DICOM Conformance Statement

Xper Information Management v5.1

HSDPCPF-T-020001.08 (Rev B)

PHILIPS

Issued by:

Philips Medical Systems Nederland BV, a Philips Healthcare company,

P.O. Box 10.000
5680 DA Best
The Netherlands

Internet: https://www.philips.com/healthcare/about/customer-support

Doc Id: ICAP-PF.0047581
Date: 3-APR-2020

1. DICOM Conformance Statement Overview

The information management system is intended for use under the direct supervision of a healthcare practitioner for acquiring, displaying, trending, storing and transmitting various types of data, such as physiologic, hemodynamic, clinical, medical image and other related data. The system is capable of processing/analyzing information, such as multi-channel ECG signals, and performing other data management functions, such as creating reports. Data may be acquired from and/or sent to other devices, such as physiological monitoring systems, information management systems, image acquisition/storage devices, and other medical devices.

The system is indicated for use in the following areas: cardiology, cardiac catheterization, electrophysiology, radiology, invasive radiology, and surrounding areas where access to the information is needed. The system consists of modules and may be entirely a software offering or a hardware/software offering. It is intended for use on standard computer systems and does not require proprietary hardware. The solution is available as a single module or combination of modules, or may function as a standalone system.

The system is capable of receiving and displaying user-adjustable alarms (both visual and audible) available in the system, which alert the operator to anomalous occurrences and facilitate timely responses. Use of the system is not intended where unattended patient monitoring is desired, or in situations where arrhythmia detection is required. The system provides the ability to transmit patient data files for storage, viewing and analysis at distributed locations via the intranet or internet, or may function as a standalone device.

The Xper IM supports various DICOM Service Classes in order to provide the following capabilities:

DICOM Modality Worklist Management (MWLM)

- Allows Modalities to query for patient study worklists
- Provides Modalities with patient demographics
- Patient demographics provided to the Modalities are stored in the Xper IM database
- Demographics can be manually entered in the Xper IM application
- Demographics can be received by the broker via HL7 message(s) from the Hospital Information Systems (HIS) and/or the Cardiology Information System (CIS)

Modality Performed Procedure Step (MPPS)
- Receives Procedure Step transactions from Modalities
- Updates the Xper IM database with data contained in these transactions
- Relevant data can be viewed within the Xper IM application

DICOM Export Service
- Export of Encapsulated PDF document
- Export of Secondary Capture Image

Table 1: Network Services

SOP Class		User of Service (SCU)	Provider of Service (SCP)	Display
Name	**UID**			
Other				
Verification SOP Class*	1.2.840.10008.1.1	Yes	Yes	N/A
Transfer				
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	No	N/A
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	No	N/A
Workflow Management				
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	No	Yes	N/A
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	No	Yes	N/A

* Note: Xper IM support Verification SCP for MWL-SCP and MPPS-SCP and Verification SCU for C-STORE-SCU

2. Table of Contents

3. Introduction

3.1.   Revision History

The revision history provides dates and differences of the different releases.

Table 2: Revision History

Document Version	Date of Issue	Description of change
00	03-APR-2020	Final version

3.2.   Audience

This Conformance Statement is intended for:
- (Potential) customers
- System integrators of medical equipment
- Marketing staff interested in system functionality
- Software designers implementing DICOM interfaces

It is assumed that the reader is familiar with the DICOM standard.

3.3.   Remarks

The DICOM Conformance Statement is contained in chapter 4 through 8 and follows the contents and structuring requirements of DICOM PS 3.2.

This DICOM Conformance Statement by itself does not guarantee successful interoperability of Philips equipment with non-Philips equipment. The user (or user's agent) should be aware of the following issues:

- **Interoperability**
  Interoperability refers to the ability of application functions, distributed over two or more systems, to work successfully together. The integration of medical devices into an IT environment may require application functions that are not specified within the scope of DICOM. Consequently, using only the information provided by this Conformance Statement does not guarantee interoperability of Philips equipment with non-Philips equipment.
  It is the user's responsibility to analyze thoroughly the application requirements and to specify a solution that integrates Philips equipment with non-Philips equipment.

- **Validation**
  Philips equipment has been carefully tested to assure that the actual implementation of the DICOM interface corresponds with this Conformance Statement.
  Where Philips equipment is linked to non-Philips equipment, the first step is to compare the relevant Conformance Statements. If the Conformance Statements indicate that successful information exchange should be possible, additional validation tests will be necessary to ensure the functionality, performance, accuracy and stability of image and image related data. It is the responsibility of the user (or user's agent) to specify the appropriate test suite and to carry out the additional validation tests.

- **New versions of the DICOM Standard**
  The DICOM Standard will evolve in future to meet the user's growing requirements and to incorporate new features and technologies. Philips is actively involved in this evolution and plans to adapt its equipment to future versions of the DICOM Standard. In order to do so, Philips reserves the right to make changes to its products or to discontinue its delivery. The user should ensure that any non-Philips provider linking to Philips equipment also adapts to future versions of the DICOM Standard. If not, the incorporation of DICOM enhancements into Philips equipment may lead to loss of connectivity (in case of networking) and incompatibility (in case of media).

3.4. Definitions, Terms and Abbreviations

Table 3: Definitions, Terms and Abbreviations

Abbreviation/Term	Explanation
AE	Application Entity
ANSI	American National Standard Institute
AP	Application Profile
DICOM	Digital Imaging and Communications in Medicine
DIMSE	DICOM Message Service Element
DIMSE-C	DIMSE-Composite
DIMSE-N	DIMSE-Normalized
EBE	DICOM Explicit VR Big Endian
ELE	DICOM Explicit VR Little Endian
HIS	Hospital Information System
HL7	Health Level Seven
ILE	DICOM Implicit VR Little Endian
IOD	Information Object Definition
MPPS	Modality Performed Procedure Step
NEMA	National Electrical Manufacturers Association
PDU	Protocol Data Unit
RWA	Real-World Activity
SC	Secondary Capture
SCP	Service Class Provider
SCU	Service Class User
SOP	Service Object Pair
TCP/IP	Transmission Control Protocol/Internet Protocol
UID	Unique Identifier
WLM	Worklist Management
XA	X-Ray Angiographic
IBE	IntelliBridge
EMR	Electronic Medical Records
LIS	Laboratory Information System

3.5. References

[DICOM] Digital Imaging and Communications in Medicine, Parts 1 - 22 (NEMA PS 3.1- PS 3.22),
National Electrical Manufacturers Association
1300 North 17th Street
Suite 900
Arlington, Virginia 22209
Internet: https://www.dicomstandard.org/current

4. Networking

This section contains the networking related services.

4.1.   Implementation model

The implementation model consists of three sections:

- The application data flow diagram, specifying the relationship between the Application Entities and the "external world" or Real-World Activities
- A functional description of each Application Entity, and
- The sequencing constraints among them.

4.1.1.   Application Data Flow

As part of the implementation model, an application data flow diagram is included. This diagram represents all of the Application Entities present in an implementation and graphically depicts the relationship of the AE's use of DICOM to Real World Activities (RWA) as well as any applicable user interaction.Xper IM can handle multiple Application Entities. The related Implementation Model (for a single AE) is shown in the diagram below.
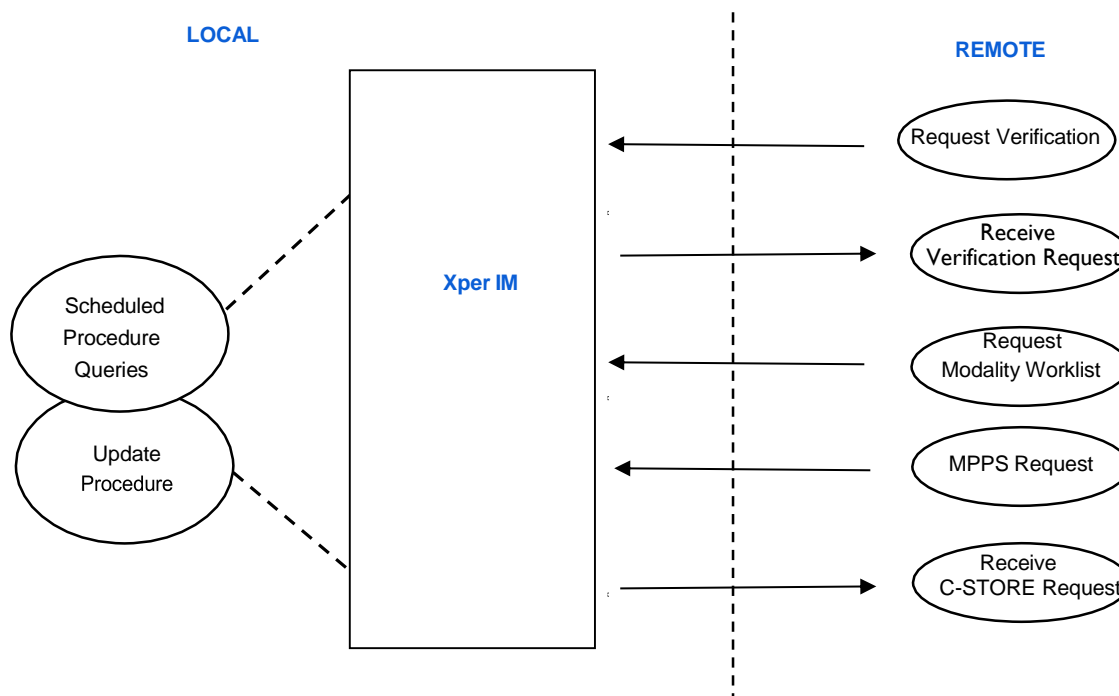
Figure 1: Xper IM Data flow in Network

Xper IM is able to communicate with modalities according to DICOM. It will accept associations in order to receive requests from modalities for an up-to-date Worklist. The Worklist management application of Xper IM will interpret the modalities requests, retrieve the requested modality worklist data from its internal database and send the detailed worklist contents to the modalities.Xper IM also supports DICOM Verification requests from the remote modalities.

4.1.2.   Functional Definition of Application Entities

Xper IM is an application running on a Windows server.Xper IM implements a DICOM Service Class Provider (SCP) for the Basic Worklist Management SOP Class. This SCP is contained within a single Application Entity. This Application Entity will accept associations from other (Modality type) Application Entities acting as DICOM Service Class Users (SCU). It will then deploy these MWLM requests from the SCU's.The Xper IM program supports multiple Application Entities. Each Xper IM Application Entity will support MWLM for the modality Application Entities that are configured. The number of Application Entities that can be supported depends on the system resources of the Xper IM platform.

4.1.2.1.   Functional Definition of Verification as SCU/SCP AE

Xper IM implements a DICOM service class provider/user for the Verification SOP class

4.1.2.2.   Functional Definition of Storage as SCU AE

Xper IM (SCU) initiates an association with a remote DICOM AE (SCP) to send a storage request and the applicable instance data. (DICOM Storage Service Class)

4.1.2.3.   Functional Definition of Modality Worklist as SCP AE

MWL SCP implements a DICOM Service Class Provider (SCP) for the Basic Worklist Management SOP Class

4.1.2.4.   Functional Definition of MPPS as SCP AE

MPPS SCP implements a DICOM Service Class Provider (SCP) for the Modality Performed Procedure Step SOP Class

4.1.3.   Sequencing of Real World Activities

Under normal circumstances, the sequencing depicted below applies:
1. The Modality queries Xper IM for a worklist of studies.
2. Xper IM returns the results that match the query.
3. The Modality begins a Procedure Step and sends the Xper IM a MPPS N-CREATE.
4. The Modality completes or discontinues the procedure and sends the Xper IM a MPPS N- SET with a status of COMPLETED or DISCONTINUED.

Please note that when using a Philips Modality and MPPS, status will be updated in XperIM for MPPS N-CREATE and MPPS N-SET. Some information contained within the MPPS message is displayed in the Xper IM software.
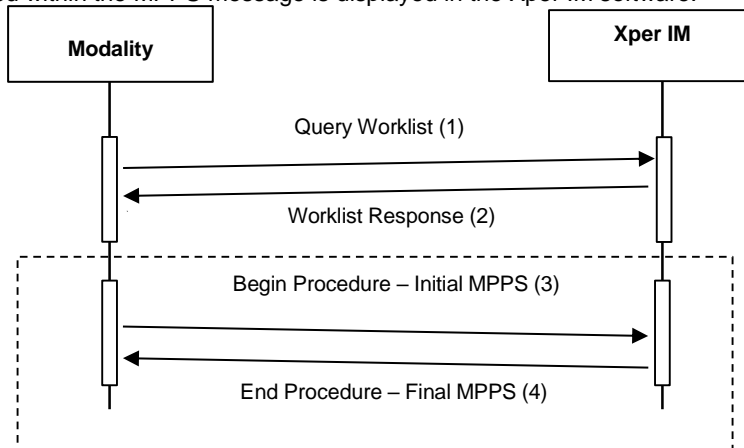
Figure 2: Sequencing of Real World Activities

4.2.   AE Specifications

This section in the DICOM Conformance Statement is a set of Application Entity specifications. There are as many of these

subsections as there are different AE's in the implementation.

4.2.1. Verification AE

Detail of this specific Application Entity is specified in this section.

4.2.1.1. SOP Classes

This Application Entity provides Standard Conformance to the following SOP Classes.

Table 4: SOP Classes for Verification AE

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	Yes	Yes

Note: Any SOP specific behavior is documented later in the conformance statement in the applicable SOP specific conformance section.

4.2.1.2. Association Policies

Each AE specification contains a description of the general association establishment and acceptance policies of the AE.

4.2.1.2.1. General

The DICOM standard application context is specified below.

Table 5: DICOM Application Context

Description	Value
Application Context Name	1.2.840.10008.3.1.1.1

4.2.1.2.2. Number of Associations

The number of simultaneous associations that an Application Entity may support as an Initiator or Acceptor is specified here.

Table 6: Number of associations as an Association Initiator for this AE

Description	Value
Maximum number of simultaneous associations	1

Table 7: Number of associations as an Association Acceptor for this AE

Description	Value
Maximum number of simultaneous associations	1

4.2.1.2.3. Asynchronous Nature

Xper IM allows a single outstanding operation on any association. Therefore, Xper IM does not support asynchronous operations and related negotiation.

Table 8: Asynchronous nature as an Association Initiator for this AE

Description	Value
Maximum number of outstanding asynchronous transactions	Not applicable

4.2.1.2.4. Implementation Identifying Information

The value supplied for Implementation Class UID and version name are documented here.

Table 9: DICOM Implementation Class and Version for Verification AE

Implementation Class UID	1.3.46.670589.44.5.1
Implementation Version Name	XperConnect 5.1

4.2.1.2.5. Communication Failure Handling

The behavior of the AE during communication failure is summarized in the next table.

Table 10: Communication Failure Behavior

Exception	Behavior
All failure	Operation failed, which is reflected in the System log

4.2.1.3. Association Initiation Policy

The behavior of this Application Entity is summarized in the next Table.

Table 11: Response Status Handler Behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Operation complete	Successfully complete
All failure	xxxx	Operation failed	Operation failed, which is reflected in the System log

The Application Entity will respond to a received Association rejection as shown in the next table.

Table 12: Association Rejection response

Result	Source	Reason/Diagnosis	Behavior
1 - rejected-permanent	1 - DICOM UL service-user	2 - application-context-name-not supported	Operation failed, which is reflected in the System log
		3 - calling-AE-title-not-recognized	Operation failed, which is reflected in the System log
		7 - called-AE-title-not-recognized	Operation failed, which is reflected in the System log
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	Operation failed, which is reflected in the System log
		2 - protocol-version-not-supported	Operation failed, which is reflected in the System log
2 - rejected-transient	1 - DICOM UL service-user	1 - no-reason-given	Operation failed, which is reflected in the System log
	3 - DICOM UL service-provider (Presentation related function)	1 - temporary-congestion	Operation failed, which is reflected in the System log
		2 - local-limit-exceeded	Operation failed, which is reflected in the System log

The behavior of the AE on receiving an Association abort is summarized in the next table.

Table 13: Association Abort Handling

Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user (initiated abort)	0 - reason-not-specified	Operation failed, which is reflected in the System log

Source	Reason/Diagnosis	Behavior
2 - DICOM UL service-provider(initiated abort)	0 - reason-not-specified - unrecognized-PDU	Operation failed, which is reflected in the System log
	2 - unexpected-PDU	Operation failed, which is reflected in the System log
	4 - unrecognized-PDU-parameter	Operation failed, which is reflected in the System log
	5 - unexpected-PDU-parameter	Operation failed, which is reflected in the System log
	6 - invalid-PDU-parameter-value	Operation failed, which is reflected in the System log

4.2.1.3.1.   (Real-World) Activity – Verification as SCU

4.2.1.3.1.1.   Description and Sequencing of Activities

XperIM AE sends an Echo Request to verify that Remote AE is able to accept associations. Remote AE will respond to the XperIM AE as long as it can parse the request.
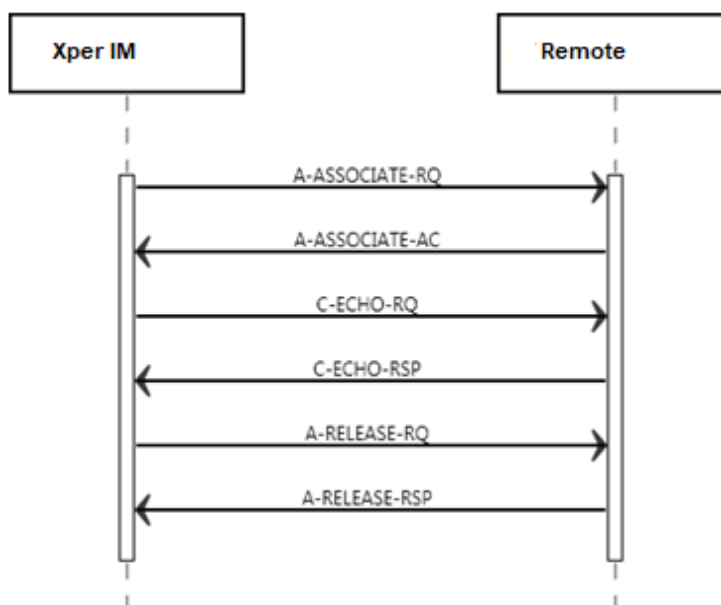
Figure 3: Sequence of Verification SCU

4.2.1.3.1.2.   Proposed Presentation Contexts.

The presentation contexts are defined in the next table.

Table 14: Proposed Presentation Contexts for (Real-World) Activity – Verification as SCU

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification SOP Class	1.2.840.10008.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

4.2.1.3.1.3. SOP Specific Conformance for Verification SOP Class

Xper IM provides standard conformance to the DICOM Verification Service Class.

4.2.1.3.1.3.1. Dataset Specific Conformance for Verification C-ECHO SCU

Details regarding the Dataset Specific response behavior will be reported in this section. This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 15: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Operation complete	Successfully complete
All failure	xxxx	Operation failed	Operation failed, which is reflected in the System log

4.2.1.4. Association Acceptance Policy

The Application Entity may reject Association attempts as shown in the table below.

Result	Source	Reason/Diagnosis	Behavior
1 - rejected-permanent	1 - DICOM UL service-user	2 - application-context-name-not supported	Operation failed, which is reflected in the System log
		3 - calling-AE-title-not-recognized	Operation failed, which is reflected in the System log
		7 - called-AE-title-not-recognized	Operation failed, which is reflected in the System log
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	Operation failed, which is reflected in the System log
		2 - protocol-version-not-supported	Operation failed, which is reflected in the System log
2 - rejected-transient	1 - DICOM UL service-user	1 - no-reason-given	Operation failed, which is reflected in the System log
	3 - DICOM UL service-provider (Presentation related function)	1 - temporary-congestion	Operation failed, which is reflected in the System log
		2 - local-limit-exceeded	Operation failed, which is reflected in the System log

The behavior of the AE for sending an Association abort is summarized in next table.

Table 16: Association Abort Policies

Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user (initiated abort)	0 - reason-not-specified	Operation failed, which is reflected in the System log
2 - DICOM UL service-provider(initiated abort)	0 - reason-not-specified -unrecognized-PDU	Operation failed, which is reflected in the System log
	2 - unexpected-PDU	Operation failed, which is reflected in the System log
	4 - unrecognized-PDU-parameter	Operation failed, which is reflected in the System log
	5 - unexpected-PDU-parameter	Operation failed, which is reflected in the System log

Source	Reason/Diagnosis	Behavior
	6 - invalid-PDU-parameter-value	Operation failed, which is reflected in the System log

4.2.1.4.1. (Real-World) Activity – Verification as SCP

4.2.1.4.1.1.   Description and Sequencing of Activities

A remote AE sends an Echo Request to verify that Xper IM is able to accept associations. Xper IM will respond to the remote AE as long as it can parse the request.
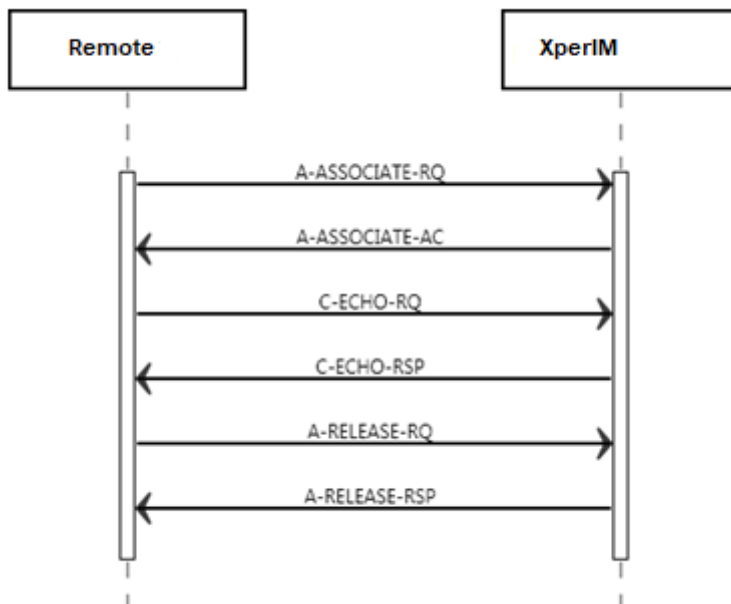
Figure 4: (Real World) Activity - Verification as SCP

4.2.1.4.1.2.   Proposed Presentation Contexts.

The presentation contexts are defined in the next table.

Table 17: Proposed Presentation Contexts for (Real-World) Activity – Verification as SCP

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Verification SOP Class	1.2.840.10008.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

4.2.1.4.1.3.   SOP Specific Conformance for Verification SOP Class

Xper IM provides standard conformance to the DICOM Verification Service Class.

4.2.1.4.1.3.1.   Dataset Specific Conformance for Verification C-ECHO SCP

Details regarding the Dataset Specific response behavior will be reported in this section. This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 18: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Operation complete	Successfully complete
All failure	xxxx	Operation failed	Operation failed, which is reflected in the System log

4.2.2. Storage AE

Detail of this specific Application Entity is specified in this section.

4.2.2.1. SOP Classes

This Application Entity provides Standard Conformance to the following SOP Classes.

Table 19: SOP Classes for storage AE

SOP Class Name	SOP Class UID	SCU	SCP
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	No
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Yes	No

4.2.2.2. Association Policies

Each AE specification contains a description of the general association establishment and acceptance policies of the AE.

4.2.2.2.1. General

The DICOM standard application context is specified below.

Table 20: DICOM Application Context

Description	Value
Application Context Name	1.2.840.10008.3.1.1.1

4.2.2.2.2. Number of Associations

The number of simultaneous associations that an Application Entity may support as an Initiator or Acceptor is specified here.

Table 21: Number of associations as an Association Initiator for this AE

Description	Value
Maximum number of simultaneous associations	1

4.2.2.2.3. Asynchronous Nature

Xper IM allows a single outstanding operation on any association. Therefore, Xper IM does not support asynchronous operations and related negotiation.

Table 22: Asynchronous nature as an Association Initiator for this AE

Description	Value
Maximum number of outstanding asynchronous transactions	Not applicable

4.2.2.2.4. Implementation Identifying Information

The value supplied for Implementation Class UID and version name are documented here.

Table 23: DICOM Implementation Class and Version for storage AE

Implementation Class UID	1.3.46.670589.44.2.5

Implementation Version Name	XperConnect 5.1

4.2.2.2.5. Communication Failure Handling

The behavior of the AE during communication failure is summarized in the next table.

Table 24: Communication Failure Behavior

Exception	Behavior
All failure	Operation failed, which is reflected in the System log

4.2.2.3. Association Initiation Policy

The behavior of this Application Entity is summarized in the next Table.

Table 25: Response Status Handler Behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Operation complete	Successfully complete
All failure	xxxx	Operation failed	Operation failed, which is reflected in the System log

The Application Entity will respond to a received Association rejection as shown in the next table.

Table 26: Association Rejection response

Result	Source	Reason/Diagnosis	Behavior
All failure		Operation failed	Operation failed, which is reflected in the System log

The behavior of the AE on receiving an Association abort is summarized in the next table.

Table 27: Association Abort Handling

Source	Reason/Diagnosis	Behavior
2 - DICOM UL service-provider(initiated abort)	2 - unexpected-PDU	Operation failed, which is reflected in the System log

4.2.2.3.1. (Real-World) Activity – Image Export

4.2.2.3.1.1. Description and Sequencing of Activities

The Store objects are created in XperIM application, the procedure is as follows

- Open Monitoring and snap waveforms with pressures included. The Secondary capture object is auto pushed to the pre-configured Storage SCP.
- Create an End of Case report by selecting transcription option. The encapsulated PDF object is auto pushed to the pre-configured Storage SCP.
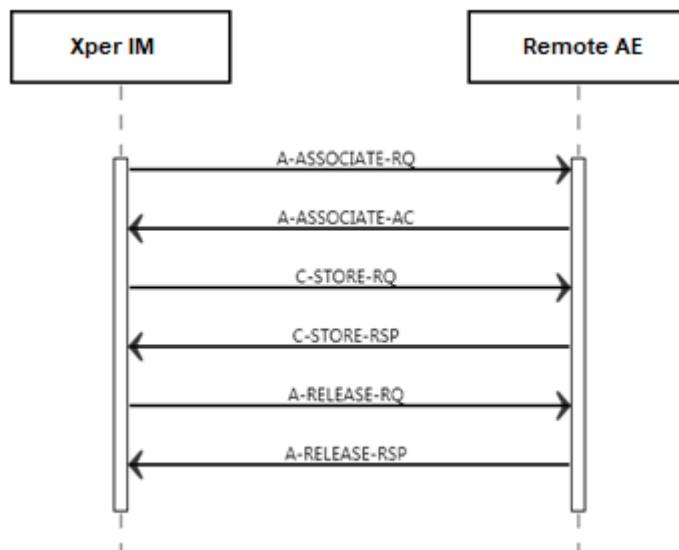
Figure 5: (Real World) Activity – Image Export

4.2.2.3.1.2. Proposed Presentation Contexts

Xper IM will proposes the presentation contexts as given in the table below.

Table 28: Proposed Presentation Contexts for (Real-World) Activity – Image Export (C-STORE-SCU)

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

4.2.2.3.1.3. SOP Specific Conformance for Storage SOP Classes

This section and sub-section include the manufacturer SOP and Dataset specific information as well the status codes and their corresponding behavior.

4.2.2.3.1.3.1. Dataset Specific Conformance for C-STORE-RQ

The dataset specific conformance for the Storage SCU Service is described in the Tables below

Table 29: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Operation complete	Successfully complete
All failure	xxxx	Operation failed	Operation failed, which is reflected in the System log

4.2.2.4. Association Acceptance Policy

Not applicable

4.2.3. MWL AE

Details of this specific Application Entity is specified in this section.

4.2.3.1. SOP Classes

This Application Entity provides Standard Conformance to the following SOP Classes.

Table 30: SOP Classes for MWL AE

SOP Class Name	SOP Class UID	SCU	SCP
Modality Worklist Information Model - FIND SOP Class	1.2.840.10008.5.1.4.31	No	Yes

Note: Any SOP specific behavior is documented later in the conformance statement in the applicable SOP specific conformance section.

4.2.3.2. Association Policies

Each AE specification contains a description of the general association establishment and acceptance policies of the AE.

4.2.3.2.1. General

The DICOM standard application context is specified below.

Table 31: DICOM Application Context

Description	Value
Application Context Name	1.2.840.10008.3.1.1.1

4.2.3.2.2. Number of Associations

The number of simultaneous associations that an Application Entity may support as an association acceptor is specified here.

Table 32: Number of associations as an Association Acceptor for this AE

Description	Value
Maximum number of simultaneous associations	10

4.2.3.2.3. Asynchronous Nature

Xper IM allows a single outstanding operation on any association. Therefore, Xper IM does not support asynchronous operations and related negotiation

Table 33: Asynchronous nature as an Association Acceptor for this AE

Description	Value
Maximum number of outstanding asynchronous transactions	Not applicable

4.2.3.2.4. Implementation Identifying Information

The value supplied for Implementation Class UID and version name are documented here.

Table 34: DICOM Implementation Class and Version for MWL AE

Implementation Class UID	1.3.46.670589.49.1.1.1

Implementation Version Name	IBE_1_1_1

4.2.3.2.5. Communication Failure Handling

The behavior of the AE during communication failure is summarized in the next table.

Table 35: Communication Failure Behavior

Exception	Behavior
All failure	Operation failed, which is reflected in the System log

4.2.3.3. Association Initiation Policy

Not applicable

4.2.3.4. Association Acceptance Policy

The behavior of this Application Entity is summarized in the next Table.

Table 36: Response Status Handler Behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Operation complete	Successfully complete
All failure	xxxx	Operation failed	Operation failed, which is reflected in the System log

The Application Entity will respond to a received Association rejection as shown in the next table.

Table 37: Association Rejection response

Result	Source	Reason/Diagnosis	Behavior
All failure	xxxx	Operation failed	Operation failed, which is reflected in the System log

The behavior of the AE on receiving an Association abort is summarized in the next table.

Table 38: Association Abort Handling

Source	Reason/Diagnosis	Behavior
DICOM UL service-user (initiated abort)	reason-not-specified	Operation failed, which is reflected in the System log

4.2.3.4.1.   (Real-World) Activity – Modality Worklist as SCP

4.2.3.4.1.1.   Description and Sequencing of Activities

MWL SCP accepts associations from systems that wish to have an up-to-date Modality Worklist using the C-FIND Service Element.
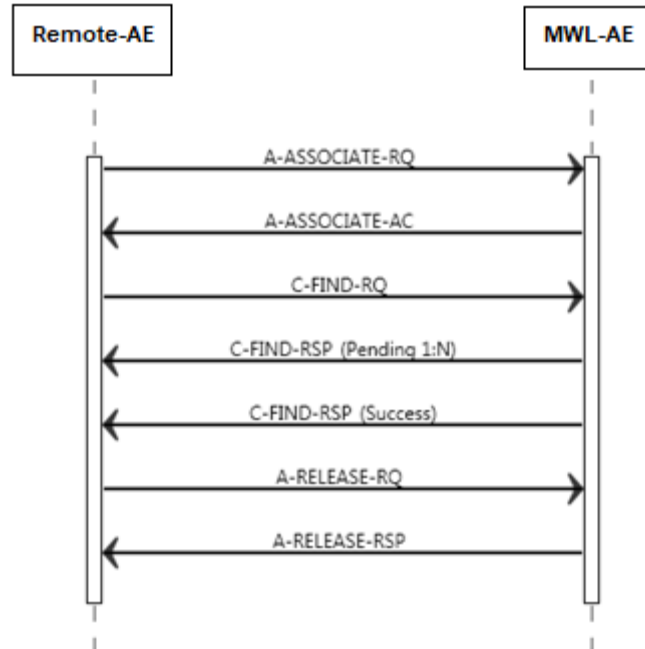
Figure 6: (Real World) Activity - Modality Worklist as SCP

4.2.3.4.1.2.   Accepted Presentation Contexts

MWL SCP will accept the presentation contexts as given in the table below.

Table 39: Acceptable Presentation Contexts for (Real-World) Activity – Modality worklist as SCP

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Modality Worklist Information Model - C-FIND SOP Class	1.2.840.10008.5.1.4.31	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

4.2.3.4.1.3.   SOP Specific Conformance for Modality Worklist Information Model C-FIND SOP Class

This section and sub-section includes the manufacturer SOP and Dataset specific information as well as the status codes and their corresponding behavior.

4.2.3.4.1.3.1.   Dataset Specific Conformance for Modality Worklist Information Model C-FIND SCP

The supported C-Find request keys and the DICOM command communication behavior are shown in the following tables. The standard as well as the specific status codes and their corresponding behavior are also specified.

Table 40: Modality Worklist Return keys supported

Attribute Name	Tag	VR	Remark/ Comment	Matching Key Supported	Return Key Supported
SOP Common Module					
Specific Character Set	0008,0005	CS	Always return the values in ISO_IR 100	N	Y
Patient Identification Module					
Patient's Name	0010,0010	PN	Returns Value	Y	Y
Patient ID	0010,0020	LO	Returns Value	Y	Y
Issuer of Patient ID	0010,0021	LO	Returns value	N	Y
Patient Demographic Module					
Patient's Birth Date	0010,0030	DA	Returns value	N	Y
Patient's Sex	0010,0040	CS	Returns value	N	Y
Patient's Size	0010,1020	DS	Returns value.	N	Y
Patient's Weight	0010,1030	DS	Returns value.	N	Y
Confidentiality Constraint on Patient Data Description	0040,3001	LO	Returns Empty	N	N
Patient Medical Module					
Medical Alerts	0010,2000	LO	Returns Empty	N	N
Contrast Allergies	0010,2110	LO	Returns Empty	N	N
Pregnancy Status	0010,21C0	US	Returns Empty	N	N
Special Needs	0038,0050	LO	Returns Empty	N	N
Patient State	0038,0500	LO	Returns Empty	N	N
Visit Relationship Module					
Referenced Patient Sequence	0008,1120	SQ	Sequence is returned empty	N	N
> Referenced SOP Class UID	0008,1150	UI		N	N
> Referenced SOP Instance UID	0008,1155	UI		N	N
Visit Identification Module					
Admission ID	0038,0010	LO	Returns Empty	N	N
Visit Status Module					
Current Patient Location	0038,0300	LO	Returns Value	N	Y
Visit Status ID	0038,0008	CS	Returns value.	N	y
Scheduled Procedure Step Module					
Scheduled Procedure Step Sequence	0040,0100	SQ	The Attributes of the Scheduled Procedure Step shall only be retrieved with Sequence Matching. The Scheduled Procedure Step Sequence shall contain only a single Item.	Y	Y
> Modality	0008,0060	CS	Returns Value	Y	Y
> Scheduled Station AE Title	0040,0001	AE	Mapped in Rhapsody Table ModalityExamCode_Mapping	Y	Y
> Scheduled Procedure Step Start Date	0040,0002	DA	SPS Time matching only supported when SPS Date is provided as matching key	Y	Y
> Scheduled Procedure Step Start Time	0040,0003	TM		Y	Y
> Scheduled Performing Physician's Name	0040,0006	PN	Returns Empty	Y	N
> Scheduled Procedure Step Description	0040,0007	LO	Return Value	Y	Y
> Scheduled Protocol Code Sequence	0040,0008	SQ	Returns Empty	N	N
>> Code Value	0008,0100	SH		N	N

Attribute Name	Tag	VR	Remark/ Comment	Matching Key Supported	Return Key Supported
>> Coding Scheme Designator	0008,0102	SH		N	N
>> Code Meaning	0008,0104	LO		N	N
> Scheduled Procedure Step ID	0040,0009	SH	Returns Value	N	Y
> Scheduled Station Name	0040,0010	SH	Returns Empty.	N	N
> Scheduled Procedure Step Location	0040,0011	SH	Returns Empty	N	N
> Scheduled Procedure Step Status	0040,0020	CS	Currently, only one value supported is "SCHEDULED".	N	Y
Requested Procedure Module					
Referenced Study Sequence	0008,1110	SQ	Returns Empty	N	N
> Referenced SOP Class UID	0008,1150	UI		N	N
> Referenced SOP Instance UID	0008,1155	UI		N	N
Study Instance UID	0020,000D	UI	Returns Value	Y	Y
Requested Procedure Description	0032,1060	LO	Returns Value	N	Y
Requested Procedure Code Sequence	0032,1064	SQ	Returns Empty	N	N
> Code Value	0008,0100	SH		N	N
> Coding Scheme Designator	0008,0102	SH		N	N
> Code Meaning	0008,0104	LO		N	N
Requested Procedure ID	0040,1001	SH	Returns Value	N	Y
Reason for the Requested Procedure	0040,1002	LO	Returns Value	N	N
Requested Procedure Priority	0040,1003	SH	Returns Empty	N	N
Patient Transport Arrangements	0040,1004	LO	Returns Empty	N	N
Imaging Service Request Module					
Accession Number	0008,0050	SH	Return Value	Y	Y
Referring Physician's Name	0008,0090	PN	Returns Value	N	Y
Requesting Physician	0032,1032	PN	Returns Value	N	Y

Notes: Keys that are specified in the C-FIND-RQ but are not supported by the MWL AE and are type 2 or 3 are returned empty.

Table 41: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Operation complete	Successfully complete
All failure	xxxx	Operation failed	Operation failed, which is reflected in the System log

Table 42: Communication Failure Behavior

Exception	Behavior
All failure	Operation failed, which is reflected in the System log

4.2.4. MPPS AE

Details of this specific Application Entity is specified in this section.

4.2.4.1. SOP Classes

This Application Entity provides Standard Conformance to the following SOP Classes.

Table 43: SOP Classes for MPPS AE

SOP Class Name	SOP Class UID	SCU	SCP
Modality Performed Procedure Step SOP Class	1.2.840.10008.3.1.2.3.3	No	Yes

Note: Any SOP specific behavior is documented later in the conformance statement in the applicable SOP specific conformance section.

4.2.4.2. Association Policies

Each AE specification contains a description of the general association establishment and acceptance policies of the AE.

4.2.4.2.1. General

The DICOM standard application context is specified below.

Table 44: DICOM Application Context

Description	Value
Application Context Name	1.2.840.10008.3.1.1.1

4.2.4.2.2. Number of Associations

The number of simultaneous associations that an Application Entity may support as an Acceptor is specified here.

Table 45: Number of associations as an Association Acceptor for this AE

Description	Value
Maximum number of simultaneous associations	10

4.2.4.2.3. Asynchronous Nature

Xper IM allows a single outstanding operation on any association. Therefore, Xper IM does not support asynchronous operations and related negotiation

Table 46: Asynchronous nature as an Association Initiator for this AE

Description	Value
Maximum number of outstanding asynchronous transactions	Not applicable

4.2.4.2.4. Implementation Identifying Information

The value supplied for Implementation Class UID and version name are documented here.

Table 47: DICOM Implementation Class and Version for MPPS AE

Implementation Class UID	1.3.46.670589.49.1.1.1
Implementation Version Name	IBE_1_1_1

4.2.4.2.5. Communication Failure Handling

The behavior of the AE during communication failure is summarized in the next table.

Table 48: Communication Failure Behavior

Exception	Behavior
All failure	Operation failed, which is reflected in the System log

4.2.4.3. Association Initiation Policy

Not applicable

4.2.4.4. Association Acceptance Policy

The behavior of this Application Entity is summarized in the next Table.

Table 49: Response Status Handler Behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Operation complete	Successfully complete
All failure	xxxx	Operation failed	Operation failed, which is reflected in the System log

The Application Entity will respond to a received Association rejection as shown in the next table.

Table 50: Association Rejection response

Result	Source	Reason/Diagnosis	Behavior
All failure	xxxx	Operation failed	Operation failed, which is reflected in the System log

The behavior of the AE on receiving an Association abort is summarized in the next table.

Table 51: Association Abort Handling

Source	Reason/Diagnosis	Behavior
DICOM UL service-user (initiated abort)	reason-not-specified	Operation failed, which is reflected in the System log

4.2.4.4.1.　(Real-World) Activity – Modality Performed Procedure Step as SCP

MPPS SCP accepts the Modality Performed Procedure Step messages from remote SCUs and automatically forward them to remote SCU.

4.2.4.4.1.1.　Description and Sequencing of Activities

Under normal circumstances, the sequencing depicted below applies:

1. The Modality queries Xper IM for a worklist of studies.
2. Xper IM searches the database and returns results that match the query.
3. The Modality begins a Procedure Step and sends the Xper IM a MPPS N-CREATE.
4. The Modality completes or discontinues the procedure and sends the Xper IM a MPPS NSET with a status of COMPLETED or DISCONTINUED.
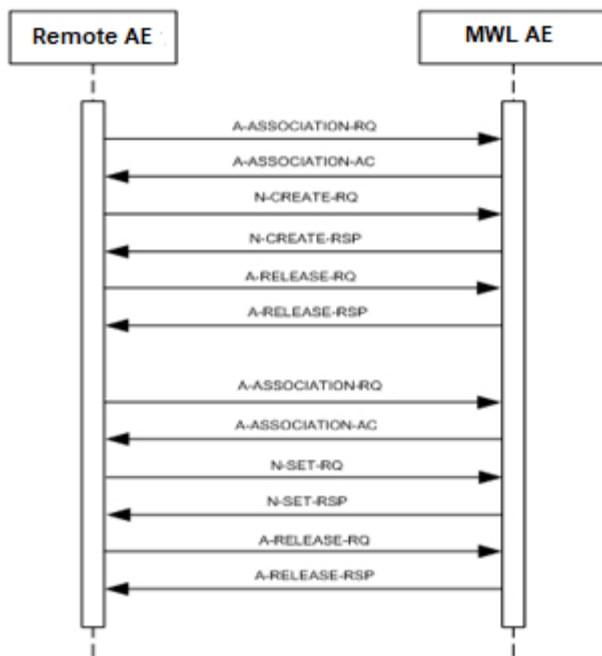
Figure 7: (Real-World) Activity – MPPS as SCP

4.2.4.4.1.2.　Accepted Presentation Contexts

The presentation contexts are defined in the next table.

Table 52: Acceptable Presentation Contexts for (Real-World) Activity – Modality Performed Procedure Step as SCP

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Modality Performed Procedure Step SOP Class	1.2.840.10008.3.1.2.3.3	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

4.2.4.4.1.3.　SOP Specific Conformance for Modality Performed Procedure Step SOP Class

This section and sub-section include the manufacturer SOP and Dataset specific information as well the status codes and their corresponding behavior.

4.2.4.4.1.3.1.   Dataset Specific Conformance for Modality Performed Procedure Step SOP Class N-CREATE-RQ

When an N-CREATE request is received, the database will be updated with the performance status of the procedure with the data from the message. An initial validation is performed internally for the presence of mandatory attributes in the message and for ensuring the absence of certain attributes as mentioned in the DICOM standards.

Table 53: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Operation complete	Successfully complete
All failure	xxxx	Operation failed	Operation failed, which is reflected in the System log

4.2.4.4.1.3.2.   Dataset Specific Conformance for Modality Performed Procedure Step SOP Class N-SET-RQ

When an N-SET request is received, the database will be updated with the performance status of the procedure with the data from the message. An initial validation is performed internally for the presence of mandatory attributes in the message and for ensuring the absence of certain attributes as mentioned in the DICOM standards.

Table 54: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Operation complete	Successfully complete
All failure	xxxx	Operation failed	Operation failed, which is reflected in the System log

4.3.   Network Interfaces

4.3.1.   Physical Network Interfaces

Xper IM DICOM communication is abstracted from the physical network over which TCP/IP executes.

4.3.2.   Additional Protocols

Static IP addresses, DHCP or DNS can be utilized for network communication; however static IP addresses are recommended.

4.4.   Configuration

4.4.1.   AE Title/Presentation Address Mapping

The AE Title and port that Xper IM utilizes is configurable within the application. The IP Address is assigned by the facility and configurable within the application.

4.4.1.1.   Local AE Titles

The local AE title mapping and configuration are specified as:

Table 55: AE Title configuration table

Application Entity	Default AE Title	Default TCP/IP Port
MWL-SCP	SCP1	5111

Application Entity	Default AE Title	Default TCP/IP Port
MPPS-SCP	SCP1	5111
CSTORE-SCU	CSTORE-SCU	4112

4.4.1.2.   Remote AE Title/Presentation Address Mapping

The configuration of the remote application is specified here.

Table 56: Remote AE Title Configuration Table

AE Configuration	Description
MWL AE	AE Title
	IP Address
	Port
MPPS AE	AE Title
	IP Address
	Port
Storage AE	AE Title
	IP Address
	Port

4.4.2.   Parameters

The specification of important operational parameters, their default value and range (if configurable) are specified here.

Table 57: Configuration Parameters Table

Parameter	Configurable	Default Value
General Parameter		
Time-out waiting for acceptance or rejection Response to an Association Open Request (Application Level timeout)	Yes	15 seconds
ARITM Time-out	Yes	30 seconds
General DIMSE level time-out values (Verification)	No	05 seconds
General DIMSE level time-out values (MPPS,MWL, Storage)	No	10 seconds
Time-out for response to TCP/IP connect request. (Low-level timeout)	Yes	15 seconds
Time-out for waiting for data between TCP/IP packets. (Low-level timeout)	Yes	15 seconds
AE Specific Parameters		
Size constraint in maximum object size	No	No restriction on max object size
Maximum PDU size the AE can receive (store)	No	1048576
Maximum PDU size the AE can send(store)	No	1048576
Maximum PDU size the AE can receive (MWL,MPPS)	Yes	64234
Maximum PDU size the AE can send(MWL,MPPS)	Yes	64234
AE specific DIMSE level time-out values	No	Not defined
Transfer Syntaxes	Yes	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian

Parameter	Configurable	Default Value
Storage Specific Parameters		
Local AE Title	Yes	CSTORE_SCU
Remote AE Title	Yes	
Remote I.P. Address	Yes	
Remote Port Number	Yes	
Basic Worklist Management Specific Parameters		
AE Title	Yes	SCP1
IP address	Yes	
Port Number	Yes	5111
Remote AE Title	Yes	
Remote I.P. Address	Yes	
Remote Port Number	Yes	
MPPS Specific Parameters		
AE Title	Yes	SCP1
IP address	Yes	
Port Number	Yes	5111
Remote AE Title	Yes	
Remote I.P. Address	Yes	
Remote Port Number	Yes	

5. Media Interchange

Not Applicable

6. Support of Character Sets

Xper IM supports the following character set:

<div align="center">

Table 58: Supported DICOM Character Set

</div>

Character Set Description	Defined Term	ESC Sequence	ISO Registration Number	Code Element	Character Set
Latin alphabet No. 1	ISO_IR 100	-	ISO-IR 100	G1	Supplementary set of ISO 8859

7. Security

7.1. Security Profiles

Not Implemented

Note: Xper IM does not claim conformance to any DICOM Security Profiles as specified in PS 3.15

7.1.1. Security use Profiles

Not Implemented

7.1.2. Security Transport Connection Profiles

Not Implemented

7.1.3. Digital Signature Profiles

Not Implemented

7.1.4. Media Storage Security Profiles

Not Implemented

7.1.5. Attribute Confidentiality Profiles

Not Implemented

7.1.6. Network Address Management Profiles

Not Implemented

7.1.7. Time Synchronization Profiles

Not Implemented

7.1.8. Application Configuration Management Profiles

Not Implemented

7.1.9. Audit Trail Profiles

Not Implemented

7.2. Association Level Security

The Xper IM does not support Association Level Security. It will open an Association with any device that performs an Association request.

7.3. Application Level Security

The Xper IM may be configured to only return results to AE-titles that have been configured. If configured, access to the Xper IM service application where mapping can be altered and log files are able to be reviewed can be password protected.

8. Annexes of application Xper IM

8.1.   IOD Contents

8.1.1.   Created SOP Instance

This section specifies each IOD created by this application.

This section specifies each IOD created (including private IOD's). It should specify the attribute name, tag, VR, and value. The value should specify the range and source (e.g. user input, Modality Worklist, automatically generated, etc.). For content items in templates, the range and source of the concept name and concept values should be specified. Whether the value is always present or not shall be specified.

Abbreviations used in the IOD tables for the column "Presence of Module" are:
ALWAYS the module is always present
CONDITIONAL   the module is used under specified condition

Abbreviations used in the Module table for the column "Presence of Value" are:
ALWAYS The attribute is always present with a value
EMPTY   The attribute is always present without any value (attribute sent zero length)
VNAP   The attribute is always present and its Value is Not Always Present
            (attribute sent zero length if no value is present)
ANAP   The attribute is present under specified condition – if present then it will always have a value

The abbreviations used in the Module table for the column "Source" are:
AUTO   The attribute value is generated automatically
CONFIG The attribute value source is a configurable parameter
COPY   The attribute value source is another SOP instance
FIXED   The attribute value is hard-coded in the application
IMPLICIT The attribute value source is a user-implicit setting
MPPS   The attribute value is the same as that use for Modality Performed Procedure Step
MWL   The attribute value source is a Modality Worklist
USER   The attribute value source is explicit user input

8.1.1.1. List of created SOP Classes

Table 59: List of created SOP Classes

SOP Class Name	SOP Class UID
Encapsulate PDF storage	1.2.840.10008.5.1.4.1.104.1
Secondary Capture	1.2.840.10008.5.1.4.1.1.7

8.1.1.1.1. Encapsulated PDF Storage SOP Class

Table 60: IOD of Created Encapsulated SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Series	Encapsulated Document Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
	SC Equipment Module	ALWAYS
Encapsulated Document	Encapsulated Document Module	ALWAYS
	SOP Common Module	ALWAYS

Table 61: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	MWL, USER	
Patient ID	0010,0020	LO		VNAP	MWL, USER	
Issuer of Patient ID	0010,0021	LO		ANAP	MWL	
Patient's Birth Date	0010,0030	DA		VNAP	MWL, USER	
Patient's Sex	0010,0040	CS		VNAP	MWL	
Other Patient Names	0010,1001	PN		ANAP	MWL	

Table 62: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Date	0008,0020	DA		VNAP	AUTO, MWL	
Study Time	0008,0030	TM		VNAP	AUTO, WL	
Accession Number	0008,0050	SH		VNAP	AUTO, MWL	
Referring Physician's Name	0008,0090	PN		VNAP	USER,MWL	
Study Instance UID	0020,000D	UI		ALWAYS	AUTO, MWL	
Study ID	0020,0010	SH		VNAP	AUTO, MWL	

Table 63: General Encapsulated Document Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS	AUTO, MWL	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		ALWAYS	AUTO	

Table 64: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips	VNAP	AUTO	

Table 65: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS	XA	ANAP	AUTO, MWL	
Conversion Type	0008,0064	CS	WSD	ALWAYS	FIXED	

Table 66: Encapsulated Document Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Content Date	0008,0023	DA		VNAP		
Acquisition DateTime	0008,002A	DT		VNAP		
Content Time	0008,0033	TM		VNAP		
Instance Number	0020,0013	IS		ALWAYS	AUTO	
Burned In Annotation	0028,0301	CS		ALWAYS	AUTO	
Concept Name Code Sequence	0040,A043	SQ		VNAP		
Document Title	0042,0010	ST		VNAP		
Encapsulated Document	0042,0011	OB		ALWAYS	AUTO	
MIME Type of Encapsulated Document	0042,0012	LO		ALWAYS	AUTO	

Table 67: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character et	0008,0005	CS	ISO_IR 100	ANAP	AUTO, USER	
SOP Class UID	0008,0016	UI		ALWAYS	AUTO	
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	
Instance Number	0020,0013	IS		ANAP	AUTO	

Table 68: Private/Additional Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Date	0008,0022	DA		ANAP		
Performing Physician Name	0008,1050	PN		ANAP		
Referenced SOP Class UID	0008,1150	UI		ANAP		
Referenced SOP Instance UID	0008,1155	LO		ANAP		

8.1.1.1.2. Secondary Capture Image Storage SOP Class

Table 69: IOD of Created Secondary Capture Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Series	General Series Module	ALWAYS
Equipment	General Equipment Module	CONDITIONAL
	SC Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
	Image Pixel Module	ALWAYS
	VOI LUT Module – (Custom Module Definition applied)	CONDITIONAL
	SOP Common Module	ALWAYS
	Extended DICOM and private attributes	CONDITIONAL

Table 70: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	MWL, USER	
Patient ID	0010,0020	LO		VNAP	MWL, USER	
Issuer of Patient ID	0010,0021	LO		ANAP	MWL	
Patient's Birth Date	0010,0030	DA		VNAP	MWL, USER	
Patient's Sex	0010,0040	CS		VNAP	MWL	

Table 71: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Date	0008,0020	DA		VNAP	AUTO, MWL	
Study Time	0008,0030	TM		VNAP	AUTO, WL	
Accession Number	0008,0050	SH		VNAP	AUTO, MWL	
Referring Physician's Name	0008,0090	PN		VNAP		
Study Instance UID	0020,000D	UI		ALWAYS	AUTO, MWL	
Study ID	0020,0010	SH		VNAP	AUTO, MWL	

Table 72: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Date	0008,0021	DA		ANAP		
Modality	0008,0060	CS		ALWAYS		
Performing Physicians' Name	0008,1050	PN		ANAP		
Series Instance UID	0020,000E	UI		ALWAYS		
Series Number	0020,0011	IS		VNAP		

Table 73: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips	VNAP	AUTO	

Table 74: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS	XA	ANAP		
Conversion Type	0008,0064	CS	WSD	ALWAYS		

Table 75: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Date	0008,0022	DA		ANAP		
Content Date	0008,0023	DA		VNAP		
Acquisition DateTime	0008,002A	DT		ANAP		
Acquisition Time	0008,0032	TM		ANAP		
Content Time	0008,0033	TM		VNAP		
Instance Number	0020,0013	IS		VNAP		
Patient Orientation	0020,0020	CS		VNAP		

Table 76: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Samples per Pixel	0028,0002	US		ALWAYS	AUTO	
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	
Planar Configuration	0028,0006	US		ALWAYS	AUTO	
Rows	0028,0010	US		ALWAYS	AUTO	
Columns	0028,0011	US		ALWAYS	AUTO	
Bits Allocated	0028,0100	US		ALWAYS	AUTO	
Bits Stored	0028,0101	US		ALWAYS	AUTO	
High Bit	0028,0102	US		ALWAYS	AUTO	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	
Smallest Image Pixel Value	0028,0106	US		ANAP	AUTO	
Largest Image Pixel Value	0028,0107	US		ANAP	AUTO	
Pixel Data	7FE0,0010	OW		ALWAYS	AUTO	

Table 77: VOI LUT Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Window Center	0028,1050	DS		ANAP		
Window Width	0028,1051	DS		ANAP		

Table 78: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS	ISO_IR 100	ANAP		
SOP Class UID	0008,0016	UI		ALWAYS		
SOP Instance UID	0008,0018	UI		ALWAYS		
Instance Number	0020,0013	IS		ALWAYS		

Table 79: Private/Additional Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number Of Frames	0028,0008	IS		ANAP		

8.1.2. Usage of Attributes from Received IOD

Not Implemented

8.1.3. Attribute Mapping

Not Implemented

8.1.4. Coerced/Modified fields

Not Implemented

8.2. Data Dictionary of Private Attributes

Private attributes if any are meant for internal Philips use

8.3. Coded Terminology and Templates

Not Implemented

8.3.1. Context Groups

Not Implemented

8.3.2. Template Specifications

Not Implemented

8.3.3. Private code definitions

Not Implemented

8.4. Grayscale Image consistency

Not Implemented

8.5. Standard Extended/Specialized/Private SOPs

Not Implemented

8.6. Private Transfer Syntaxes

Not Implemented

9. Version History

Create, Review and Approval

Role	Function	Name	Signature/ Date
Author	IO Service Engineer	Shajana Balakrishnan	Not required
Reviewer(s)	IO Service Engineer Customer Representative Q&R Representative	Jean Claude Kabagema Bruna Herkenhoff Bert van Hoften	Not required
Approver(s)	IO Architect	Saurav Baidya	See LiveLink
	Q&R Representative	Bert van Hoften	
	Customer Representative	Bruna Herkenhoff	Signature & Date: X ───────────── Roedel, Matheus Interoperability Engineer

Revision History

Revision	Date	Status	Changed by:	Reason / description of change
Available in LiveLink	27-MAR-2020	See LiveLink and header of printed docs	Shajana Balakrishnan	Initial version for review Content based on ICAP-PF.0045400 Change are as follows: • update XperIM 2.6 to XperIM 5.1, • update of Manufacture name to "Philips" from "Philips Medical Systems" • Update Storage AE Implementation Class UID from 1.3.46.670589.44.2.6 to 1.3.46.670589.44.5.1 • Updated text for "ISO-IR 100" to "ISO_IR 100 ' where applicable. • Updated Table 6 –"Presence of Value " to "ÄLWAYS " for the following attributes: 　o Samples per Pixel 　o Photometric Interpretation 　o Planar Configuration 　o Rows 　o Columns 　o Bits Allocated 　o Bits Stored 　o High Bit 　o Pixel Representation 　o Pixel Data
	03-APR-2020		Shajana Balakrishnan	Updated as per the R&A Request #9605973 see TRR:

				DICOM Conformance Staten