( at3.GetTag() );
    at3.SetFromDataElement( compensatorpixelspacing );
    std::cout « at3.GetValue(0) « std::endl;
        // (300a,00ea) DS [-76.00\62.50]                            # 12,2 Compensator Position
    gdcm::Attribute<0x300a,0x00ea> at4;
    const gdcm::DataElement &compensatorposition = nestedds2.GetDataElement( at4.GetTag() );
    at4.SetFromDataElement( compensatorposition );
    std::cout « at4.GetValue(0) « std::endl;

    vtkDoubleArray *d = vtkDoubleArray::New();
    d->SetArray( const_cast<double*>(pts) , at1.GetValue() * at2.GetValue() , 0 );

    vtkImageData *img = vtkImageData::New();
    img->Initialize();
    img->SetDimensions( at2.GetValue(), at1.GetValue(), 1 );
    //imgb->SetExtent(1, xdim, 1, ydim, 1, zdim);
#if (VTK_MAJOR_VERSION >= 6)
    assert(0);
#else
    img->SetScalarTypeToDouble();
#endif
    img->SetSpacing( at3.GetValue(1), at3.GetValue(0), 1); // FIXME image is upside down
    img->SetOrigin( at4.GetValue(0), at4.GetValue(1), 1);
#if (VTK_MAJOR_VERSION >= 6)
    assert(0);
#else
    img->SetNumberOfScalarComponents(1);
#endif
    img->GetPointData()->SetScalars(d);

#if (VTK_MAJOR_VERSION >= 6)
#else
    img->Update();
#endif
    img->Print(std::cout);

    vtkXMLImageDataWriter *writeb= vtkXMLImageDataWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
    writeb->SetInputData( img );
#else
    writeb->SetInput( img );
#endif
    writeb->SetFileName( outfilename );
    writeb->Write( );
/*
```

```
    (300a,03a6) SQ                                          # u/l,1 Ion Block Sequence
      (fffe,e000) na (Item with undefined length)
        (300a,00e1) SH [brass ]                             # 6,1 Material ID
        (300a,00f7) FL 95.03                                # 4,1 Isocenter to Block Tray Distance
        (300a,00f8) CS [APERTURE]                           # 8,1 Block Type
        (300a,00fa) CS [ABSENT]                             # 6,1 Block Divergence
        (300a,00fb) CS [SOURCE_SIDE ]                       # 12,1 Block Mounting Position
        (300a,00fc) IS [1 ]                                 # 2,1 Block Number
        (300a,0100) DS [50.00 ]                             # 6,1 Block Thickness
        (300a,0104) IS [179 ]                               # 4,1 Block Number of Points
        (300a,0106) DS
      [1.7\50.0\14.3\50.0\16.7\49.4\18.7\48.2\19.4\47.7\20.1\47.1\21.0\47.0\22.3\47.0\23.7\46.8\25.7\46.2\27.0\45.6\27.2\45.4\28.2
2\37.4\43.0\37.1\44.7\36] # 1934,2-2n Block Data
      (fffe,e00d)
    (fffe,e0dd)

*/
    gdcm::Tag tblocksq(0x300a,0x03a6);
    if( !nestedds.FindDataElement( tblocksq ) )
      {
      return 1;
      }
    const gdcm::DataElement &blocksq = nestedds.GetDataElement( tblocksq );
    //std::cout « blocksq « std::endl;
    gdcm::SmartPointer<gdcm::SequenceOfItems> sssqi = blocksq.GetValueAsSQ();
    const gdcm::Item & item3 = sssqi->GetItem(1); // Item start at #1
    const gdcm::DataSet& nestedds3 = item3.GetNestedDataSet();

    gdcm::Tag tblockdata(0x300a,0x0106);
    if( !nestedds3.FindDataElement( tblockdata ) )
      {
      return 1;
      }
    const gdcm::DataElement &blockdata = nestedds3.GetDataElement( tblockdata );
    //  std::cout « blockdata « std::endl;
    gdcm::Attribute<0x300a,0x0106> at_;
    at_.SetFromDataElement( blockdata );

    vtkDoubleArray *scalars = vtkDoubleArray::New();
    scalars->SetNumberOfComponents(3);

    gdcm::Attribute<0x300a,0x0104> bnpts; //  IS [179 ]                                  # 4,1 Block Number
      of Points
    if( !nestedds3.FindDataElement( bnpts.GetTag() ) )
      {
      return 1;
      }
    const gdcm::DataElement &blocknpts = nestedds3.GetDataElement( bnpts.GetTag() );
    bnpts.SetFromDataElement(  blocknpts );
    //std::cout « bnpts.GetValue() « std::endl;

    vtkPolyData *output = vtkPolyData::New();
    vtkPoints *newPts = vtkPoints::New();
    vtkCellArray *polys = vtkCellArray::New();
    const double *ptr = at_.GetValues();
    //unsigned int npts = bnpts.GetNumberOfValues() / 2;
    unsigned int npts = bnpts.GetValue();
    vtkIdType *ptIds =  new vtkIdType[npts];
    for(unsigned int i = 0; i < npts; ++i)
      {
      float x[3] = {};
      x[0] = (float)ptr[2*i+0];
      x[1] = (float)ptr[2*i+1];
      //x[2] = pts[i+2];
      vtkIdType ptId = newPts->InsertNextPoint( x );
      //std::cout « x[0] « "," « x[1] « "," « x[2] « std::endl;
      ptIds[i ] = ptId;
      }
    vtkIdType cellId = polys->InsertNextCell(npts , ptIds);
    (void)cellId;
    delete[] ptIds;

    output->SetPoints(newPts);
    newPts->Delete();
    output->SetPolys(polys);
    polys->Delete();
    //output->GetCellData()->SetScalars(scalars);
    //scalars->Delete();
#if (VTK_MAJOR_VERSION >= 6)
#else
    output->Update();
```

```
#endif
    output->Print( std::cout );



  //  }

   vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();

   vtkImageColorViewer *viewer = vtkImageColorViewer::New();
#if (VTK_MAJOR_VERSION >= 6)
   viewer->SetInputData(img);
#else
   viewer->SetInput(img);
#endif
   viewer->SetupInteractor(iren);
   viewer->SetSize(600, 600);
   viewer->GetRenderer()->ResetCameraClippingRange();
   viewer->Render();
   viewer->GetRenderer()->ResetCameraClippingRange();

  vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
  //vtkPolyDataMapper2D* cubeMapper = vtkPolyDataMapper2D::New();
#if (VTK_MAJOR_VERSION >= 6)
      cubeMapper->SetInputData( output );
#else
      cubeMapper->SetInput( output );
#endif
      cubeMapper->SetScalarRange(0,7);
  vtkActor *cubeActor = vtkActor::New();
  //vtkActor2D* cubeActor = vtkActor2D::New();
      cubeActor->SetMapper(cubeMapper);
  vtkProperty * property = cubeActor->GetProperty();
  property->SetRepresentationToWireframe();

viewer->GetRenderer()->AddActor( cubeActor );

    vtkXMLPolyDataWriter *writec= vtkXMLPolyDataWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
    writec->SetInputData( output );
#else
    writec->SetInput( output );
#endif
    writec->SetFileName( outfilename2 );
    writec->Write( );

   iren->Initialize();
   iren->Start();


  return 0;
}
```

14.159 gdcmrtplan.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkImageData.h"
#include "vtkPointData.h"
#include "vtkPolyData.h"
#include "vtkProperty.h"
#include "vtkPolyDataMapper.h"
#include "vtkActor.h"
#include "vtkRenderer.h"
```

```
#include "vtkCellArray.h"
#include "vtkPoints.h"
#include "vtkDoubleArray.h"
#include <vtkXMLImageDataWriter.h>
#include <vtkRenderWindowInteractor.h>
#include <vtkImageColorViewer.h>
#include "vtkVersion.h"

#include "gdcmReader.h"
#include "gdcmAttribute.h"

/*
 This example is just for fun. We found a fake RT Ion Plan Storage and simply extracted the viz stuff for VTK
 but this is rather a RT Plan storage
*/
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " filename.dcm outfile.vti\n";
    return 1;
    }
  const char * filename = argv[1];
  const char * outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::MediaStorage ms;
  ms.SetFromFile( reader.GetFile() );
  if( ms != gdcm::MediaStorage::RTIonPlanStorage )
    {
    return 1;
    }

/*
(300a,00b0) SQ                                          # u/l,1 Beam Sequence
  (fffe,e000) na (Item with undefined length)
    (300a,00b2) SH (no value)                           # 0,1 Treatment Machine Name
    (300a,00c0) IS [1 ]                                 # 2,1 Beam Number
    (300a,00c2) LO [1 ]                                 # 2,1 Beam Name
    (300a,00c4) CS [STATIC]                             # 6,1 Beam Type
    (300a,00c6) CS [PROTON]                             # 6,1 Radiation Type
    (300a,00ce) CS [TREATMENT ]                         # 10,1 Treatment Delivery Type
    (300a,00e0) IS [1 ]                                 # 2,1 Number of Compensators
    (300a,00e3) SQ                                      # u/l,1 Compensator Sequence
      (fffe,e000) na (Item with undefined length)
        (300a,00e1) SH [lucite]                         # 6,1 Material ID
        (300a,00e4) IS [1 ]                             # 2,1 Compensator Number
        (300a,00e5) SH [75hdhe5 ]                       # 8,1 Compensator ID
        (300a,00e7) IS [35]                             # 2,1 Compensator Rows
        (300a,00e8) IS [37]                             # 2,1 Compensator Columns
        (300a,00e9) DS [3.679991\4.249288 ]             # 18,2 Compensator Pixel Spacing
        (300a,00ea) DS [-76.00\62.50]                   # 12,2 Compensator Position
        (300a,00ec) DS
      [52.13\52.13\52.13\53.18\54.04\54.04\47.11\40.06\40.06\38.79\34.87\33.28\33.28\33.28\33.28\35.43\35.43\34.54\34.54\34.71\36.
      # 7618,1-n Compensator Thickness Data
        (300a,02e0) CS [ABSENT]                         # 6,1 Compensator Divergence
        (300a,02e1) CS [SOURCE_SIDE ]                   # 12,1 Compensator Mounting Position
      (fffe,e00d)
      (fffe,e000) na (Item with undefined length)
      (fffe,e00d)
    (fffe,e0dd)
*/
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();
  gdcm::Tag tbeamsq(0x300a,0x00b0);
  if( !ds.FindDataElement( tbeamsq ) )
    {
    return 1;
    }
  const gdcm::DataElement &beamsq = ds.GetDataElement( tbeamsq );
  //std::cout « beamsq « std::endl;
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi = beamsq.GetValueAsSQ();
  if( !sqi || !sqi->GetNumberOfItems() )
    {
    return 1;
```

```
    }

  //for(unsigned int pd = 0; pd < sqi->GetNumberOfItems(); ++pd)
  //  {
    //const gdcm::Item & item = sqi->GetItem(1); // Item start at #1
    const gdcm::Item & item = sqi->GetItem(2); // Item start at #1
    const gdcm::DataSet& nestedds = item.GetNestedDataSet();
    //std::cout « nestedds « std::endl;
    gdcm::Tag tcompensatorsq(0x300a,0x00e3);
    if( !nestedds.FindDataElement( tcompensatorsq ) )
      {
      return 1;
      }
    const gdcm::DataElement &compensatorsq = nestedds.GetDataElement( tcompensatorsq );
    //std::cout « compensatorsq « std::endl;
    gdcm::SmartPointer<gdcm::SequenceOfItems> ssqi = compensatorsq.GetValueAsSQ();
    const gdcm::Item & item2 = ssqi->GetItem(1); // Item start at #1
    const gdcm::DataSet& nestedds2 = item2.GetNestedDataSet();
    //std::cout « nestedds2 « std::endl;
    gdcm::Tag tcompensatorthicknessdata(0x300a,0x00ec);
    if( !nestedds2.FindDataElement( tcompensatorthicknessdata ) )
      {
      return 1;
      }
    const gdcm::DataElement &compensatorthicknessdata = nestedds2.GetDataElement( tcompensatorthicknessdata );
    //  std::cout « compensatorthicknessdata « std::endl;
    gdcm::Attribute<0x300a,0x00ec> at;
    at.SetFromDataElement( compensatorthicknessdata );
    const double* pts = at.GetValues();
    //        (300a,00e7) IS [35]                                     # 2,1 Compensator Rows
    gdcm::Attribute<0x300a,0x00e7> at1;
    const gdcm::DataElement &compensatorrows = nestedds2.GetDataElement( at1.GetTag() );
    at1.SetFromDataElement( compensatorrows );
    std::cout « at1.GetValue() « std::endl;
    //        (300a,00e8) IS [37]                                     # 2,1 Compensator Columns
    gdcm::Attribute<0x300a,0x00e8> at2;
    const gdcm::DataElement &compensatorcols = nestedds2.GetDataElement( at2.GetTag() );
    at2.SetFromDataElement( compensatorcols );
    std::cout « at2.GetValue() « std::endl;

        // (300a,00e9) DS [3.679991\4.249288 ]                      # 18,2 Compensator Pixel Spacing
    gdcm::Attribute<0x300a,0x00e9> at3;
    const gdcm::DataElement &compensatorpixelspacing = nestedds2.GetDataElement( at3.GetTag() );
    at3.SetFromDataElement( compensatorpixelspacing );
    std::cout « at3.GetValue(0) « std::endl;
        // (300a,00ea) DS [-76.00\62.50]                            # 12,2 Compensator Position
    gdcm::Attribute<0x300a,0x00ea> at4;
    const gdcm::DataElement &compensatorposition = nestedds2.GetDataElement( at4.GetTag() );
    at4.SetFromDataElement( compensatorposition );
    std::cout « at4.GetValue(0) « std::endl;

    vtkDoubleArray *d = vtkDoubleArray::New();
    d->SetArray( const_cast<double*>(pts) , at1.GetValue() * at2.GetValue() , 0 );

    vtkImageData *img = vtkImageData::New();
    img->Initialize();
    img->SetDimensions( at2.GetValue(), at1.GetValue(), 1 );
    //imgb->SetExtent(1, xdim, 1, ydim, 1, zdim);
#if (VTK_MAJOR_VERSION >= 6)
    assert(0);
#else
    img->SetScalarTypeToDouble();
#endif
    img->SetSpacing( at3.GetValue(1), at3.GetValue(0), 1); // FIXME image is upside down
    img->SetOrigin( at4.GetValue(0), at4.GetValue(1), 1);
#if (VTK_MAJOR_VERSION >= 6)
    assert(0);
#else
    img->SetNumberOfScalarComponents(1);
#endif
    img->GetPointData()->SetScalars(d);

    vtkXMLImageDataWriter *writeb= vtkXMLImageDataWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
    writeb->SetInputData( img );
#else
    writeb->SetInput( img );
#endif
    writeb->SetFileName( outfilename );
    writeb->Write( );
/*
```

```
 (300a,00f4) SQ                                          # u/l,1 Block Sequence
      (fffe,e000) na (Item with undefined length)
        (300a,00e1) SH [brass ]                             # 6,1 Material ID
        (300a,00f8) CS [APERTURE]                           # 8,1 Block Type
        (300a,00fa) CS [ABSENT]                             # 6,1 Block Divergence
        (300a,00fb) CS [SOURCE_SIDE ]                       # 12,1 Block Mounting Position
        (300a,00fc) IS [1 ]                                 # 2,1 Block Number
        (300a,0100) DS [50.00 ]                             # 6,1 Block Thickness
        (300a,0104) IS [179 ]                               # 4,1 Block Number of Points
        (300a,0106) DS
      [1.7\50.0\14.3\50.0\16.7\49.4\18.7\48.2\19.4\47.7\20.1\47.1\21.0\47.0\22.3\47.0\23.7\46.8\25.7\46.2\27.0\45.6\27.2\45.4\28.2
      # 1934,2-2n Block Data
      (fffe,e00d)
      (fffe,e000) na (Item with undefined length)
      (fffe,e00d)
    (fffe,e0dd)
*/
    gdcm::Tag tblocksq(0x300a,0x00f4);
    if( !nestedds.FindDataElement( tblocksq ) )
      {
      return 1;
      }
    const gdcm::DataElement &blocksq = nestedds.GetDataElement( tblocksq );
    //std::cout « blocksq « std::endl;
    gdcm::SmartPointer<gdcm::SequenceOfItems> sssqi = blocksq.GetValueAsSQ();
    const gdcm::Item & item3 = sssqi->GetItem(1); // Item start at #1
    const gdcm::DataSet& nestedds3 = item3.GetNestedDataSet();

    gdcm::Tag tblockdata(0x300a,0x0106);
    if( !nestedds3.FindDataElement( tblockdata ) )
      {
      return 1;
      }
    const gdcm::DataElement &blockdata = nestedds3.GetDataElement( tblockdata );
    //  std::cout « blockdata « std::endl;
    gdcm::Attribute<0x300a,0x0106> at_;
    at_.SetFromDataElement( blockdata );

    vtkDoubleArray *scalars = vtkDoubleArray::New();
    scalars->SetNumberOfComponents(3);

    gdcm::Attribute<0x300a,0x0104> bnpts; //  IS [179 ] # 4,1 Block Number of Points
    if( !nestedds3.FindDataElement( bnpts.GetTag() ) )
      {
      return 1;
      }
    const gdcm::DataElement &blocknpts = nestedds3.GetDataElement( bnpts.GetTag() );
    bnpts.SetFromDataElement(  blocknpts );
    std::cout « bnpts.GetValue() « std::endl;

    vtkPolyData *output = vtkPolyData::New();
    vtkPoints *newPts = vtkPoints::New();
    vtkCellArray *polys = vtkCellArray::New();
    const double *ptr = at_.GetValues();
    //unsigned int npts = bnpts.GetNumberOfValues() / 2;
    unsigned int npts = bnpts.GetValue();
    vtkIdType *ptIds =  new vtkIdType[npts];
    for(unsigned int i = 0; i < npts; ++i)
      {
      float x[3] = {};
      x[0] = (float)ptr[2*i+0];
      x[1] = (float)ptr[2*i+1];
      //x[2] = pts[i+2];
      vtkIdType ptId = newPts->InsertNextPoint( x );
      //std::cout « x[0] « "," « x[1] « "," « x[2] « std::endl;
      ptIds[i ] = ptId;
      }
    vtkIdType cellId = polys->InsertNextCell(npts , ptIds);
    (void)cellId;
    delete[] ptIds;

    output->SetPoints(newPts);
    newPts->Delete();
    output->SetPolys(polys);
    polys->Delete();
    //output->GetCellData()->SetScalars(scalars);
    //scalars->Delete();
#if (VTK_MAJOR_VERSION >= 6)
#else
    output->Update();
#endif
```

```
    output->Print( std::cout );



  //  }

   vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();

   vtkImageColorViewer *viewer = vtkImageColorViewer::New();
#if (VTK_MAJOR_VERSION >= 6)
   viewer->SetInputData(img);
#else
   viewer->SetInput(img);
#endif
   viewer->SetupInteractor(iren);
   viewer->SetSize(600, 600);
   viewer->Render();

  vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
  //vtkPolyDataMapper2D* cubeMapper = vtkPolyDataMapper2D::New();
#if (VTK_MAJOR_VERSION >= 6)
      cubeMapper->SetInputData( output );
#else
      cubeMapper->SetInput( output );
#endif
      cubeMapper->SetScalarRange(0,7);
  vtkActor *cubeActor = vtkActor::New();
  //vtkActor2D* cubeActor = vtkActor2D::New();
      cubeActor->SetMapper(cubeMapper);
  vtkProperty * property = cubeActor->GetProperty();
  property->SetRepresentationToWireframe();

  viewer->GetRenderer()->AddActor( cubeActor );

   iren->Initialize();
   iren->Start();


  return 0;
}
```

14.160 gdcmscene.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMPolyDataReader.h"
//#include "vtkGDCMPolyDataWriter.h"

#include "vtkAppendPolyData.h"
#include "vtkPolyDataWriter.h"
#include "vtkPolyDataMapper.h"
#include "vtkPolyDataMapper2D.h"
#include "vtkActor2D.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkRenderWindow.h"
#include "vtkRenderer.h"
#include "vtkCamera.h"
#include "vtkProperty.h"
#include "vtkProperty2D.h"
#include "vtkVersion.h"


// gdcmDataExtra/gdcmNonImageData/exRT_Structure_Set_Storage.dcm
// gdcmDataExtra/gdcmNonImageData/RTSTRUCT_1.3.6.1.4.1.22213.1.1396.2.dcm
```

```
// gdcmDataExtra/gdcmNonImageData/RT/RTStruct.dcm

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " filename1.dcm\n";
    return 1;
    }
  const char * filename = argv[1];

  vtkGDCMPolyDataReader * reader = vtkGDCMPolyDataReader::New();
  reader->SetFileName( filename );
  reader->Update();

//  vtkGDCMPolyDataWriter * writer2 = vtkGDCMPolyDataWriter::New();
//  for(int num = 0; num < reader->GetNumberOfOutputPorts(); ++num )
//    writer2->SetInput( num, reader->GetOutput(num) );
//  writer2->SetFileName( "rtstruct.dcm" );
//  writer2->Write();

  // print reader output:
  reader->Print( std::cout );
  // print first output:
  reader->GetOutput()->Print( std::cout );

  vtkAppendPolyData *append = vtkAppendPolyData::New();
  int n = reader->GetNumberOfOutputPorts();
  for(int i = 0; i < n; ++i)
    {
#if (VTK_MAJOR_VERSION >= 6)
    append->AddInputConnection( reader->GetOutputPort(i) );
#else
    append->AddInput( reader->GetOutput(i) );
#endif
    }

  vtkPolyDataWriter * writer = vtkPolyDataWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputConnection( reader->GetOutputPort() );
#else
  writer->SetInput( reader->GetOutput() );
#endif
  writer->SetFileName( "rtstruct.vtk" );
  //writer->Write();

  // Now we'll look at it.
  vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
  //vtkPolyDataMapper2D* cubeMapper = vtkPolyDataMapper2D::New();
      //cubeMapper->SetInput( reader->GetOutput() );
#if (VTK_MAJOR_VERSION >= 6)
      cubeMapper->SetInputConnection( append->GetOutputPort() );
#else
      cubeMapper->SetInput( append->GetOutput() );
#endif
      cubeMapper->SetScalarRange(0,7);
  vtkActor *cubeActor = vtkActor::New();
  //vtkActor2D* cubeActor = vtkActor2D::New();
      cubeActor->SetMapper(cubeMapper);
  vtkProperty * property = cubeActor->GetProperty();
  property->SetRepresentationToWireframe();
  //cubeActor->GetProperty()->SetColor(1, 0, 0);


  // The usual rendering stuff.
//  vtkCamera *camera = vtkCamera::New();
//      camera->SetPosition(1,1,1);
//      camera->SetFocalPoint(0,0,0);

  vtkRenderer *renderer = vtkRenderer::New();
  vtkRenderWindow *renWin = vtkRenderWindow::New();
    renWin->AddRenderer(renderer);

  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
    iren->SetRenderWindow(renWin);

  renderer->AddActor(cubeActor);
  //renderer->AddActor2D(cubeActor);
      //renderer->SetActiveCamera(camera);
      renderer->ResetCamera();
```

```
      renderer->SetBackground(1,1,1);

  renWin->SetSize(300,300);

  // interact with data
  renWin->Render();
  iren->Start();



  reader->Delete();
  append->Delete();
  cubeMapper->Delete();
  cubeActor->Delete();
//  camera->Delete();
  renderer->Delete();
  renWin->Delete();
  iren->Delete();

  writer->Delete();

  return 0;
}
```

14.161 gdcmtexture.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
#include "vtkGDCMImageReader.h"

#include "vtkRenderer.h"
#include "vtkAssembly.h"
#include "vtkRenderWindow.h"
#include "vtkAnnotatedCubeActor.h"
#include "vtkTransform.h"
#include "vtkAxesActor.h"
#include "vtkTextProperty.h"
#include "vtkCaptionActor2D.h"
#include "vtkPropAssembly.h"
#include "vtkOrientationMarkerWidget.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkPolyDataMapper.h"
#include "vtkActor.h"
#include "vtkImageData.h"
#include "vtkLookupTable.h"
#include "vtkTexture.h"
#include "vtkPlaneSource.h"
#include "vtkVersion.h"

int main( int argc, char *argv[] )
{
  if( argc < 2 ) return 1;
  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( argv[1] );

  reader->Update();
  vtkImageData* ima = reader->GetOutput();

  vtkLookupTable* table = vtkLookupTable::New();
  table->SetNumberOfColors(1000);
  table->SetTableRange(0,1000);
  table->SetSaturationRange(0,0);
  table->SetHueRange(0,1);
  table->SetValueRange(0,1);
  table->SetAlphaRange(1,1);
```

```
  table->Build();

  // Texture
  vtkTexture* texture = vtkTexture::New();
#if (VTK_MAJOR_VERSION >= 6)
  texture->SetInputData(ima);
#else
  texture->SetInput(ima);
#endif
  texture->InterpolateOn();
  texture->SetLookupTable(table);

  // PlaneSource
  vtkPlaneSource* plane = vtkPlaneSource::New();
  plane->SetOrigin( -0.5, -0.5, 0.0);
  plane->SetPoint1(  0.5, -0.5, 0.0);
  plane->SetPoint2( -0.5,  0.5, 0.0);

  // PolyDataMapper
  vtkPolyDataMapper *planeMapper = vtkPolyDataMapper::New();
#if (VTK_MAJOR_VERSION >= 6)
  planeMapper->SetInputConnection(plane->GetOutputPort());
#else
  planeMapper->SetInput(plane->GetOutput());
#endif

  // Actor
  vtkActor* planeActor = vtkActor::New();
  planeActor->SetTexture(texture);
  planeActor->SetMapper(planeMapper);
  planeActor->PickableOn();

  // Final rendering with simple interactor:
  vtkRenderer        *ren = vtkRenderer::New();
  vtkRenderWindow *renwin = vtkRenderWindow::New();
  renwin->AddRenderer(ren);
  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
  iren->SetRenderWindow(renwin);
  ren->AddActor(planeActor);
  ren->SetBackground(0,0,0.5);

  vtkAnnotatedCubeActor* cube = vtkAnnotatedCubeActor::New();
  cube->SetXPlusFaceText ( "L" );
  cube->SetXMinusFaceText( "R" );
  cube->SetYPlusFaceText ( "A" );
  cube->SetYMinusFaceText( "P" );
  cube->SetZPlusFaceText ( "H" );
  cube->SetZMinusFaceText( "F" );

  vtkAxesActor* axes2 = vtkAxesActor::New();
  // simulate a left-handed coordinate system
  //
  vtkTransform *transform = vtkTransform::New();
  transform->Identity();
  //transform->RotateY(180);
  reader->GetDirectionCosines()->Print(std::cout);
  transform->Concatenate(reader->GetDirectionCosines());
  //axes2->SetShaftTypeToCylinder();
  axes2->SetUserTransform( transform );
  //cube->SetUserTransform( transform ); // can't get it to work
  cube->GetAssembly()->SetUserTransform( transform ); // can't get it to work

  vtkPropAssembly* assembly = vtkPropAssembly::New();
  assembly->AddPart( axes2 );
  assembly->AddPart( cube );

  vtkOrientationMarkerWidget* widget = vtkOrientationMarkerWidget::New();
  //widget->SetOutlineColor( 0.9300, 0.5700, 0.1300 );
  widget->SetOrientationMarker( assembly );
  widget->SetInteractor( iren );
  //widget->SetViewport( 0.0, 0.0, 0.4, 0.4 );
  widget->SetEnabled( 1 );
  widget->InteractiveOff();
  widget->InteractiveOn();

  renwin->Render();
  iren->Start();

  // Clean up:
  reader->Delete();
  table->Delete();
```

```
  texture->Delete();
  plane->Delete();
  planeMapper->Delete();
  planeActor->Delete();
  ren->Delete();
  renwin->Delete();
  iren->Delete();

  return 0;
}
```

14.162 gdcmvolume.cxx

```
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=========================================================================*/
#include "vtkVersion.h"
#include "vtkGDCMImageReader.h"
#include "vtkPiecewiseFunction.h"
#include "vtkColorTransferFunction.h"
#include "vtkVolume.h"
#include "vtkVolumeProperty.h"
#if VTK_MAJOR_VERSION < 7
#include "vtkVolumeTextureMapper3D.h"
#endif
#include "vtkFixedPointVolumeRayCastMapper.h"
#include "vtkInteractorStyleTrackballCamera.h"
#include "vtkRenderer.h"
#include "vtkRenderWindow.h"
#include "vtkImageClip.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkVersion.h"


// gdcmvolume gdcmData/GE_DLX-8-MONO2-Multiframe-Jpeg_Lossless.dcm
int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( argv[1] );
  reader->Update();

  // Create the renderers, render window, and interactor
  vtkRenderWindow *renWin = vtkRenderWindow::New();
  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
  iren->SetRenderWindow(renWin);
  vtkRenderer *ren = vtkRenderer::New();
  renWin->AddRenderer(ren);

  // Create a transfer function mapping scalar value to opacity
  vtkPiecewiseFunction *oTFun = vtkPiecewiseFunction::New();
  //oTFun->AddSegment(0, 1.0, 256, 0.1);
  oTFun->AddSegment(0, 1.0, 240, 0.1);

  vtkColorTransferFunction *cTFun = vtkColorTransferFunction::New();
  cTFun->AddRGBPoint(   0, 1.0, 1.0, 1.0 );
  //cTFun->AddRGBPoint( 255, 1.0, 1.0, 1.0 );
  cTFun->AddRGBPoint( 240, 1.0, 1.0, 1.0 );

  // Need to crop to actually see minimum intensity
  vtkImageClip *clip = vtkImageClip::New();
  clip->SetInputConnection( reader->GetOutputPort() );
  clip->SetOutputWholeExtent(0,66,0,66,30,37);
  clip->ClipDataOn();

  vtkVolumeProperty *property = vtkVolumeProperty::New();
```

```
  property->SetScalarOpacity(oTFun);
  property->SetColor(cTFun);
  property->SetInterpolationTypeToLinear();

  vtkFixedPointVolumeRayCastMapper *mapper = vtkFixedPointVolumeRayCastMapper::New();
  mapper->SetBlendModeToMinimumIntensity();
  mapper->SetInputConnection( reader->GetOutputPort() );

  vtkVolume *volume = vtkVolume::New();
  volume->SetMapper(mapper);
  volume->SetProperty(property);


  ren->AddViewProp(volume);

  renWin->Render();
    {
    iren->Start();
    }

  volume->Delete();
  mapper->Delete();
  property->Delete();
  clip->Delete();
  cTFun->Delete();
  oTFun->Delete();
  reader->Delete();
  renWin->Delete();
  iren->Delete();
  ren->Delete();


 return 0;
}
```

14.163 offscreenimage.cxx

```
/*=========================================================================

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=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkRenderWindow.h"
#include "vtkRenderer.h"
#include "vtkImageMapToWindowLevelColors.h"
#include "vtkImageActor.h"
#include "vtkPNGWriter.h"
#include "vtkWindowToImageFilter.h"
#include "vtkMedicalImageProperties.h"
#include "vtkVersion.h"

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    return 1;
    }
  const char *filename = argv[1];

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( filename );
  reader->Update(); // important to read the window/level info

  vtkMedicalImageProperties *prop = reader->GetMedicalImageProperties();

  vtkRenderWindow *renWin = vtkRenderWindow::New();
```

```
  renWin->OffScreenRenderingOn();

  vtkRenderer *renderer = vtkRenderer::New();
  renWin->AddRenderer(renderer);

  vtkImageMapToWindowLevelColors *windowlevel = vtkImageMapToWindowLevelColors::New();
#if (VTK_MAJOR_VERSION >= 6)
  windowlevel->SetInputConnection( reader->GetOutputPort() );
#else
  windowlevel->SetInput( reader->GetOutput() );
#endif
  unsigned int n = prop->GetNumberOfWindowLevelPresets();
  if( n )
    {
    // Take the first one by default:
    const double *wl = prop->GetNthWindowLevelPreset(0);
    windowlevel->SetWindow( wl[0] );
    windowlevel->SetLevel( wl[1] );
    }

  vtkImageActor *actor = vtkImageActor::New();
#if (VTK_MAJOR_VERSION >= 6)
  actor->SetInputData( windowlevel->GetOutput() );
#else
  actor->SetInput( windowlevel->GetOutput() );
#endif

  renderer->AddActor( actor );

  renWin->Render();

  vtkWindowToImageFilter *w2if = vtkWindowToImageFilter::New();
  w2if->SetInput ( renWin );

  vtkPNGWriter *wr = vtkPNGWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
  wr->SetInputConnection( w2if->GetOutputPort() );
#else
  wr->SetInput( w2if->GetOutput() );
#endif
  wr->SetFileName ( "offscreenimage.png" );
  wr->Write();

  reader->Delete();
  renWin->Delete();
  renderer->Delete();
  windowlevel->Delete();
  actor->Delete();
  w2if->Delete();
  wr->Delete();

  return 0;
}
```

14.164 reslicesphere.cxx

```
/*=========================================================================

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=========================================================================*/
//
// Load a DICOM series.
// Position a sphere within the volume.
// Allow the user to change between Axial, Sagittal, Coronal, and
//     Oblique view of the images and move through the slices.
// The display should show the resliced image and the cross section
// of the sphere intersecting that plane.
```

```
//


/*
from  Scott Johnson /Scott Johnson neuwave com/
to  VTK /vtkusers vtk.org/
date  Tue, May 11, 2010 at 7:01 PM
*/
#include <string>

#include <vtkDICOMImageReader.h>
#include <vtkStringArray.h>
#include <vtkDirectory.h>
#include <vtkImageThreshold.h>
#include <vtkImageShiftScale.h>
#include <vtkImageReslice.h>
#include <vtkRenderWindowInteractor.h>
#include <vtkImageViewer2.h>
#include <vtkSphereSource.h>
#include <vtkPolyDataMapper.h>
#include <vtkPlane.h>
#include <vtkCutter.h>
#include <vtkActor.h>
#include <vtkCommand.h>
#include <vtkSmartPointer.h>
#include <vtkMatrix4x4.h>
#include <vtkInteractorObserver.h>
#include <vtkProperty.h>
#include <vtkRenderer.h>
#include <vtkImageData.h>
#include <vtkImageActor.h>
#include "vtkTransformPolyDataFilter.h"
#include <vtkCamera.h>
#include <vtkMath.h>
#include <vtkTransform.h>
#include <vtkTextActor.h>
#include <vtkActor2D.h>
#include <vtkPolyDataMapper2D.h>
#include <vtkProperty2D.h>
#include <vtkGDCMImageReader.h>
#include <vtkImageChangeInformation.h>
#include <vtkVersion.h>

#include "gdcmDirectory.h"
#include "gdcmTesting.h"
#include "gdcmIPPSorter.h"

// Change to match the path to find Raw_0.vti or provide
// the parameter when starting ResliceSphere.

const double sphereCenter[3]={74, 219, 70};

// Angles (0, 0, 0)
const double AxialMatrix[]    = { 1.0,  0.0,  0.0,  0.0,
                                  0.0,  1.0,  0.0,  0.0,
                                  0.0,  0.0,  1.0,  0.0,
                                  0.0,  0.0,  0.0,  1.0 };
// Angles (0, 90, 0)
const double SagittalMatrix[] = { 0.0,  0.0,  1.0,  0.0,
                                  0.0,  1.0,  0.0,  0.0,
                                 -1.0,  0.0,  0.0,  0.0,
                                  0.0,  0.0,  0.0,  1.0 };
// Angles (-90, 0, 0)
const double CoronalMatrix[]  = { 1.0,  0.0,  0.0,  0.0,
                                  0.0,  0.0,  1.0,  0.0,
                                  0.0, -1.0,  0.0,  0.0,
                                  0.0,  0.0,  0.0,  1.0 };
// Angles (0, 90, 31)
const double ObliqueMatrix[] =  { 0.0, -0.515038, 0.857167, 0.0,
                                  0.0,  0.857167, 0.515038, 0.0,
                                 -1.0,  0.0,      0.0,      0.0,
                                  0.0,  0.0,      0.0,      1.0 };

class ResliceRender;

// Class to handle key press events.
class KeyCallback : public vtkCommand
{
public:
    static KeyCallback* New()
    {
```

```
        return new KeyCallback();
    }

    void Execute(vtkObject* caller, unsigned long eventId, void *calldata);
    void SetCallbackData(ResliceRender* reslice);

protected:
    ResliceRender* _reslice;
};

class ResliceRender
{
public:
    typedef enum _ORIENTATION
    {
        AXIAL = 0,
        SAGITTAL = 1,
        CORONAL = 2,
        OBLIQUE = 3
    } ORIENTATION;

    ResliceRender()
    {
        _orientation=AXIAL;
    }

    ~ResliceRender()
    {
        _transform->Delete();
        _reader->Delete();
        _reslice->Delete();
        _interactor->Delete();
        _imageViewer->Delete();

        _sphere->Delete();
        _sphereMapper->Delete();
        _sphereActor->Delete();

        _plane->Delete();
        _cutter->Delete();
        _polyTransform->Delete();
        _ROIMapper->Delete();
        _ROIActor->Delete();

        _annotation->Delete();
    }

    void CreatePipeline(const char* fileName)
    {
        vtkProperty2D* props;

        //_reader=vtkXMLImageDataReader::New();
        //_reader->SetFileName(fileName);
        //_reader->Update();

        //_reader=qzDICOMImageReader::New();
        _reader=vtkGDCMImageReader::New();

      //vtkDirectory *d = vtkDirectory::New();
      //d->Open(fileName);
      //d->Print( std::cout );
      gdcm::Directory d;
      d.Load(fileName);
      gdcm::Directory::FilenamesType const &files = d.GetFilenames();

  gdcm::IPPSorter s;
  s.SetComputeZSpacing( true );
  s.SetZSpacingTolerance( 1e-3 );
  bool b = s.Sort( files );
  if( !b )
    {
    std::cerr « "Failed to sort:" « fileName « std::endl;
    //return ;
    }
  //std::cout « "Sorting succeeded:" « std::endl;
  //s.Print( std::cout );

  //std::cout « "Found z-spacing:" « std::endl;
  //std::cout « s.GetZSpacing() « std::endl;
```

```
  double ippzspacing = s.GetZSpacing();

  const std::vector<std::string> & sorted = s.GetFilenames();
  vtkStringArray *vtkfiles = vtkStringArray::New();
  std::vector< std::string >::const_iterator it = sorted.begin();
  for( ; it != sorted.end(); ++it)
    {
    const std::string &f = *it;
    vtkfiles->InsertNextValue( f.c_str() );
    }

        //_reader->SetDirectoryName(fileName);
        //_reader->SetFileNames( d->GetFiles() );
        _reader->SetFileNames( vtkfiles );
        _reader->Update();

#ifndef vtkFloatingPointType
#define vtkFloatingPointType double
#endif
  const vtkFloatingPointType *spacing = _reader->GetOutput()->GetSpacing();

  vtkImageChangeInformation *v16 = vtkImageChangeInformation::New();
#if (VTK_MAJOR_VERSION >= 6)
  v16->SetInputConnection( _reader->GetOutputPort() );
#else
  v16->SetInput( _reader->GetOutput() );
#endif
  v16->SetOutputSpacing( spacing[0], spacing[1], ippzspacing );
  v16->Update();


        _threshold=vtkImageThreshold::New();
        _threshold->ThresholdByUpper(-3024.0);
        _threshold->ReplaceOutOn();
        _threshold->SetOutValue(0.0);
        _threshold->SetInputConnection(v16->GetOutputPort());

        _shift=vtkImageShiftScale::New();
        _shift->SetShift(0);
        _shift->SetScale(1);
        _shift->SetInputConnection(_threshold->GetOutputPort());

        // Initialize the reslice with an axial orientation.
        vtkSmartPointer<vtkMatrix4x4> matrix =
            vtkSmartPointer<vtkMatrix4x4>::New();
        matrix->Identity();

        _transform = vtkTransform::New();
        _transform->SetMatrix(matrix);

        _reslice = vtkImageReslice::New();
        _reslice->SetOutputDimensionality(3);

        // PROBLEM:
        // The original intent was to connect the same transform
        // to the vtkImageReslice and vtkTransformPolyDataFilter,
        // but the resulting reslices appear different using the
        // vtkTransform as opposed to explicitly setting the
        // reslice axes via SetResliceAxes.  Also, if the vtkTransform
        // is connected and orientated other than axial, the extents
        // don't seem to update resulting in VTK believing the slice
        // is out of range.

        //_reslice->SetResliceTransform(_transform);
        _reslice->SetResliceAxes(matrix);
        //_reslice->SetInputConnection(_reader->GetOutputPort());
        _reslice->SetInputConnection(_shift->GetOutputPort());

        // Create the sphere target shape.
        _sphere=vtkSphereSource::New();
        _sphere->SetRadius(7.0);
        _sphere->SetThetaResolution(16);
        _sphere->SetPhiResolution(16);
        _sphere->SetCenter(sphereCenter[0], sphereCenter[1], sphereCenter[2]);

        _sphereMapper=vtkPolyDataMapper::New();
        _sphereMapper->SetInputConnection(_sphere->GetOutputPort());

        _sphereActor=vtkActor::New();
        _sphereActor->SetMapper(_sphereMapper);
        _sphereActor->PickableOff();
```

```
        _sphereActor->GetProperty()->SetColor(1.0, 0.0, 0.0);
        _sphereActor->GetProperty()->SetEdgeColor(1.0, 0.0, 0.0);
        _sphereActor->GetProperty()->SetDiffuseColor(1.0, 0.0, 0.0);
        _sphereActor->SetVisibility(true);

        // Create the cutting pipeline.
        // This plane will be positioned in the original image coordinate system.
        _plane = vtkPlane::New();
        _plane->SetNormal(0.0, 0.0, 1.0);

        _cutter = vtkCutter::New();
        _cutter->SetInputConnection(_sphere->GetOutputPort());
        _cutter->SetCutFunction(_plane);
        _cutter->GenerateCutScalarsOn();
        _cutter->SetValue(0, 0.5);

        // The transform attached to _polyTransform should move the cut
        // ROI into the resliced coordinate system, which should be the
        // same as the coordinate system of the resliced images.
        // PROBLEM:  It doesn't.
        _polyTransform = vtkTransformPolyDataFilter::New();
        _polyTransform->SetTransform(_transform);
        _polyTransform->SetInputConnection(_cutter->GetOutputPort());

        _ROIMapper = vtkPolyDataMapper2D::New();
        _ROIMapper->SetInputConnection(_polyTransform->GetOutputPort());

    vtkCoordinate* coordinate = vtkCoordinate::New();
    coordinate->SetCoordinateSystemToWorld();
    _ROIMapper->SetTransformCoordinate(coordinate);

        _ROIActor = vtkActor2D::New();
        _ROIActor->SetMapper(_ROIMapper);

        // Make sure the cut can be seen, especially the edges.
        props=_ROIActor->GetProperty();
        props->SetLineWidth(2);
        props->SetOpacity(1.0);
//        props->EdgeVisibilityOn();
//        props->SetDiffuse(0.8);
//        props->SetSpecular(0.3);
//        props->SetSpecularPower(20);
//        props->SetRepresentationToSurface();
//        props->SetDiffuseColor(1.0, 0.0, 0.0);
//        props->SetEdgeColor(1.0, 0.0, 0.0);
        props->SetColor(1.0, 0.0, 0.0);

        _interactor = vtkRenderWindowInteractor::New();

        // Create the image viewer and add the actor with the cut ROI.
        _imageViewer = vtkImageViewer2::New();
        _imageViewer->SetupInteractor(_interactor);
        _imageViewer->SetSize(400, 400);
        _imageViewer->SetColorWindow(1024);
        _imageViewer->SetColorLevel(800);
        _imageViewer->SetInputConnection(_reslice->GetOutputPort());
        _imageViewer->GetImageActor()->SetOpacity(0.5);

        _annotation = vtkTextActor::New();
        _annotation->SetTextScaleModeToViewport();
        _imageViewer->GetRenderer()->AddActor(_annotation);

        // Add the cut shape actor to the renderer.
        _imageViewer->GetRenderer()->AddActor(_ROIActor);

        // Set up the key handler.
        vtkSmartPointer<KeyCallback> callback = vtkSmartPointer<KeyCallback>::New();
        callback->SetCallbackData(this);
        _interactor->AddObserver(vtkCommand::KeyPressEvent, callback);

        _interactor->Initialize();
    }

    void Start()
    {
        _interactor->Start();
    }

    void ResetOrientation()
    {
        vtkSmartPointer<vtkMatrix4x4> matrix =
```

```
            vtkSmartPointer<vtkMatrix4x4>::New();
        matrix->Identity();

        SetOrientation(matrix);
    }

    // Make sure the orientation of the vtkImageReslice and
    // vtkTransform are in sync.
    void SetOrientation(vtkMatrix4x4* matrix)
    {
        _reslice->SetResliceAxes(matrix);
        _reslice->Update();

    vtkMatrix4x4* inverse = vtkMatrix4x4::New();
    vtkMatrix4x4::Invert(matrix, inverse);

        _transform->SetMatrix(inverse);
        _transform->Update();
    }

    // Set the current slice of the current view.
    void SetSlice(int slice)
    {
        std::stringstream posString;

        double    center[3];
        double    spacing[3];
        double    origin[3];
        double    point[4];
        double    newPoint[4];

        vtkImageData* imageData;
        int newSlice;

        // Try to make sure the extents of the reslice are updated.
        // PROBLEM:  It doesn't seem to work when changing the orientation.
        imageData=vtkImageData::SafeDownCast(_reslice->GetOutput());
#if (VTK_MAJOR_VERSION >= 6)
        assert(0);
#else
        imageData->UpdateInformation();
#endif

        // Let vtkImageViewer2 handle the slice limits.
        _imageViewer->SetSlice(slice);
        newSlice=GetSlice();

        imageData->GetCenter(center);
        imageData->GetSpacing(spacing);
        imageData->GetOrigin(origin);

        // Compute the position of the center of the slice based on the
        // spacing of the slices.  The resliced axis will always
        // be the "Z" axis.
        point[0]=center[0];
        point[1]=center[1];
        point[2]=(newSlice * spacing[2]) + origin[2];
        point[3]=1.0;

        // Convert the coordinate from the reslice coordinate system to the
        // original image coordinate system.
        // PROBLEM:  Logically this seems like it should have been multiplied
        // by the inverse to translate from the resliced coordinate system to
        // the original coordinate system.  However, multiplying by the inverse
        // sticks the plane in the wrong place completely.  Using the original
        // matrix at least gets the Z coordinate right.
        vtkMatrix4x4* matrix=_reslice->GetResliceAxes();
        vtkSmartPointer<vtkMatrix4x4> inverse =
            vtkSmartPointer<vtkMatrix4x4>::New();
        vtkMatrix4x4::Invert(matrix, inverse);

        matrix->MultiplyPoint(point, newPoint);
        _plane->SetOrigin(newPoint[0], newPoint[1], newPoint[2]);

        // Annotate the image.
        posString << "Position: (" << newPoint[0] << ", " << newPoint[1]
                  << ", " << newPoint[2] << ")  Slice: " << newSlice;
        _annotation->SetInput(posString.str().c_str());

        _imageViewer->Render();
```

```
    }

    int GetSlice()
    {
        return _imageViewer->GetSlice();
    }

    // Set the orientation of the view.
    void SetOrientation(ResliceRender::ORIENTATION orientation)
    {
        vtkCamera* camera=_imageViewer->GetRenderer()->GetActiveCamera();

        double spacing[3];
        double origin[3];
        double point[4];
        double newPoint[4];
        double initialPosition;
        double xDirCosine[3];
        double yDirCosine[3];
        double zDirCosine[3];
        double normal[3];

        vtkImageData* imageData;

        vtkSmartPointer<vtkMatrix4x4> matrix =
            vtkSmartPointer<vtkMatrix4x4>::New();

        _orientation=orientation;

        // Reset ViewUp
        camera->SetViewUp(0.0, 1.0, 0.0);

        // Compute the cut plane position to the input coordinate system.
        imageData=vtkImageData::SafeDownCast(_reslice->GetInput());
#if (VTK_MAJOR_VERSION >= 6)
        assert(0);
#else
        imageData->UpdateInformation();
#endif
        imageData->GetSpacing(spacing);
        imageData->GetOrigin(origin);

        point[0]=origin[0];
        point[1]=origin[1];
        point[2]=origin[2];
        point[3]=1.0;

        switch (_orientation)
        {
        case AXIAL:
            matrix->DeepCopy(AxialMatrix);
            initialPosition=sphereCenter[2];
            break;

        case CORONAL:
            matrix->DeepCopy(CoronalMatrix);
            initialPosition=sphereCenter[1];
            break;

        case SAGITTAL:
            matrix->DeepCopy(SagittalMatrix);
            initialPosition=sphereCenter[0];
            break;

        case OBLIQUE:
            matrix->DeepCopy(ObliqueMatrix);
            initialPosition=sphereCenter[2];
            break;
        }

        // Move the origin from the original image coordinate system to the
        // resliced image coordinate system.
        matrix->MultiplyPoint(point, newPoint);
        matrix->SetElement(0, 3, newPoint[0]);
        matrix->SetElement(1, 3, newPoint[1]);
        matrix->SetElement(2, 3, newPoint[2]);

        ResetOrientation();
        SetOrientation(matrix);

        // Compute the cutting plane normal and set it.
```

```
        // PROBLEM:  If the transformation is connected rather than
        // using SetResliceAxes, the Direction Cosines do not reflect
        // the orientation of the vtkImageReslice.
        _reslice->GetResliceAxesDirectionCosines(xDirCosine, yDirCosine,
                                                 zDirCosine);
        vtkMath::Cross(xDirCosine, yDirCosine, normal);
        _plane->SetNormal(normal);

        // Set the extents and spacing of the reslice to account for
        // all of the data.
        _reslice->SetOutputExtentToDefault();
        _reslice->SetOutputSpacing(spacing[0], spacing[0], spacing[0]);

        // Force the vtkImageViewer2 to update.
        // PROBLEM:  The whole extent does not seem to be set in time
        // for the first render.  This results in an error because the
        // slice is positioned outside the old bounds.
#if (VTK_MAJOR_VERSION >= 6)
        _imageViewer->SetInputData(NULL);
#else
        _imageViewer->SetInput(NULL);
#endif
        _imageViewer->SetInputConnection(_reslice->GetOutputPort());

        _imageViewer->GetRenderer()->ResetCameraClippingRange();
        _imageViewer->GetRenderer()->ResetCamera();

        // Set the initial slice to be at the center of the sphere.
        // Divide by the spacing because this will be undone in SetSlice.
        SetSlice( (int)(initialPosition / spacing[0]));
    }

    vtkRenderWindowInteractor* GetInteractor()
    {
        return _interactor;
    }

protected:
    ORIENTATION                 _orientation;

    //qzDICOMImageReader*        _reader;
    vtkGDCMImageReader*        _reader;
    vtkImageThreshold*          _threshold;
    vtkImageShiftScale*         _shift;
    vtkImageReslice*            _reslice;
    vtkRenderWindowInteractor*  _interactor;
    vtkImageViewer2*            _imageViewer;

    vtkSphereSource*            _sphere;
    vtkPolyDataMapper*          _sphereMapper;
    vtkActor*                   _sphereActor;

    vtkPlane*                   _plane;
    vtkCutter*                  _cutter;
    vtkTransform*               _transform;
    vtkTransformPolyDataFilter* _polyTransform;
    vtkPolyDataMapper2D*          _ROIMapper;
    vtkActor2D*                   _ROIActor;

    vtkTextActor*               _annotation;
};


// Catch KeyPress events.
// Up Arrow   - increases the slice
// Down Arrow - decreases the slice
// 'A'        - sets the view to Axial
// 'S'        - sets the view to Sagittal
// 'C'        - sets the view to Coronal
// 'O'        - set the view to Oblique

void KeyCallback::Execute(vtkObject* caller, unsigned long eventId, void *calldata)
{
  (void)caller;
  (void)eventId;
  (void)calldata;
    std::string sym=_reslice->GetInteractor()->GetKeySym();

    if (!sym.compare("Up"))
    {
        _reslice->SetSlice(_reslice->GetSlice() + 1);
```

```
    }
    else if (!sym.compare("Down"))
    {
        _reslice->SetSlice(_reslice->GetSlice() - 1);
    }
    else if ((!sym.compare("A")) || (!sym.compare("a")))
    {
        _reslice->SetOrientation(ResliceRender::AXIAL);
    }
    else if ((!sym.compare("C")) || (!sym.compare("c")))
    {
        _reslice->SetOrientation(ResliceRender::CORONAL);
    }
    else if ((!sym.compare("S")) || (!sym.compare("s")))
    {
        _reslice->SetOrientation(ResliceRender::SAGITTAL);
    }
    else if ((!sym.compare("O")) || (!sym.compare("o")))
    {
        _reslice->SetOrientation(ResliceRender::OBLIQUE);
    }
}

void KeyCallback::SetCallbackData(ResliceRender* reslice)
{
    _reslice=reslice;
}

// Usage:  ResliceSphere [fileName]
int main(int argc, char *argv[])
{
    ResliceRender render;

    if (argc == 1)
      {
      const char *root = gdcm::Testing::GetDataExtraRoot();
      std::string dir3 = root;
      dir3 += "/gdcmSampleData/ForSeriesTesting/Dentist/images/";
      render.CreatePipeline(dir3.c_str());
      }
    else
      {
      render.CreatePipeline(argv[1]);
      }

    render.SetOrientation(ResliceRender::AXIAL);
    render.Start();

    return EXIT_SUCCESS;
}
```

14.165 rtstructapp.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMPolyDataReader.h"
#include "vtkGDCMPolyDataWriter.h"

#include "vtkPolyDataWriter.h"
#include "vtkPolyDataMapper.h"
#include "vtkPolyDataMapper2D.h"
#include "vtkActor2D.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkMedicalImageProperties.h"
#include "vtkRenderWindow.h"
```

```
#include "vtkRenderer.h"
#include "vtkCamera.h"
#include "vtkProperty.h"
#include "vtkProperty2D.h"
#include "vtkAppendPolyData.h"
#include "vtkImageData.h"
#include "vtkVersion.h"

/*
 * Small example to read in a RTSTUCT and write it out (displays it too).
 */

// gdcmDataExtra/gdcmNonImageData/exRT_Structure_Set_Storage.dcm
// gdcmDataExtra/gdcmNonImageData/RTSTRUCT_1.3.6.1.4.1.22213.1.1396.2.dcm
// gdcmDataExtra/gdcmNonImageData/RT/RTStruct.dcm

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm\n";
    return 1;
    }
  const char * filename = argv[1];
  const char * outfilename = argv[2];
  vtkGDCMPolyDataReader * reader = vtkGDCMPolyDataReader::New();
  reader->SetFileName( filename );
  reader->Update();

  //std::cout « reader->GetMedicalImageProperties()->GetStudyDate() « std::endl;

  vtkGDCMPolyDataWriter * writer = vtkGDCMPolyDataWriter::New();
  writer->SetNumberOfInputPorts( reader->GetNumberOfOutputPorts() );
  writer->SetFileName( outfilename );
  for(int num = 0; num < reader->GetNumberOfOutputPorts(); ++num )
#if (VTK_MAJOR_VERSION >= 6)
    writer->SetInputConnection( num, reader->GetOutputPort(num) );
#else
    writer->SetInput( num, reader->GetOutput(num) );
#endif
  //doesn't look like the medical properties are actually written out
  writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
  writer->SetRTStructSetProperties( reader->GetRTStructSetProperties() );
  writer->Write();

  // print reader output:
  reader->Print( std::cout );
  // print first output:
  reader->GetOutput()->Print( std::cout );

 vtkAppendPolyData *append = vtkAppendPolyData::New();

 int n = reader->GetNumberOfOutputPorts();
 for(int i = 0; i < n; ++i)
   {
#if (VTK_MAJOR_VERSION >= 6)
   append->AddInputConnection( reader->GetOutputPort(i) );
#else
   append->AddInput( reader->GetOutput(i) );
#endif
   }

  // Now we'll look at it.
  vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
#if (VTK_MAJOR_VERSION >= 6)
  cubeMapper->SetInputConnection( append->GetOutputPort());
#else
  cubeMapper->SetInput( append->GetOutput());
#endif
  cubeMapper->SetScalarRange(0,7);
  vtkActor *cubeActor = vtkActor::New();
  cubeActor->SetMapper(cubeMapper);
  vtkProperty * property = cubeActor->GetProperty();
  property->SetRepresentationToWireframe();

  vtkRenderer *renderer = vtkRenderer::New();
  vtkRenderWindow *renWin = vtkRenderWindow::New();
  renWin->AddRenderer(renderer);

  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
```

```
  iren->SetRenderWindow(renWin);

  renderer->AddActor(cubeActor);
  renderer->ResetCamera();
  renderer->SetBackground(1,1,1);

  renWin->SetSize(300,300);

  renWin->Render();
  iren->Start();

  reader->Delete();
  append->Delete();
  cubeMapper->Delete();
  cubeActor->Delete();
  renderer->Delete();
  renWin->Delete();
  iren->Delete();
  writer->Delete();

  return 0;
}
```

14.166 threadgdcm.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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=========================================================================*/
#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmDirectory.h"
#include "gdcmSystem.h"

#include "vtkImageData.h"
#include "vtkStructuredPointsWriter.h"
#include "vtkVersion.h"

#include <pthread.h>

struct threadparams
{
  const char **filenames;
  size_t nfiles;
  char *scalarpointer;
// TODO I should also pass in the dim of the reference image just in case
};

void *ReadFilesThread(void *voidparams)
{
  const threadparams *params = static_cast<const threadparams *> (voidparams);

  const size_t nfiles = params->nfiles;
  for(unsigned int file = 0; file < nfiles; ++file)
    {
    /*
    // TODO: update progress
    pthread_mutex_lock(&params->lock);
    //section critique
    ReadingProgress+=params->stepProgress;
    pthread_mutex_unlock(&params->lock);
    */
    const char *filename = params->filenames[file];
    //std::cerr « filename « std::endl;

    gdcm::ImageReader reader;
    reader.SetFileName( filename );
```

```
    try
      {
      if( !reader.Read() )
        {
        std::cerr « "Failed to read: " « filename « std::endl;
        break;
        }
      }
    catch( ... )
      {
      std::cerr « "Failed to read: " « filename « std::endl;
      break;
      }

    const gdcm::Image &image = reader.GetImage();
    unsigned long len = image.GetBufferLength();
    char * pointer = params->scalarpointer;
#if 0
    char *tempimage = new char[len];
    image.GetBuffer(tempimage);

    memcpy(pointer + file*len, tempimage, len);
    delete[] tempimage;
#else
    char *tempimage = pointer + file * len;
    image.GetBuffer(tempimage);
#endif
    }

  return voidparams;
}

void ShowFilenames(const threadparams &params)
{
  std::cout « "start" « std::endl;
  for(unsigned int i = 0; i < params.nfiles; ++i)
    {
    const char *filename = params.filenames[i];
    std::cout « filename « std::endl;
    }
  std::cout « "end" « std::endl;
}

void ReadFiles(size_t nfiles, const char *filenames[])
{
  // \precondition: nfiles > 0
  assert( nfiles > 0 );
  const char *reference= filenames[0]; // take the first image as reference

  gdcm::ImageReader reader;
  reader.SetFileName( reference );
  if( !reader.Read() )
    {
    // That would be very bad...
    assert(0);
    }

  const gdcm::Image &image = reader.GetImage();
  gdcm::PixelFormat pixeltype = image.GetPixelFormat();
  unsigned long len = image.GetBufferLength();
  const unsigned int *dims = image.GetDimensions();
  unsigned short pixelsize = pixeltype.GetPixelSize();
  (void)pixelsize;
  assert( image.GetNumberOfDimensions() == 2 );

  vtkImageData *output = vtkImageData::New();
  output->SetDimensions(dims[0], dims[1], (int)nfiles);

#if (VTK_MAJOR_VERSION >= 6)
  int numscal = pixeltype.GetSamplesPerPixel();
  switch( pixeltype )
    {
  case gdcm::PixelFormat::INT8:
    output->AllocateScalars( VTK_SIGNED_CHAR, numscal );
    break;
  case gdcm::PixelFormat::UINT8:
    output->AllocateScalars( VTK_UNSIGNED_CHAR, numscal );
    break;
  case gdcm::PixelFormat::INT16:
    output->AllocateScalars( VTK_SHORT, numscal );
    break;
```

```
  case gdcm::PixelFormat::UINT16:
    output->AllocateScalars( VTK_UNSIGNED_SHORT, numscal );
    break;
  case gdcm::PixelFormat::INT32:
    output->AllocateScalars( VTK_INT, numscal );
    break;
  case gdcm::PixelFormat::UINT32:
    output->AllocateScalars( VTK_UNSIGNED_INT, numscal );
    break;
  default:
    assert(0);
    }
#else
  switch( pixeltype )
    {
  case gdcm::PixelFormat::INT8:
#if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
    output->SetScalarType ( VTK_SIGNED_CHAR );
#else
    output->SetScalarType ( VTK_CHAR );
#endif
    break;
  case gdcm::PixelFormat::UINT8:
    output->SetScalarType ( VTK_UNSIGNED_CHAR );
    break;
  case gdcm::PixelFormat::INT16:
    output->SetScalarType ( VTK_SHORT );
    break;
  case gdcm::PixelFormat::UINT16:
    output->SetScalarType ( VTK_UNSIGNED_SHORT );
    break;
  case gdcm::PixelFormat::INT32:
    output->SetScalarType ( VTK_INT );
    break;
  case gdcm::PixelFormat::UINT32:
    output->SetScalarType ( VTK_UNSIGNED_INT );
    break;
  default:
    assert(0);
    }
  output->SetNumberOfScalarComponents ( pixeltype.GetSamplesPerPixel() );
  output->AllocateScalars();
#endif
  char * scalarpointer = static_cast<char*>(output->GetScalarPointer());

  const unsigned int nthreads = 4;
  threadparams params[nthreads];

  //pthread_mutex_t lock;
  //pthread_mutex_init(&lock, NULL);

  pthread_t *pthread = new pthread_t[nthreads];

  // There is nfiles, and nThreads
  assert( nfiles > nthreads );
  const size_t partition = nfiles / nthreads;
  for (unsigned int thread=0; thread < nthreads; ++thread)
    {
    params[thread].filenames = filenames + thread * partition;
    params[thread].nfiles = partition;
    if( thread == nthreads - 1 )
      {
      // There is slightly more files to process in this thread:
      params[thread].nfiles += nfiles % nthreads;
      }
    assert( thread * partition < nfiles );
    params[thread].scalarpointer = scalarpointer + thread * partition * len;
    //assert( params[thread].scalarpointer < scalarpointer + 2 * dims[0] * dims[1] * dims[2] );
    // start thread:
    int res = pthread_create( &pthread[thread], NULL, ReadFilesThread, &params[thread]);
    if( res )
      {
      std::cerr << "Unable to start a new thread, pthread returned: " << res << std::endl;
      assert(0);
      }
    //ShowFilenames(params[thread]);
    }
// DEBUG
  size_t total = 0;
  for (unsigned int thread=0; thread < nthreads; ++thread)
    {
```

```
    total += params[thread].nfiles;
    }
  assert( total == nfiles );
// END DEBUG

  for (unsigned int thread=0;thread<nthreads;thread++)
    {
    pthread_join( pthread[thread], NULL);
    }
  delete[] pthread;

  //pthread_mutex_destroy(&lock);

  // For some reason writing down the file is painfully slow...
  vtkStructuredPointsWriter *writer = vtkStructuredPointsWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputData( output );
#else
  writer->SetInput( output );
#endif
  writer->SetFileName( "/tmp/threadgdcm.vtk" );
  writer->SetFileTypeToBinary();
  //writer->Write();
  writer->Delete();

  //output->Print( std::cout );
  output->Delete();
}

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " [directory|list of filenames]\n";
    return 1;
    }

  // Check if user pass in a single directory
  if( argc == 2 && gdcm::System::FileIsDirectory( argv[1] ) )
    {
    gdcm::Directory d;
    d.Load( argv[1] );
    gdcm::Directory::FilenamesType l = d.GetFilenames();
    const size_t nfiles = l.size();
    const char **filenames = new const char* [ nfiles ];
    for(unsigned int i = 0; i < nfiles; ++i)
      {
      filenames[i] = l[i].c_str();
      }
    ReadFiles(nfiles, filenames);
    delete[] filenames;
    }
  else
    {
    // Simply copy all filenames into the vector:
    const char **filenames = const_cast<const char**>(argv+1);
    const size_t nfiles = argc - 1;
    ReadFiles(nfiles, filenames);
    }


  return 0;
}
```

14.167 AWTMedical3.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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```

```
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
package examples;

import vtk.*;
//import gdcm.*;

import vtk.util.VtkPanelContainer;
import vtk.util.VtkPanelUtil;
import vtk.util.VtkUtil;

import java.util.ArrayList;


import javax.swing.*;
import java.awt.*;
import java.io.File;

public class AWTMedical3  extends JComponent implements VtkPanelContainer {

  private vtkPanel renWin;

    vtkImageData ReadDataFile(File inSelectedFile){

        vtkImageData outImageData = null;
        Directory theDir = new Directory();

        String theInputDirectory = inSelectedFile.getPath();
        theDir.Load(theInputDirectory);

        Scanner theScanner = new Scanner();
        Tag theStudyTag = new Tag(0x0020,0x000d);
        Tag theSeriesTag = new Tag(0x0020,0x000e);
        theScanner.AddTag(theStudyTag);//get studies,
        theScanner.AddTag(theSeriesTag);//get studies,
        theScanner.Scan(theDir.GetFilenames());

        FilenamesType theStudyValues = theScanner.GetOrderedValues(theStudyTag);
        long theNumStudies = theStudyValues.size();
        //for now, take the first study, and nothing else.
        //and the return is actually not FilenamesType, just a
        //vector of strings
        if (theNumStudies != 1)
            return outImageData;
        String theStudyVal = theStudyValues.get(0);
        //now, get all the values from the scanner that are in that
        //study, then from that get their different series
        FilenamesType theFilenames =
                theScanner.GetAllFilenamesFromTagToValue(theStudyTag, theStudyVal);

        //from that set of filenames, isolate individual series
        //conclude that singleton series = RT struct (can do further
        //checking for things like MIPs and the like)
        //and multiple series entries = volumetric data
        theScanner.Scan(theFilenames);
        FilenamesType theSeriesValues = theScanner.GetOrderedValues(theSeriesTag);
        String studyUID = theScanner.GetValue(theScanner.GetFilenames().get(0), theStudyTag);
        long theNumSeries = theSeriesValues.size();
        for (int i = 0; i < theNumSeries; i++) {
            FilenamesType theSeriesFiles =
                theScanner.GetAllFilenamesFromTagToValue(theSeriesTag, theSeriesValues.get(i));
            long theNumFilesInSeries = theSeriesFiles.size();
            if (theNumFilesInSeries > 1) {//assume it's CT or volumetric data
                //for now, assume a single volume
                //could have multiples, like PET and CT

                IPPSorter sorter = new IPPSorter();
                sorter.SetComputeZSpacing(true);
                sorter.SetZSpacingTolerance(0.001);
                Boolean sorted = sorter.Sort(theSeriesFiles);
                if (!sorted){
                    //need some better way to handle failures here
                    return outImageData;
                }

                FilenamesType sortedFT = sorter.GetFilenames();
                long theSize = sortedFT.size();
                vtkStringArray sa = new vtkStringArray();
```

```
                ArrayList<String> theStrings = new ArrayList<String>();

                vtkGDCMImageReader gdcmReader = new vtkGDCMImageReader();
                for (int j = 0; j < theSize; j++) {
                    String theFileName = sortedFT.get(j);
                    if (gdcmReader.CanReadFile(theFileName) > 0){
                        theStrings.add(theFileName);
                        sa.InsertNextValue(theFileName);
                    } else {
                        //this is a busted series
                        //need some more appropriate error here
                        return outImageData;
                    }
                }

                gdcmReader.SetFileNames(sa);

                gdcmReader.Update();

                outImageData = gdcmReader.GetOutput();//the zeroth output should be the image
            }
        }
        String theImageInfo = "";
        if (outImageData != null){
            theImageInfo = outImageData.Print();
        }
        return outImageData;
    }

    //this function is a rewrite of Medical3 to see if data can
    //be loaded via gdcm easily
  public AWTMedical3(File inFile) {
    // Create the buttons.
    renWin = new vtkPanel();

    vtkImageData theImageData = ReadDataFile(inFile);

    // An isosurface, or contour value of 500 is known to correspond to the
    // skin of the patient. Once generated, a vtkPolyDataNormals filter is
    // is used to create normals for smooth surface shading during rendering.
    // The triangle stripper is used to create triangle strips from the
    // isosurface these render much faster on some systems.
    vtkContourFilter skinExtractor = new vtkContourFilter();
    skinExtractor.SetInput(theImageData);
    skinExtractor.SetValue(0, 500);
    vtkPolyDataNormals skinNormals = new vtkPolyDataNormals();
    skinNormals.SetInput(skinExtractor.GetOutput());
    skinNormals.SetFeatureAngle(60.0);
//        vtkStripper skinStripper = new vtkStripper();
//        skinStripper.SetInput(skinNormals.GetOutput());
    vtkPolyDataMapper skinMapper = new vtkPolyDataMapper();
    skinMapper.SetInput(skinNormals.GetOutput());
    skinMapper.ScalarVisibilityOff();
    vtkActor skin = new vtkActor();
    skin.SetMapper(skinMapper);
    skin.GetProperty().SetDiffuseColor(1, .49, .25);
    skin.GetProperty().SetSpecular(.3);
    skin.GetProperty().SetSpecularPower(20);

    // An isosurface, or contour value of 1150 is known to correspond to the
    // skin of the patient. Once generated, a vtkPolyDataNormals filter is
    // is used to create normals for smooth surface shading during rendering.
    // The triangle stripper is used to create triangle strips from the
    // isosurface these render much faster on some systems.
    vtkContourFilter boneExtractor = new vtkContourFilter();
    boneExtractor.SetInput(theImageData);
    boneExtractor.SetValue(0, 1150);
    vtkPolyDataNormals boneNormals = new vtkPolyDataNormals();
    boneNormals.SetInput(boneExtractor.GetOutput());
    boneNormals.SetFeatureAngle(60.0);
    vtkStripper boneStripper = new vtkStripper();
    boneStripper.SetInput(boneNormals.GetOutput());
    vtkPolyDataMapper boneMapper = new vtkPolyDataMapper();
    boneMapper.SetInput(boneStripper.GetOutput());
    boneMapper.ScalarVisibilityOff();
    vtkActor bone = new vtkActor();
    bone.SetMapper(boneMapper);
    bone.GetProperty().SetDiffuseColor(1, 1, .9412);

    // An outline provides context around the data.
    vtkOutlineFilter outlineData = new vtkOutlineFilter();
```

```
outlineData.SetInput(theImageData);
vtkPolyDataMapper mapOutline = new vtkPolyDataMapper();
mapOutline.SetInput(outlineData.GetOutput());
vtkActor outline = new vtkActor();
outline.SetMapper(mapOutline);
outline.GetProperty().SetColor(0, 0, 0);

// Now we are creating three orthogonal planes passing through the
// volume. Each plane uses a different texture map and therefore has
// different coloration.

// Start by creating a black/white lookup table.
vtkLookupTable bwLut = new vtkLookupTable();
bwLut.SetTableRange(0, 2000);
bwLut.SetSaturationRange(0, 0);
bwLut.SetHueRange(0, 0);
bwLut.SetValueRange(0, 1);
bwLut.Build();

// Now create a lookup table that consists of the full hue circle (from
// HSV);.
vtkLookupTable hueLut = new vtkLookupTable();
hueLut.SetTableRange(0, 2000);
hueLut.SetHueRange(0, 1);
hueLut.SetSaturationRange(1, 1);
hueLut.SetValueRange(1, 1);
hueLut.Build();

// Finally, create a lookup table with a single hue but having a range
// in the saturation of the hue.
vtkLookupTable satLut = new vtkLookupTable();
satLut.SetTableRange(0, 2000);
satLut.SetHueRange(.6, .6);
satLut.SetSaturationRange(0, 1);
satLut.SetValueRange(1, 1);
satLut.Build();

// Create the first of the three planes. The filter vtkImageMapToColors
// maps the data through the corresponding lookup table created above.
// The vtkImageActor is a type of vtkProp and conveniently displays an
// image on a single quadrilateral plane. It does this using texture
// mapping and as a result is quite fast. (Note: the input image has to
// be unsigned char values, which the vtkImageMapToColors produces.);
// Note also that by specifying the DisplayExtent, the pipeline
// requests data of this extent and the vtkImageMapToColors only
// processes a slice of data.
vtkImageMapToColors sagittalColors = new vtkImageMapToColors();
sagittalColors.SetInput(theImageData);
sagittalColors.SetLookupTable(bwLut);
vtkImageActor sagittal = new vtkImageActor();
sagittal.SetInput(sagittalColors.GetOutput());
sagittal.SetDisplayExtent(32, 32, 0, 63, 0, 92);

// Create the second (axial); plane of the three planes. We use the same
// approach as before except that the extent differs.
vtkImageMapToColors axialColors = new vtkImageMapToColors();
axialColors.SetInput(theImageData);
axialColors.SetLookupTable(hueLut);
vtkImageActor axial = new vtkImageActor();
axial.SetInput(axialColors.GetOutput());
axial.SetDisplayExtent(0, 63, 0, 63, 46, 46);

// Create the third (coronal); plane of the three planes. We use the same
// approach as before except that the extent differs.
vtkImageMapToColors coronalColors = new vtkImageMapToColors();
coronalColors.SetInput(theImageData);
coronalColors.SetLookupTable(satLut);
vtkImageActor coronal = new vtkImageActor();
coronal.SetInput(coronalColors.GetOutput());
coronal.SetDisplayExtent(0, 63, 32, 32, 0, 92);

// It is convenient to create an initial view of the data. The FocalPoint
// and Position form a vector direction. Later on (ResetCamera() method)
// this vector is used to position the camera to look at the data in
// this direction.
vtkCamera aCamera = new vtkCamera();
aCamera.SetViewUp(0, 0, -1);
aCamera.SetPosition(0, 1, 0);
aCamera.SetFocalPoint(0, 0, 0);
```

```
    aCamera.ComputeViewPlaneNormal();

    // Actors are added to the renderer. An initial camera view is created.
    // The Dolly() method moves the camera towards the FocalPoint,
    // thereby enlarging the image.
    renWin.GetRenderer().AddActor(sagittal);
    renWin.GetRenderer().AddActor(axial);
    renWin.GetRenderer().AddActor(coronal);
    renWin.GetRenderer().AddActor(outline);
    renWin.GetRenderer().AddActor(skin);
    renWin.GetRenderer().AddActor(bone);

    // Turn off bone for this example.
    bone.VisibilityOff();

    // Set skin to semi-transparent.
    skin.GetProperty().SetOpacity(0.5);

    // An initial camera view is created.  The Dolly() method moves
    // the camera towards the FocalPoint, thereby enlarging the image.
    renWin.GetRenderer().SetActiveCamera(aCamera);
    renWin.GetRenderer().ResetCamera();
    aCamera.Dolly(1.5);

    // Set a background color for the renderer and set the size of the
    // render window (expressed in pixels).
    renWin.GetRenderer().SetBackground(1, 1, 1);
    VtkPanelUtil.setSize(renWin, 640, 480);

    // Note that when camera movement occurs (as it does in the Dolly()
    // method), the clipping planes often need adjusting. Clipping planes
    // consist of two planes: near and far along the view direction. The
    // near plane clips out objects in front of the plane the far plane
    // clips out objects behind the plane. This way only what is drawn
    // between the planes is actually rendered.
    renWin.GetRenderer().ResetCameraClippingRange();

    // Setup panel
    setLayout(new BorderLayout());
    add(renWin, BorderLayout.CENTER);
  }



  public vtkPanel getRenWin() {
    return renWin;
  }


  public static void main(String s[]) {
    if (s.length == 0){
      return; //need a filename here
    }
    File theFile = new File(s[0]);
    //File theFile = new
      File("/Users/mmroden/Documents/MVSDownloadDirectory/Documents/1.2.840.113704.1.111.3384.1271766367.5/");
    AWTMedical3 panel = new AWTMedical3(theFile);

    JFrame frame = new JFrame("AWTMedical3");
    frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    frame.getContentPane().add("Center", panel);
    frame.pack();
    frame.setVisible(true);
  }

}
```

14.168 HelloVTKWorld.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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```

```
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     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
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=========================================================================*/
// We are required to call the package 'vtk' even though I (MM) would have preferred
// an import statement along the line of:
// import vtkgdcm.*;
import vtk.*;

/*
 * Compilation:
 * CLASSPATH=vtkgdcm.jar:/usr/share/java/vtk.jar javac HelloVTKWorld.java
 *
 * Usage:
 * LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:/usr/lib/jni:.
      CLASSPATH=/usr/share/java/vtk.jar:vtkgdcm.jar:gdcm.jar:. java HelloVTKWorld gdcmData/012345.002.050.dcm
      bla.dcm
 *
 */
public class HelloVTKWorld
{
  static {
    System.loadLibrary("vtkCommonJava");
    System.loadLibrary("vtkFilteringJava");
    System.loadLibrary("vtkIOJava");
    System.loadLibrary("vtkImagingJava");
    System.loadLibrary("vtkGraphicsJava");
    System.loadLibrary("vtkgdcmJava");
    try {
      System.loadLibrary("vtkRenderingJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkHybrid, skipping...");
    }
    try {
      System.loadLibrary("vtkHybridJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkHybrid, skipping...");
    }
    try {
      System.loadLibrary("vtkVolumeRenderingJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkVolumeRendering, skipping...");
    }
  }

  public static void main(String[] args)
    {
    String filename = args[0];
    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    reader.SetFileName( filename );
    reader.Update();

    vtkMedicalImageProperties prop = reader.GetMedicalImageProperties();
    System.out.println( prop.GetPatientName() ); //

//    if( reader.GetImageFormat() == vtkgdcm.vtkgdcm.VTK_LUMINANCE ) // MONOCHROME2
//      {
//      System.out.println( "Image is MONOCHROME2" ); //
//      }

    // Just for fun, invert the direction cosines, output should reflect that:
    vtkMatrix4x4 dircos = reader.GetDirectionCosines();
    dircos.Invert();

    // We need to maintain in sync information stored in vtkMedicalImageProperties:
    double[] cosines = new double[6];
    cosines[0] = dircos.GetElement(0,0);
    cosines[1] = dircos.GetElement(1,0);
    cosines[2] = dircos.GetElement(2,0);
    cosines[3] = dircos.GetElement(0,1);
    cosines[4] = dircos.GetElement(1,1);
    cosines[5] = dircos.GetElement(2,1);
    reader.GetMedicalImageProperties().SetDirectionCosine( cosines );

    String outfilename = args[1];
    vtkGDCMImageWriter writer = new vtkGDCMImageWriter();
    writer.SetMedicalImageProperties( reader.GetMedicalImageProperties() );
    writer.SetDirectionCosines( dircos );
    writer.SetShift( reader.GetShift() );
```

```
    writer.SetScale( reader.GetScale() );
    writer.SetImageFormat( reader.GetImageFormat() );
    writer.SetFileName( outfilename );
    writer.SetInputConnection( reader.GetOutputPort() ); // new
    //writer.SetInput( reader.GetOutput() ); // old
    writer.Write();

    System.out.println("Success reading: " + filename );
    }
}
```

14.169 MIPViewer.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
import vtk.*;
import gdcm.*;
import java.io.File;
import java.awt.Canvas;

/*
 * Compilation:
 * CLASSPATH=vtkgdcm.jar:/usr/share/java/vtk.jar javac MIPViewer.java
 *
 * Usage:
 * LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:/usr/lib/jni:.
      CLASSPATH=/usr/share/java/vtk.jar:vtkgdcm.jar:gdcm.jar:. java MIPViewer BRAINX
 *
 */
public class MIPViewer extends Canvas
{
  static {
    // VTK
    System.loadLibrary("vtkCommonJava");
    System.loadLibrary("vtkFilteringJava");
    System.loadLibrary("vtkIOJava");
    System.loadLibrary("vtkImagingJava");
    System.loadLibrary("vtkGraphicsJava");
    System.loadLibrary("vtkRenderingJava");
    System.loadLibrary("vtkVolumeRenderingJava"); // vtkSmartVolumeMapper
    System.loadLibrary("vtkWidgetsJava"); // vtkBoxWidget
    // VTK-GDCM
    System.loadLibrary("vtkgdcmJava");
  }

  static FilenamesType fns = new FilenamesType();

  protected native int Lock();

  protected native int UnLock();

  public static void process(String path)
    {
    fns.add( path );
    }

  // Process only files under dir
  public static void visitAllFiles(File dir)
    {
    if (dir.isDirectory())
      {
      String[] children = dir.list();
      for (int i=0; i<children.length; i++)
        {
        visitAllFiles(new File(dir, children[i]));
```

```
        }
      }
    else
      {
      process(dir.getPath());
      }
    }

  public static void main(String[] args) throws Exception
    {
    String dirname = args[0];
    if( !PosixEmulation.FileIsDirectory( dirname ) )
      {
      return;
      }

    File dir = new File(dirname);
    visitAllFiles(dir);

    IPPSorter ipp = new IPPSorter();
    ipp.SetComputeZSpacing( true );
    ipp.SetZSpacingTolerance( 1e-3 );
    boolean b = ipp.Sort( fns );
    if(!b)
      {
      throw new Exception("Could not scan");
      }
    double ippzspacing = ipp.GetZSpacing();

    FilenamesType sorted = ipp.GetFilenames();
    vtkStringArray files = new vtkStringArray();
    long nfiles = sorted.size();
    //for( String f : sorted )
    for (int i = 0; i < nfiles; i++) {
      String f = sorted.get(i);
      files.InsertNextValue( f );
      }
    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    reader.SetFileNames( files );
    reader.Update(); // get spacing value

    double[] spacing = reader.GetOutput().GetSpacing();

    vtkImageChangeInformation change = new vtkImageChangeInformation();
    change.SetInputConnection( reader.GetOutputPort() );
    change.SetOutputSpacing( spacing[0], spacing[1], ippzspacing );

    // Create our volume and mapper
    vtkVolume volume = new vtkVolume();
    vtkSmartVolumeMapper mapper = new vtkSmartVolumeMapper();

    vtkRenderWindowInteractor iren = new vtkRenderWindowInteractor();

    // Add a box widget if the clip option was selected
    vtkBoxWidget box = new vtkBoxWidget();
    box.SetInteractor(iren);
    box.SetPlaceFactor(1.01);
    box.SetInputConnection(change.GetOutputPort());

    //box.SetDefaultRenderer(renderer);
    box.InsideOutOn();
    box.PlaceWidget();
    //vtkBoxWidgetCallback callback = vtkBoxWidgetCallback::New();
    //callback.SetMapper(mapper);
    //box.AddObserver(vtkCommand::InteractionEvent, callback);
    //callback.Delete();
//    Lock();
//    box.EnabledOn();
//    UnLock();
    box.GetSelectedFaceProperty().SetOpacity(0.0);

    mapper.SetInputConnection( change.GetOutputPort() );

    // Create our transfer function
    vtkColorTransferFunction colorFun = new vtkColorTransferFunction();
    vtkPiecewiseFunction opacityFun = new vtkPiecewiseFunction();

    // Create the property and attach the transfer functions
    vtkVolumeProperty property = new vtkVolumeProperty();
    property.IndependentComponentsOn();
    property.SetColor( colorFun );
```

```
    property.SetScalarOpacity( opacityFun );
    property.SetInterpolationTypeToLinear();

    // connect up the volume to the property and the mapper
    volume.SetProperty( property );
    volume.SetMapper( mapper );

    vtkMedicalImageProperties medprop = reader.GetMedicalImageProperties();
    int n = medprop.GetNumberOfWindowLevelPresets();
    double opacityWindow = 4096;
    double opacityLevel = 2048;

    // Override default with value from DICOM files:
    for( int i = 0; i < n; ++i )
      {
      double wl[] = medprop.GetNthWindowLevelPreset(i);
      //System.out.println( "W/L: " + wl[0] + " " + wl[1] );
      opacityWindow = wl[0];
      opacityLevel  = wl[1];
      }

    colorFun.AddRGBSegment(0.0, 1.0, 1.0, 1.0, 255.0, 1.0, 1.0, 1.0 );
    opacityFun.AddSegment( opacityLevel - 0.5*opacityWindow, 0.0,
      opacityLevel + 0.5*opacityWindow, 1.0 );
    mapper.SetBlendModeToMaximumIntensity();

    // Create the RenderWindow, Renderer
    vtkRenderer ren1 = new vtkRenderer();
    vtkRenderWindow renWin = new vtkRenderWindow();
    renWin.AddRenderer(ren1);

    // Set the default window size
    renWin.SetSize(600,600);

    // Add the volume to the scene
    ren1.AddVolume( volume );
    ren1.ResetCamera();

    iren.SetRenderWindow( renWin );

    // interact with data
    renWin.Render();

    iren.Start();
    }
}
```

14.170 MPRViewer.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
import vtk.*;
import gdcm.*;
import java.io.File;

/*
 * Compilation:
 * CLASSPATH=vtkgdcm.jar:/usr/share/java/vtk.jar javac MPRViewer.java
 *
 * Usage:
 * LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:/usr/lib/jni:.
      CLASSPATH=/usr/share/java/vtk.jar:vtkgdcm.jar:gdcm.jar:. java MPRViewer BRAINX
 *
 */
public class MPRViewer
```

```
{
  static {
    // VTK
    System.loadLibrary("vtkCommonJava");
    System.loadLibrary("vtkFilteringJava");
    System.loadLibrary("vtkIOJava");
    System.loadLibrary("vtkImagingJava");
    System.loadLibrary("vtkGraphicsJava");
    System.loadLibrary("vtkRenderingJava");
    // VTK-GDCM
    System.loadLibrary("vtkgdcmJava");
  }

  static FilenamesType fns = new FilenamesType();

  public static void process(String path)
    {
    fns.add( path );
    }

  // Process only files under dir
  public static void visitAllFiles(File dir)
    {
    if (dir.isDirectory())
      {
      String[] children = dir.list();
      for (int i=0; i<children.length; i++)
        {
        visitAllFiles(new File(dir, children[i]));
        }
      }
    else
      {
      process(dir.getPath());
      }
    }

  public static void main(String[] args) throws Exception
    {
    String dirname = args[0];
    if( !PosixEmulation.FileIsDirectory( dirname ) )
      {
      return;
      }

    File dir = new File(dirname);
    visitAllFiles(dir);

    IPPSorter ipp = new IPPSorter();
    ipp.SetComputeZSpacing( true );
    ipp.SetZSpacingTolerance( 1e-3 );
    boolean b = ipp.Sort( fns );
    if(!b)
      {
      throw new Exception("Could not scan");
      }
    double ippzspacing = ipp.GetZSpacing();

    FilenamesType sorted = ipp.GetFilenames();
    vtkStringArray files = new vtkStringArray();
    long nfiles = sorted.size();
    //for( String f : sorted )
    for (int i = 0; i < nfiles; i++) {
      String f = sorted.get(i);
      files.InsertNextValue( f );
      }
    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    reader.SetFileNames( files );
    reader.Update(); // get spacing value

    double[] spacing = reader.GetOutput().GetSpacing();

    vtkImageChangeInformation change = new vtkImageChangeInformation();
    change.SetInputConnection( reader.GetOutputPort() );
    change.SetOutputSpacing( spacing[0], spacing[1], ippzspacing );

    // A simple vtkInteractorStyleImage example for
    // 3D image viewing with the vtkImageResliceMapper.
    //
    // Drag Left mouse button to window/level
    // Shift-Left drag to rotate (oblique slice)
```

```
    // Shift-Middle drag to slice through image
    // OR Ctrl-Right drag to slice through image

    // Create the RenderWindow, Renderer
    vtkRenderer ren1 = new vtkRenderer();
    vtkRenderWindow renWin = new vtkRenderWindow();
    renWin.AddRenderer(ren1);

    vtkImageResliceMapper im = new vtkImageResliceMapper();
    im.SetInputConnection(change.GetOutputPort());
    im.SliceFacesCameraOn();
    im.SliceAtFocalPointOn();
    im.BorderOff();

    vtkImageProperty ip = new vtkImageProperty();
    ip.SetColorWindow(2000);
    ip.SetColorLevel(1000);
    ip.SetAmbient(0.0);
    ip.SetDiffuse(1.0);
    ip.SetOpacity(1.0);
    ip.SetInterpolationTypeToLinear();

    vtkImageSlice ia = new vtkImageSlice();
    ia.SetMapper(im);
    ia.SetProperty(ip);

    ren1.AddViewProp(ia);
    ren1.SetBackground(0.1,0.2,0.4);
    renWin.SetSize(300,300);

    vtkRenderWindowInteractor iren = new vtkRenderWindowInteractor();
    vtkInteractorStyleImage style = new vtkInteractorStyleImage();
    style.SetInteractionModeToImage3D();
    iren.SetInteractorStyle(style);
    renWin.SetInteractor(iren);

    // render the image
    renWin.Render();
    vtkCamera cam1 = ren1.GetActiveCamera();
    cam1.ParallelProjectionOn();
    ren1.ResetCameraClippingRange();
    renWin.Render();

    iren.Start();
    }
}
```

14.171 MPRViewer2.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
import vtk.*;
import gdcm.*;
import java.io.File;

/*
 * Compilation:
 * CLASSPATH=vtkgdcm.jar:/usr/share/java/vtk.jar javac MPRViewer2.java
 *
 * Usage:
 * LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:/usr/lib/jni:.
      CLASSPATH=/usr/share/java/vtk.jar:vtkgdcm.jar:gdcm.jar:. java MPRViewer2 BRAINX
 *
 */
public class MPRViewer2
```

```
{
  static {
    // VTK
    System.loadLibrary("vtkCommonJava");
    System.loadLibrary("vtkFilteringJava");
    System.loadLibrary("vtkIOJava");
    System.loadLibrary("vtkImagingJava");
    System.loadLibrary("vtkGraphicsJava");
    System.loadLibrary("vtkRenderingJava");
    System.loadLibrary("vtkHybridJava");
    System.loadLibrary("vtkWidgetsJava");
    // VTK-GDCM
    System.loadLibrary("vtkgdcmJava");
  }

  static FilenamesType fns = new FilenamesType();

  public static void process(String path)
    {
    fns.add( path );
    }

  // Process only files under dir
  public static void visitAllFiles(File dir)
    {
    if (dir.isDirectory())
      {
      String[] children = dir.list();
      for (int i=0; i<children.length; i++)
        {
        visitAllFiles(new File(dir, children[i]));
        }
      }
    else
      {
      process(dir.getPath());
      }
    }

  public void dointer(vtkImagePlaneWidget  current_widget)
    {
    int cstat = current_widget.GetCursorDataStatus();
    double[] v = current_widget.GetCurrentCursorPosition();
    //System.out.println( cstat );
    //System.out.println( v[0] );
    //System.out.println( v[1] );
    //System.out.println( v[2] );
    planeWidgetX.SetSliceIndex( (int)v[0] );
    planeWidgetY.SetSliceIndex( (int)v[1] );
    planeWidgetZ.SetSliceIndex( (int)v[2] );
    planeWidgetX.GetCurrentRenderer().ResetCameraClippingRange();
    planeWidgetY.GetCurrentRenderer().ResetCameraClippingRange();
    planeWidgetZ.GetCurrentRenderer().ResetCameraClippingRange();
    }
  public void startinterX()
    {
    dointer( planeWidgetX );
    }
  public void interX()
    {
    dointer( planeWidgetX );
    }
  public void endinterX()
    {
    }
  public void startinterY()
    {
    dointer( planeWidgetY );
    }
  public void interY()
    {
    dointer( planeWidgetY );
    }
  public void endinterY()
    {
    }
  public void startinterZ()
    {
    dointer( planeWidgetZ );
    }
  public void interZ()
```

```
    {
    dointer( planeWidgetZ );
    }
  public void endinterZ()
    {
    //System.out.println( "endinter" );
    }

  public static void AlignCamera(int slice_number, vtkImagePlaneWidget current_widget)
    {
    vtkImageData image = (vtkImageData)current_widget.GetInput();
    vtkRenderer ren = current_widget.GetCurrentRenderer();
    double[] origin = image.GetOrigin();
    double ox = origin[0];
    double oy = origin[1];
    double oz = origin[2];

    int dims[] = image.GetDimensions();
    int xMin = 0;
    int xMax = 1;
    int yMin = 2;
    int yMax = dims[0]-1;
    int zMin = dims[1]-1;
    int zMax = dims[2]-1;

    double[] spacing = image.GetSpacing();
    double sx = spacing[0];
    double sy = spacing[1];
    double sz = spacing[2];

    double cx = ox+(0.5*(xMax-xMin))*sx;
    double cy = oy+(0.5*(yMax-yMin))*sy;
    double cz = oy+(0.5*(zMax-zMin))*sz;
    double vx = 0, vy = 0, vz = 0;
    double nx = 0, ny = 0, nz = 0;
    int iaxis = current_widget.GetPlaneOrientation();
    if ( iaxis == 0 ) {
      vz = -1;
      nx = ox + xMax*sx;
      cx = ox + slice_number*sx;
      }
    else if ( iaxis == 1 ) {
      vz = -1;
      ny = oy+yMax*sy;
      cy = oy+slice_number*sy;
      }
    else {
      vy = 1;
      nz = oz+zMax*sz;
      cz = oz+slice_number*sz;
    }
    double px = cx+nx*2;
    double py = cy+ny*2;
    double pz = cz+nz*3;

    vtkCamera camera = ren.GetActiveCamera();
    camera.SetViewUp(vx, vy, vz);
    camera.SetFocalPoint(cx, cy, cz);
    camera.SetPosition(px, py, pz);
    camera.OrthogonalizeViewUp();
    ren.ResetCameraClippingRange();
    }

  private vtkImagePlaneWidget planeWidgetX = new vtkImagePlaneWidget();
  private vtkImagePlaneWidget planeWidgetY = new vtkImagePlaneWidget();
  private vtkImagePlaneWidget planeWidgetZ = new vtkImagePlaneWidget();

  public void config()
    {
    //System.out.println( "config" );
    planeWidgetX.GetCurrentRenderer().ResetCamera();
    planeWidgetY.GetCurrentRenderer().ResetCamera();
    planeWidgetZ.GetCurrentRenderer().ResetCamera();
    }

  public void Run(String dirname)
    {
    File dir = new File(dirname);
    visitAllFiles(dir);

    IPPSorter ipp = new IPPSorter();
```

```
ipp.SetComputeZSpacing( true );
ipp.SetZSpacingTolerance( 1e-3 );
boolean b = ipp.Sort( fns );
if(!b)
  {
  //throw new Exception("Could not scan");
  }
double ippzspacing = ipp.GetZSpacing();

FilenamesType sorted = ipp.GetFilenames();
vtkStringArray files = new vtkStringArray();
long nfiles = sorted.size();
//for( String f : sorted )
for (int i = 0; i < nfiles; i++) {
  String f = sorted.get(i);
  files.InsertNextValue( f );
  }
vtkGDCMImageReader reader = new vtkGDCMImageReader();
reader.SetFileNames( files );
reader.Update(); // get spacing value

double[] spacing = reader.GetOutput().GetSpacing();

vtkImageChangeInformation change = new vtkImageChangeInformation();
change.SetInputConnection( reader.GetOutputPort() );
change.SetOutputSpacing( spacing[0], spacing[1], ippzspacing );
change.Update();

System.out.println( change.GetOutput().toString() );

vtkRenderer ren1 = new vtkRenderer();
ren1.SetViewport(0., 0., 0.333, 1);
ren1.SetBackground(0.1,0.2,0.4);
vtkRenderer ren2 = new vtkRenderer();
ren2.SetViewport(0.333, 0., 0.667, 1);
ren2.SetBackground(0.1,0.2,0.4);
vtkRenderer ren3 = new vtkRenderer();
ren3.SetViewport(0.667, 0., 1., 1.);
ren3.SetBackground(0.1,0.2,0.4);

vtkRenderWindow renWin = new vtkRenderWindow();
renWin.AddRenderer(ren1);
renWin.AddRenderer(ren2);
renWin.AddRenderer(ren3);

vtkRenderWindowInteractor iren = new vtkRenderWindowInteractor();
iren.SetRenderWindow(renWin);

vtkInteractorStyleImage style = new vtkInteractorStyleImage();
iren.SetInteractorStyle( style );

vtkCellPicker picker = new vtkCellPicker();
picker.SetTolerance(0.005);

vtkProperty ipwProp = new vtkProperty();

//vtkImagePlaneWidget planeWidgetX = new vtkImagePlaneWidget();
planeWidgetX.SetInteractor(iren);
planeWidgetX.SetCurrentRenderer(ren1);
planeWidgetX.SetDefaultRenderer(ren1);
planeWidgetX.RestrictPlaneToVolumeOn();
planeWidgetX.SetTexturePlaneProperty(ipwProp);
//planeWidgetX.GetPlaneProperty().SetColor(1,0,0);
//planeWidgetX.TextureInterpolateOff();
//planeWidgetX.SetResliceInterpolateToNearestNeighbour();
planeWidgetX.SetInputConnection(change.GetOutputPort());
planeWidgetX.SetPlaneOrientationToXAxes();
planeWidgetX.SetSliceIndex(62);
planeWidgetX.SetPicker(picker);
planeWidgetX.SetKeyPressActivationValue('x');
planeWidgetX.On();
planeWidgetX.InteractionOn();

//vtkImagePlaneWidget planeWidgetY = new vtkImagePlaneWidget();
planeWidgetY.SetInteractor(iren);
planeWidgetY.SetCurrentRenderer(ren2);
planeWidgetY.SetDefaultRenderer(ren2);
planeWidgetY.RestrictPlaneToVolumeOn();
planeWidgetY.SetTexturePlaneProperty(ipwProp);
//planeWidgetY.GetPlaneProperty().SetColor(1,0,0);
//planeWidgetY.TextureInterpolateOff();
```

```
    //planeWidgetY.SetResliceInterpolateToNearestNeighbour();
    planeWidgetY.SetInputConnection(change.GetOutputPort());
    planeWidgetY.SetLookupTable( planeWidgetX.GetLookupTable() );
    planeWidgetY.SetPlaneOrientationToYAxes();
    planeWidgetY.SetSliceIndex(32);
    planeWidgetY.SetPicker(picker);
    planeWidgetY.SetKeyPressActivationValue('y');
    planeWidgetY.On();


    //vtkImagePlaneWidget planeWidgetZ = new vtkImagePlaneWidget();
    planeWidgetZ.SetInteractor(iren);
    planeWidgetZ.SetCurrentRenderer(ren3);
    planeWidgetZ.SetDefaultRenderer(ren3);
    planeWidgetZ.RestrictPlaneToVolumeOn();
    planeWidgetZ.SetTexturePlaneProperty(ipwProp);
    //planeWidgetZ.GetPlaneProperty().SetColor(1,0,0);
    //planeWidgetZ.TextureInterpolateOff();
    //planeWidgetZ.SetResliceInterpolateToNearestNeighbour();
    planeWidgetZ.SetInputConnection(change.GetOutputPort());
    planeWidgetZ.SetLookupTable( planeWidgetX.GetLookupTable() );
    planeWidgetZ.SetPlaneOrientationToZAxes();
    planeWidgetZ.SetSliceIndex(32);
    planeWidgetZ.SetPicker(picker);
    planeWidgetZ.SetKeyPressActivationValue('z');
    planeWidgetZ.On();

    iren.Initialize();

    renWin.Render();
    AlignCamera(52, planeWidgetX);
    AlignCamera(32, planeWidgetY);
    AlignCamera(32, planeWidgetZ);

    planeWidgetX.GetCurrentRenderer().ResetCamera();
    planeWidgetY.GetCurrentRenderer().ResetCamera();
    planeWidgetZ.GetCurrentRenderer().ResetCamera();

    renWin.Render();

    planeWidgetX.AddObserver("StartInteractionEvent", this,"startinterX");
    planeWidgetX.AddObserver("InteractionEvent", this,"interX");
    planeWidgetX.AddObserver("EndInteractionEvent", this,"endinterX");
    planeWidgetY.AddObserver("StartInteractionEvent", this,"startinterY");
    planeWidgetY.AddObserver("InteractionEvent", this,"interY");
    planeWidgetY.AddObserver("EndInteractionEvent", this,"endinterY");
    planeWidgetZ.AddObserver("StartInteractionEvent", this,"startinterZ");
    planeWidgetZ.AddObserver("InteractionEvent", this,"interZ");
    planeWidgetZ.AddObserver("EndInteractionEvent", this,"endinterZ");

    iren.AddObserver("ConfigureEvent", this,"config");

    iren.Start();
    }

  public static void main(String[] args) throws Exception
    {
    String dirname = args[0];
    if( !PosixEmulation.FileIsDirectory( dirname ) )
      {
      return;
      }

    MPRViewer2 me = new MPRViewer2();
    me.Run( dirname );
    }
}
```

14.172 ReadSeriesIntoVTK.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

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  All rights reserved.
```

```
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     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// We are required to call the package 'vtk' even though I (MM) would have preferred
// an import statement along the line of:
// import vtkgdcm.*;
import vtk.*;

/*
 * Usage:
 * export LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:.
 * java -classpath `pwd`/vtkgdcm.jar:/usr/share/java/vtk.jar:. ReadSeriesIntoVTK
 */
public class ReadSeriesIntoVTK
{
  static {
    System.loadLibrary("vtkCommonJava");
    System.loadLibrary("vtkFilteringJava");
    System.loadLibrary("vtkIOJava");
    System.loadLibrary("vtkImagingJava");
    System.loadLibrary("vtkGraphicsJava");
    System.loadLibrary("vtkgdcmJava");
    try {
      System.loadLibrary("vtkRenderingJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkHybrid, skipping...");
    }
    try {
      System.loadLibrary("vtkHybridJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkHybrid, skipping...");
    }
    try {
      System.loadLibrary("vtkVolumeRenderingJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkVolumeRendering, skipping...");
    }
  }

  public static void main(String[] args)
    {
    vtkFileOutputWindow outWin = new vtkFileOutputWindow();
    outWin.SetInstance(outWin);
    outWin.SetFileName("MVSVTKViewer.log");

    // See: http://review.source.kitware.com/#change,888
    // vtkWrapJava does not handle static keyword
    // String directory = vtkGDCMTesting.GetGDCMDataRoot();
    vtkGDCMTesting t = new vtkGDCMTesting();
    String directory = t.GetGDCMDataRoot();
    String file0 = directory + "/SIEMENS_MAGNETOM-12-MONO2-FileSeq0.dcm";
    String file1 = directory + "/SIEMENS_MAGNETOM-12-MONO2-FileSeq1.dcm";
    String file2 = directory + "/SIEMENS_MAGNETOM-12-MONO2-FileSeq2.dcm";
    String file3 = directory + "/SIEMENS_MAGNETOM-12-MONO2-FileSeq3.dcm";

    vtkStringArray s = new vtkStringArray();
    System.out.println("adding : " + file0 );
    s.InsertNextValue( file0 );
    s.InsertNextValue( file1 );
    s.InsertNextValue( file2 );
    s.InsertNextValue( file3 );

    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    reader.SetFileNames( s );
    reader.Update();

    System.out.println("Success reading: " + file0 );

    vtkMetaImageWriter writer = new vtkMetaImageWriter();
    writer.DebugOn();
    writer.SetCompression( false );
    writer.SetInputConnection( reader.GetOutputPort() );
    writer.SetFileName( "ReadSeriesIntoVTK.mhd" );
    writer.Write();

    System.out.println("Success writing: " + writer.GetFileName() );
    }
```

```
}
```

14.173 CastConvertPhilips.py

```
00001
00014
00015 """
00016 Usage:
00017
00018  python --public /path/to/directory/
00019 or
00020  python --private /path/to/directory/
00021
00022  python --public --extension bak /path/to/directory/
00023
00024 rename -f 's/\.bak$//' *.bak
00025
00026 TODO:
00027 http://docs.python.org/library/optparse.html#module-optparse
00028 """
00029
00030 import vtkgdcm
00031 import vtk
00032 import sys
00033 import gdcm
00034
00035 def ProcessOneFilePublic(filename, outfilename, tmpfile):
00036   gdcm.ImageHelper.SetForceRescaleInterceptSlope(True)
00037   vtkreader = vtkgdcm.vtkGDCMImageReader()
00038   vtkreader.SetFileName( filename )
00039   vtkreader.Update()
00040
00041   cast = vtk.vtkImageCast()
00042   cast.SetInput( vtkreader.GetOutput() )
00043   cast.SetOutputScalarTypeToUnsignedShort()
00044
00045   # vtkGDCMImageWriter does not support Sequence, so let's write a tmp file first:
00046   # Some operation will actually be discarded (we simply need a temp storage)
00047   vtkwriter = vtkgdcm.vtkGDCMImageWriter()
00048   vtkwriter.SetFileName( tmpfile )
00049   vtkwriter.SetMedicalImageProperties( vtkreader.GetMedicalImageProperties() )
00050   vtkwriter.SetDirectionCosines( vtkreader.GetDirectionCosines() )
00051   print "Format:",vtkreader.GetImageFormat()
00052   vtkwriter.SetImageFormat( vtkreader.GetImageFormat() )
00053   vtkwriter.SetInput( cast.GetOutput() )
00054   #vtkwriter.Update()
00055   vtkwriter.Write()
00056
00057   # ok now rewrite the exact same file as the original (keep all info)
00058   # but use the Pixel Data Element from the written file
00059   tmpreader = gdcm.ImageReader()
00060   tmpreader.SetFileName( tmpfile )
00061   if not tmpreader.Read():
00062     sys.exit(1)
00063
00064   reader = gdcm.Reader()
00065   reader.SetFileName( filename )
00066   if not reader.Read():
00067     sys.exit(1)
00068
00069   # Make sure to remove Slope/Rescale to avoid re-execution
00070   ds = reader.GetFile().GetDataSet()
00071   tags = [
00072     gdcm.Tag(0x0028,0x1052),
00073     gdcm.Tag(0x0028,0x1053),
00074     gdcm.Tag(0x0028,0x1053),
00075   ]
00076   for tag in tags:
00077     ds.Remove( tag )
00078
00079   writer = gdcm.ImageWriter()
00080   writer.SetFileName( outfilename )
00081   # Pass image from vtk written file
00082   writer.SetImage( tmpreader.GetImage() )
00083   # pass dataset from initial 'reader'
00084   writer.SetFile( reader.GetFile() )
```

```
00085   if not writer.Write():
00086     sys.exit(1)
00087
00088 def ProcessOneFilePrivate(filename, outfilename, tmpfile):
00089   vtkreader = vtkgdcm.vtkGDCMImageReader()
00090   vtkreader.SetFileName( filename )
00091   vtkreader.Update()
00092
00093
00094   # (2005,1409)     DS      4       0.0
00095   # (2005,140a)     DS      16      1.52283272283272
00096
00097   # (2005,0014)     LO      26      Philips MR Imaging DD 005
00098   tag1 = gdcm.PrivateTag(0x2005,0x09,"Philips MR Imaging DD 005")
00099   tag2 = gdcm.PrivateTag(0x2005,0x0a,"Philips MR Imaging DD 005")
00100
00101
00102
00103   # Need to access some private tags, reread the file (for now):
00104   reader = gdcm.Reader()
00105   reader.SetFileName( filename )
00106   if not reader.Read():
00107     sys.exit(1)
00108
00109   ds = reader.GetFile().GetDataSet()
00110
00111   el1 = ds.GetDataElement( tag1 )
00112   el2 = ds.GetDataElement( tag2 )
00113
00114
00115   #pf = gdcm.PythonFilter()
00116   #pf.SetFile( reader.GetFile() )
00117   #print el1.GetTag()
00118
00119   print el1.GetByteValue()
00120   v1 = eval(el1.GetByteValue().GetBuffer())
00121   print el2.GetByteValue()
00122   v2 = eval(el2.GetByteValue().GetBuffer())
00123
00124   print v1
00125   shift = v1
00126   print v2
00127   scale = v2
00128
00129   ss = vtk.vtkImageShiftScale()
00130   ss.SetInput( vtkreader.GetOutput() )
00131   # because VTK image shift / scale convention is inverted from DICOM make sure shift is 0
00132   assert shift == 0
00133   ss.SetShift( shift )
00134   ss.SetScale( scale )
00135   ss.SetOutputScalarTypeToUnsignedShort ()
00136   ss.Update()
00137
00138   # vtkGDCMImageWriter does not support Sequence, so let's write a tmp file first:
00139   # Some operation will actually be discarded (we simply need a temp storage)
00140   vtkwriter = vtkgdcm.vtkGDCMImageWriter()
00141   vtkwriter.SetFileName( tmpfile )
00142   vtkwriter.SetMedicalImageProperties( vtkreader.GetMedicalImageProperties() )
00143   vtkwriter.SetDirectionCosines( vtkreader.GetDirectionCosines() )
00144   vtkwriter.SetImageFormat( reader.GetImageFormat() )
00145   # do not pass shift/scale again
00146   vtkwriter.SetInput( ss.GetOutput() )
00147   #vtkwriter.Update()
00148   vtkwriter.Write()
00149
00150   # ok now rewrite the exact same file as the original (keep all info)
00151   # but use the Pixel Data Element from the written file
00152   tmpreader = gdcm.ImageReader()
00153   tmpreader.SetFileName( tmpfile )
00154   if not tmpreader.Read():
00155     sys.exit(1)
00156
00157   writer = gdcm.ImageWriter()
00158   writer.SetFileName( outfilename )
00159   # Pass image from vtk written file
00160   writer.SetImage( tmpreader.GetImage() )
00161   # pass dataset from initial 'reader'
00162   writer.SetFile( reader.GetFile() )
00163   if not writer.Write():
00164     sys.exit(1)
00165
```

```
00166 if __name__ == "__main__":
00167
00168   gdcm.Trace.DebugOff()
00169   gdcm.Trace.WarningOff()
00170   #filename = sys.argv[1]
00171   #outfilename = sys.argv[2]
00172   tmpfile = "/tmp/philips_rescaled.dcm"
00173   #ProcessOneFile( filename, outfilename, tmpfile )
00174   rescaletype = sys.argv[1]
00175   assert rescaletype == "--public" or rescaletype == "--private"
00176   dirname = sys.argv[2]
00177   d = gdcm.Directory()
00178   d.Load( dirname )
00179
00180   for f in d.GetFilenames():
00181     #print f
00182     ProcessOneFilePublic( f, f + ".bak", tmpfile )
00183
00184
00185 print "success"
```

14.174 headsq2dcm.py

```
00001
00014
00015 """
00016 Usage:
00017  python headsq2dcm.py -D /path/to/VTKData
00018 """
00019
00020 import vtk
00021 import vtkgdcm
00022 from vtk.util.misc import vtkGetDataRoot
00023 VTK_DATA_ROOT = vtkGetDataRoot()
00024
00025 reader = vtk.vtkVolume16Reader()
00026 reader.SetDataDimensions(64, 64)
00027 reader.SetDataByteOrderToLittleEndian()
00028 reader.SetFilePrefix(VTK_DATA_ROOT + "/Data/headsq/quarter")
00029 reader.SetImageRange(1, 93)
00030 reader.SetDataSpacing(3.2, 3.2, 1.5)
00031
00032 cast = vtk.vtkImageCast()
00033 cast.SetInput( reader.GetOutput() )
00034 cast.SetOutputScalarTypeToUnsignedChar()
00035
00036 # By default this is creating a Multiframe Grayscale Word Secondary Capture Image Storage
00037 writer = vtkgdcm.vtkGDCMImageWriter()
00038 writer.SetFileName( "headsq.dcm" )
00039 writer.SetInput( reader.GetOutput() )
00040 # cast -> Multiframe Grayscale Byte Secondary Capture Image Storage
00041 #writer.SetInput( cast.GetOutput() )
00042 writer.SetFileDimensionality( 3 )
00043 writer.Write()
```

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