

DICOM Conformance Statement

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CONFORMANCE STATEMENT OVERVIEW

DIMEX.Hybrid is applications that implement a DICOM Communication and allows to store and send images.

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Transfer		
Computed Radiography Image Storage	Yes	Yes
Digital Mammography Image Storage – For Presentation	Yes	Yes
Digital Mammography Image Storage – For Processing	Yes	Yes
Digital X-Ray Image Storage – For Presentation	Yes	Yes
Digital X-Ray Image Storage – For Processing	Yes	Yes

INTRODUCTION

This DICOM Conformance Statement documents the conformance of the DIMEX.Hybrid software with the Digital Imaging and Communications in Medicine (DICOM) standard. This document is essential in order to evaluate whether or not another

DICOM compliant device can communicate with this software product. This statement is conforming to the recommended format as described in PS 3.2 of the DICOM standard.

REVISION HISTORY

- Revision 1.0 Rossel 2010-06-09 Draft for official review
- Revision 1.0 Rossel 2010-06-10 Final draft

AUDIENCE

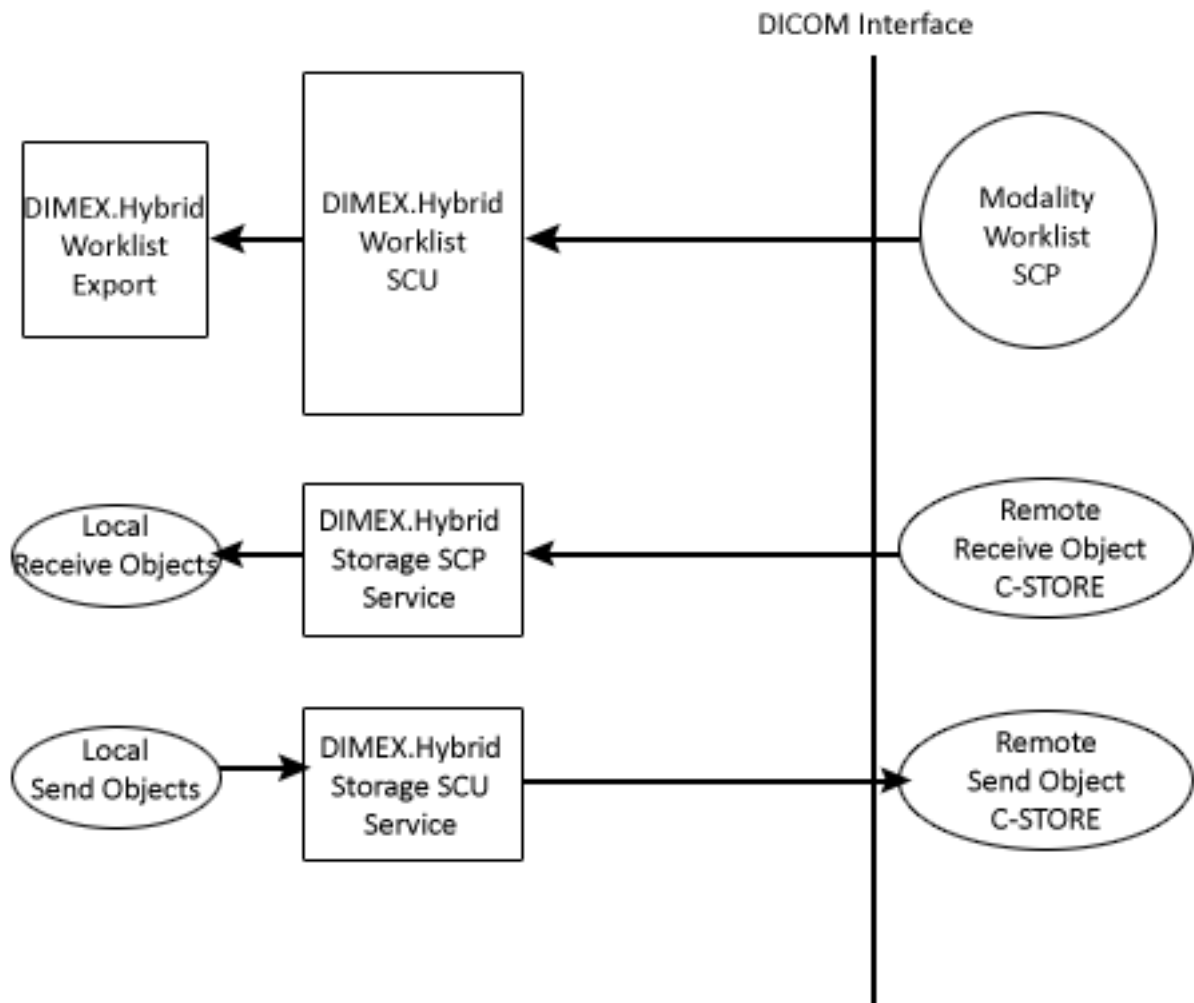
This document is intended for hospital staff, health system integrators, software designers or Implementers. It is assumed that the reader has understood the DICOM specifications.

REMARKS

If another device matches this Conformance Statement when compared with its own Conformance Statement, there is a chance but no guarantee that they might interoperate. DICOM only deals with communication, it is not a standard with specifies what is needed for Certain applications to run on a device.

DEFINITIONS, TERMS AND ABBREVIATIONS

- ASCII American Standard Code for Information Interchange
- AE Application Entity
- ANSI American National Standards Institute
- CR Computed Radiography
- DICOM Digital Imaging and Communications in Medicine
- IOD Information Object Definition
- MG Mammography
- NEMA National Electrical Manufactures Association
- SCP Service Class Provider
- SCU Service Class User
- SR Structured Report
- TCP/IP Transmission Control Protocol
- UID Unique Identifier



The Modality Worklist query can be done at any time when running DIMEX.Hybrid. The user can select modality from a list, and DIMEX.Hybrid queries the specified Modality Worklist SCP to retrieve data for patient's scheduled to come in. Once the list is received from the SCP it is displayed, and will be automatically exported.

FUNCTIONAL DEFINITION OF DIMEX.HYBRID DICOM STORAGE SCP SERVICE

Within the DIMEX.Hybrid there is on DICOM Storage SCP Service that takes care of receiving the images and storing them to a temporary directory.

FUNCTIONAL DEFINITION OF DIMEX.HYBRID DICOM STORAGE SCU SERVICE

Within the DIMEX.Hybrid there is on DICOM Storage SCU Service that are able to send the images. This application acts as a SCU for the Storage SOP classes.

APPLICATION ENTITY SPECIFICATIONS

DIMEX.HYBRID DICOM STORAGE SCP SERVICE

The DIMEX.Hybrid DICOM Storage SCP Service is an application entity that automatically starts together with the application. When the DIMEX.Hybrid is terminated, the DIMEX.Hybrid DICOM Storage SCP Service stops accepting any further associations and aborts all currently active associations.

SOP CLASSES

This application entity provides Standard Conformance to the following DICOM SOP Classes:

SOP Class Name	SOP Class UID	SCU	SCP
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	No	Yes
Digital Mammography Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	No	Yes
Digital Mammography Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	No	Yes
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	No	Yes
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	No	Yes
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.3.1	Yes	No

ASSOCIATION ACCEPTANCE POLICY

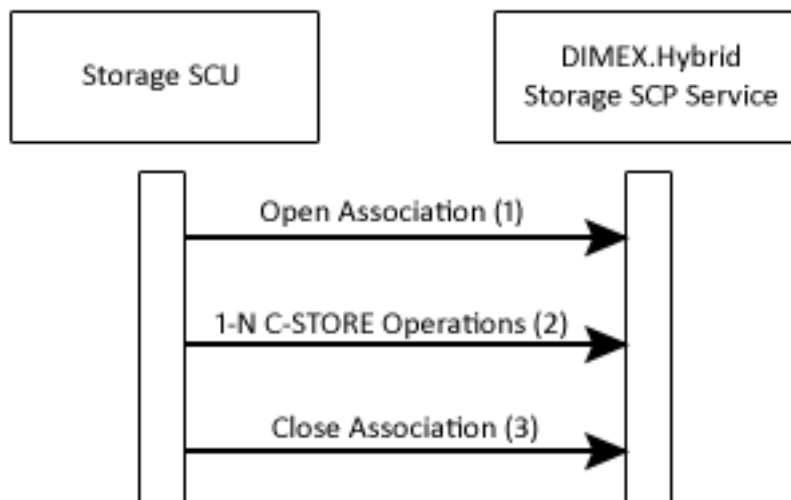
The DIMEX.Hybrid DICOM Storage SCP Service application entity accepts an association after receiving an association request from a valid SCU. The application entity accepts incoming association requests on a single IP-address and a single port number as defined in the configuration. It accepts any association for which at least one presentation context is accepted. It creates a new thread for each incoming DICOM association request. The association remains open until one of the following events take place:

- The remote application entity closes the application
- An error condition leading to an association abort occurs
- A timeout occurs

DESCRIPTION AND SEQUENCING OF ACTIVITIES

This activity is initiated by a remote Storage SCU opening an association in order to transmit images to the DIMEX.Hybrid Storage SCP Service. Diagram 1 shows a possible sequence of events for this activity. The remote Storage SCU opens an association and sends one or more DICOM images using C-STORE request messages. Finally, the remote Storage SCU closes the association.

Diagram 1: Sequencing Diagram for Activity “Receive Objects”.



ACCEPTED PRESENTATION CONTEXTS

SOP Class Name	SOP Class UID	Transfer Syntax	Role	Extended Negotiation
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	See below	SCP	None

Digital Mammography Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	See below	SCP	None
Digital Mammography Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	See below	SCP	None
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	See below	SCP	None
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	See below	SCP	None

Transfer Syntax Name	Transfer Syntax UID
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2
JPEG Lossless	1.2.840.10008.1.2.4.70
JPEG2000	1.2.840.10008.1.2.4.90

The default behavior of the DIMEX.Hybrid DICOM Storage SCP Service is to accept as SCP for each of the supported SOP Classes all presentation context containing one or more of the following transfer syntaxes. It is possible to configure the transfer syntaxes accepted by this application.

The application entity will accept all presentation contexts that contain one of the supported SOP classes and one of the supported transfer syntaxes. The default behavior for the selection of the transfer syntax is to choose the first supported transfer syntax for each presentation context.

SOP SPECIFIC CONFORMANCE FOR STORAGE SOP CLASSES

The DIMEX.Hybrid DICOM Storage SCP Service will receive any DICOM objects of a supported SOP Class type transmitted through an open association provided if the correct presentation context is used. If the objects have been successfully received, they are stored and ready to export.

If the DIMEX.Hybrid Storage SCP Service receives objects that are already present in the temporary directory (the SOP Instance UID already exists), the existing object will be kept and the transmission itself will be complete successfully. It is also possible to change the configuration to overwrite the existing object.

SOP SPECIFIC CONFORMANCE FOR WORKLIST SOP CLASS

DIMEX.Hybrid provides standard conformance, a list of support keys are listed below:

Presentation Context Table For Modality Worklist Management		
Scheduled Procedure Step	Modality	(0008,0060)
	Scheduled Procedure Step Start Date	(0040,0002)
	Scheduled Procedure Step Start Time	(0040,0003)
	Scheduled Procedure Step Location	(0040,0011)
	Performing Physician Name	(0040,0006)
Imaging Service Request	Accession Number	(0008,0050)
	Referring Physician Name	(0008,0090)
	Body Part Examined	(0018,0015)
Patient Demographics	Patient ID	(0010,0020)
	Patient Name	(0010,0010)
	Patient Sex	(0010,0040)
	Date of Birth	(0010,0030)
Requested Procedure	Study Instance UID	(0020,000D)
	Requested Procedure ID	(0040,1001)
	Requested Procedure Description	(0032,1060)

NETWORK INTERFACES

PHYSICAL NETWORK INTERFACE

The application is indifferent to the physical medium over which TCP/IP executes.

ADDITIONAL PROTOCOLS

When host names rather than IP addresses are used in the configuration to specify presentation addresses for remote AEs, the application is dependent on the name resolution mechanism of the underlying operation system.

CONFIGURATION

LOCAL AE TITLES

The local application entity names can be configured in the configuration.

Application Entity	Default AE Title	Default TCP/IP Port
DICOM Storage SCP Service	DIMEX	4499
DICOM Storage SCU Service	DIMEX	Not applicable
DICOM Worklist SCU Service	DIMEX	Not applicable

REMOTE AE TITLE/PRESENTATION ADDRESS MAPPING

The AE Title, host names and port numbers of remote applications can be configured in the configuration. All application entities that initiate associations must be configured together with the presentation address (TCP/IP address and port number) to be used in the configuration. This affects the following application entities:

- DICOM Storage SCU Service
- DICOM Worklist SCU Service

The application entities accepting associations ignore the calling and the called application entity titles. This affects the following application entities:

- DICOM Storage SCP Service

SECURITY

SECURITY PROFILES

Not supported.

ASSOCIATION LEVEL SECURITY

Any calling application entity title may open an Association.

APPLICATION LEVEL SECURITY

The DIMEX.Hybrid configuration console is password protected.

ANNEXES

PRIVATE TRANSFER SYNTAXES

By default, no Private Transfer Syntaxes are supported