DICOM Conformance Statement

Xcelera R3.2L1

Document Number: 7063127.00

PHILIPS

1. DICOM Conformance Statement Overview

Xcelera is the Philips Cardiology multi-modality image and information management solution that allows images, information and reports to be reviewed, stored and distributed throughout the cardiology department and beyond. Xcelera is intended to: a) Review the high quality medical study data provided by modalities, and b) Serve as a permanent archive for such data. As such, the Xcelera system consists of a central image and database server and several connected viewer workspots capable of running various viewer applications (also called review station). The Xcelera is designed with the concerns for the system as: data integrity, performance, image quality, serviceability, and large number of users. Added with easy of use, privacy/confidentiality, flexibility and expandability. Data is imported from the image acquisition system through a vendor provided DICOM port. This port is provided as a safe and reliable way to access the clinical data. In addition to DICOM, Xcelera also maintains compatibility with the installed base of Philips Sonos US image acquisition system in supporting the proprietary DSR-TIFF format. The system also offers DICOM ports such that external systems (viewers, other PACS systems and etc) can access the data. Data can also be imported from and exported to CD or DVD. The primary point of user contact with the system is the viewer workspot, consisting of several clinical tools, e.g. for Cath, Echo, CT and MR, including 3-rd party tools like QLAB. These programs use the common Windows GUI metaphors for selecting items or entering information in the common patient and study search window. A network based on standard technology, connects the Xcelera server, the viewer workspots and external DICOM nodes, such as Cath labs, Ultrasound labs, EP labs and other acquisition systems, DICOM archives, DICOM viewers etc.

Table 1: Network Services

SOP Class		User of Service (SCU)	Provider of Service (SCP)
Name	**UID**		
Other			
Verification SOP Class	1.2.840.10008.1.1	Yes	Yes
Print Management			
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Yes	No
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Yes	No
>Print Job SOP Class	1.2.840.10008.5.1.1.14	Yes	No
>Basic Annotation Box SOP Class	1.2.840.10008.5.1.1.15	Yes	No
Query/Retrieve			
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Yes	Yes
Patient Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.1.1	No	Yes
Study Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	Yes	Yes
PatientStudy Only QR Info. Model - FIND SOP Class (Retired)	1.2.840.10008.5.1.4.1.2.3.1	No	Yes
Patient Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.1.2	No	Yes
PatientStudy Only QR Info. Model - MOVE SOP Class (Retired)	1.2.840.10008.5.1.4.1.2.3.2	No	Yes
Transfer			
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	Yes	Yes
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	Yes	Yes
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	Yes	Yes
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	Yes	Yes
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	Yes
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	Yes	Yes
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	Yes
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	Yes	Yes
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	Yes
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	Yes	Yes
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes
Standalone VOI LUT Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.11	Yes	Yes
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes

SOP Class		User of Service (SCU)	Provider of Service (SCP)
Name	**UID**		
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	Yes	Yes
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes
X-Ray Angiographic Bi-Plane Image Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.12.3	Yes	Yes
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	Yes	Yes
Standalone PET Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.129	Yes	Yes
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	Yes	Yes
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	Yes	Yes
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Yes	Yes
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	Yes	Yes
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Yes	Yes
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	Yes	Yes
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	Yes	Yes
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	Yes	Yes
RT Plan Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.5	Yes	Yes
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Yes	Yes
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	Yes	Yes
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	Yes	Yes
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Yes	Yes
Multi-frame Single Bit Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.1	Yes	Yes
Multi-frame Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2	Yes	Yes
Multi-frame Grayscale Word SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.3	Yes	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	Yes
Standalone Overlay Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.8	Yes	Yes
Basic Text SR SOP Class	1.2.840.10008.5.1.4.1.1.88.11	Yes	Yes
Enhanced SR SOP Class	1.2.840.10008.5.1.4.1.1.88.22	Yes	Yes
Detail SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.3	Yes	Yes
Comprehensive SR SOP Class	1.2.840.10008.5.1.4.1.1.88.33	Yes	Yes
Standalone Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.9	Yes	Yes
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	Yes
Philips Private X-Ray Image Storage	1.3.46.670589.2.3.1.1	Yes	Yes
Philips Private Reconstructed X-ray Storage	1.3.46.670589.2.4.1.1	Yes	Yes
Philips Private iE33 3D NEO Presentation State Subpage Storage	1.3.46.670589.2.5.1.1	Yes	Yes
Philips Private ViewForum 3D Volume New Storage	1.3.46.670589.5.0.1.1	Yes	Yes
Philips Private ViewForum MR Synthetic Image Storage	1.3.46.670589.5.0.10	Yes	Yes
Philips Private ViewForum MR Cardio Analysis New Storage	1.3.46.670589.5.0.11.1	Yes	Yes
Philips Private ViewForum CX Synthetic Image Storage	1.3.46.670589.5.0.12	Yes	Yes
Philips Private ViewForum Perfusion Storage	1.3.46.670589.5.0.13	Yes	Yes
Philips Private ViewForum Perfusion Analysis Storage	1.3.46.670589.5.0.14	Yes	Yes
Philips Private ViewForum 3D Volume Object New Storage	1.3.46.670589.5.0.2.1	Yes	Yes
Philips Private ViewForum Surface New Storage	1.3.46.670589.5.0.3.1	Yes	Yes
Philips Private ViewForum MR Cardio New Storage	1.3.46.670589.5.0.8.1	Yes	Yes
Philips Private ViewForum CT Synthetic Image Storage	1.3.46.670589.5.0.9	Yes	Yes
Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.2	Yes	No
Workflow Management			
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Yes	Yes

The services can be specified as a SCU, SCP or as an Option, which means that it is either configurable or that it can be purchased separately.

Table 2 shows the Supported Media Storage Application Profiles (with roles).

Table 2: Media Services

Media Storage Application Profile	File-set Creator (FSC)	File-set Updater (FSU)	File-set Reader (FSR)
Compact Disk-Recordable			
1024 X-Ray Angiographic Studies on CD-R	Yes	No	Yes
Basic Cardiac X-RAY Anglographic Studies on CD-R	Yes	No	Yes
CT/MR Studies on CD-R	Yes	No	Yes
General Purpose CD-R Interchange	Yes	No	Yes
Image Display (Ultrasound {SF|MF})	Yes	No	Yes
DVD			
CT/MR Studies on DVD Media	Yes	No	Yes
General Purpose DVD Interchange with JPEG	Yes	No	Yes
Magneto-Optical Disk			
CT/MR Studies on 1.2GB MOD	No	No	Yes
CT/MR Studies on 2.3GB MOD	No	No	Yes
CT/MR Studies on 4.1GB MOD	No	No	Yes
CT/MR Studies on 650MB MOD	No	No	Yes
Image Display (Ultrasound {SF|MF}) on 1.2GB 130mm MOD	No	No	Yes
Image Display (Ultrasound {SF|MF}) on 128MB MOD	No	No	Yes
Image Display (Ultrasound {SF|MF}) on 2.3GB 130mm MOD	No	No	Yes
Image Display (Ultrasound {SF|MF}) on 230MB 90mm MOD	No	No	Yes
Image Display (Ultrasound {SF|MF}) on 540MB 90mm MOD	No	No	Yes
Image Display (Ultrasound {SF|MF}) on 650MB 130mmMOD	No	No	Yes

2. Table of Contents

3. Introduction

The introduction specifies product and relevant disclaimers as well as any general information that the vendor feels is appropriate.

3.1.   Revision History

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

Table 3: Revision History

Document Version	Date of Issue	Status	Description
00	18-February-2011	Final	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).

   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 4: Definitions, Terms and Abbreviations

Abbreviation/Term	Explanation
AE	Application Entity
ANSI	American National Standard Institute
AP	Application Profile
BOT	Basic Offset Table
CD	Compact Disc
CD-R	CD-Recordable
CD-M	CD-Medical
CR	Computed Radiography
CT	Computed Tomography
DCR	Dynamic Cardio Review
DICOM	Digital Imaging and Communications in Medicine
DIMSE	DICOM Message Service Element
DIMSE-C	DIMSE-Composite
DIMSE-N	DIMSE-Normalized
DVD	Digital Versatile Disc.
DX	Digital X-Ray
EBE	DICOM Explicit VR Big Endian
ELE	DICOM Explicit VR Little Endian
FSC	File-set Creator
FSR	File-set Reader
FSU	File-set Updater
GUI	Graphic User Interface
HIS	Hospital Information System
HL7	Health Level Seven
ILE	DICOM Implicit VR Little Endian
IOD	Information Object Definition
ISIS	Information System - Imaging System
MOD	Magneto-Optical Disk
MPPS	Modality Performed Procedure Step
MR	Magnetic Resonance
MRN	Medical Record Number
NEMA	National Electrical Manufacturers Association
NM	Nuclear Medicine
PDU	Protocol Data Unit
PPP	Point-to-Point Protocol
RF	X-Ray Radiofluoroscopic
RIS	Radiology Information System

Abbreviation/Term	Explanation
RT	Radiotherapy
RWA	Real-World Activity
SC	Secondary Capture
SCM	Study Component Management
SCP	Service Class Provider
SCU	Service Class User
SOP	Service Object Pair
TCP/IP	Transmission Control Protocol/Internet Protocol
UID	Unique Identifier
US	Ultrasound
USMF	Ultrasound Multi-frame
WLM	Worklist Management
XA	X-Ray Angiographic

3.5. References

[DICOM]   Digital Imaging and Communications in Medicine, Parts 1 - 18 (NEMA PS 3.1- PS 3.18),
National Electrical Manufacturers Association (NEMA)
Publication Sales 1300 N. 17th Street, Suite 1752 Rosslyn, Virginia. 22209, United States
of America
Internet: http://medical.nema.org/
Note that at any point in time the official standard consists of the most recent yearly
edition of the base standard (currently 2009) plus all the supplements and correction
items that have been approved as Final Text.

4. Networking

This section contains the networking related services (vs. the media related ones).

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 as well as any applicable user interaction.
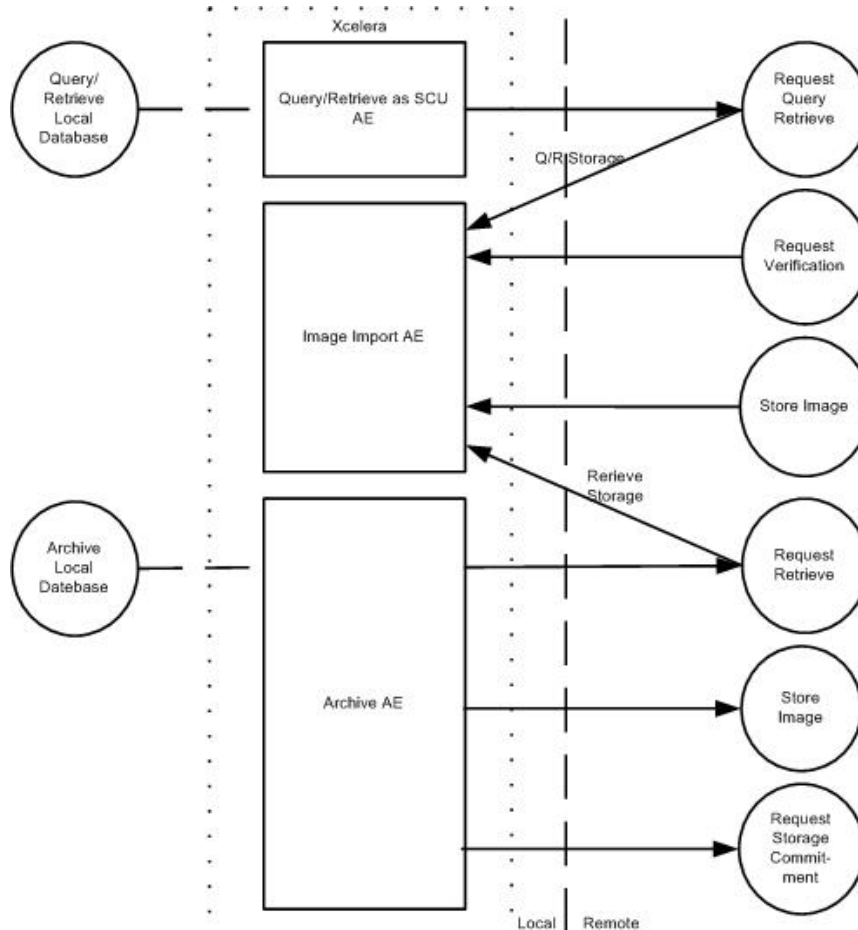
Figure 1: Application Data Flow Diagram (1)
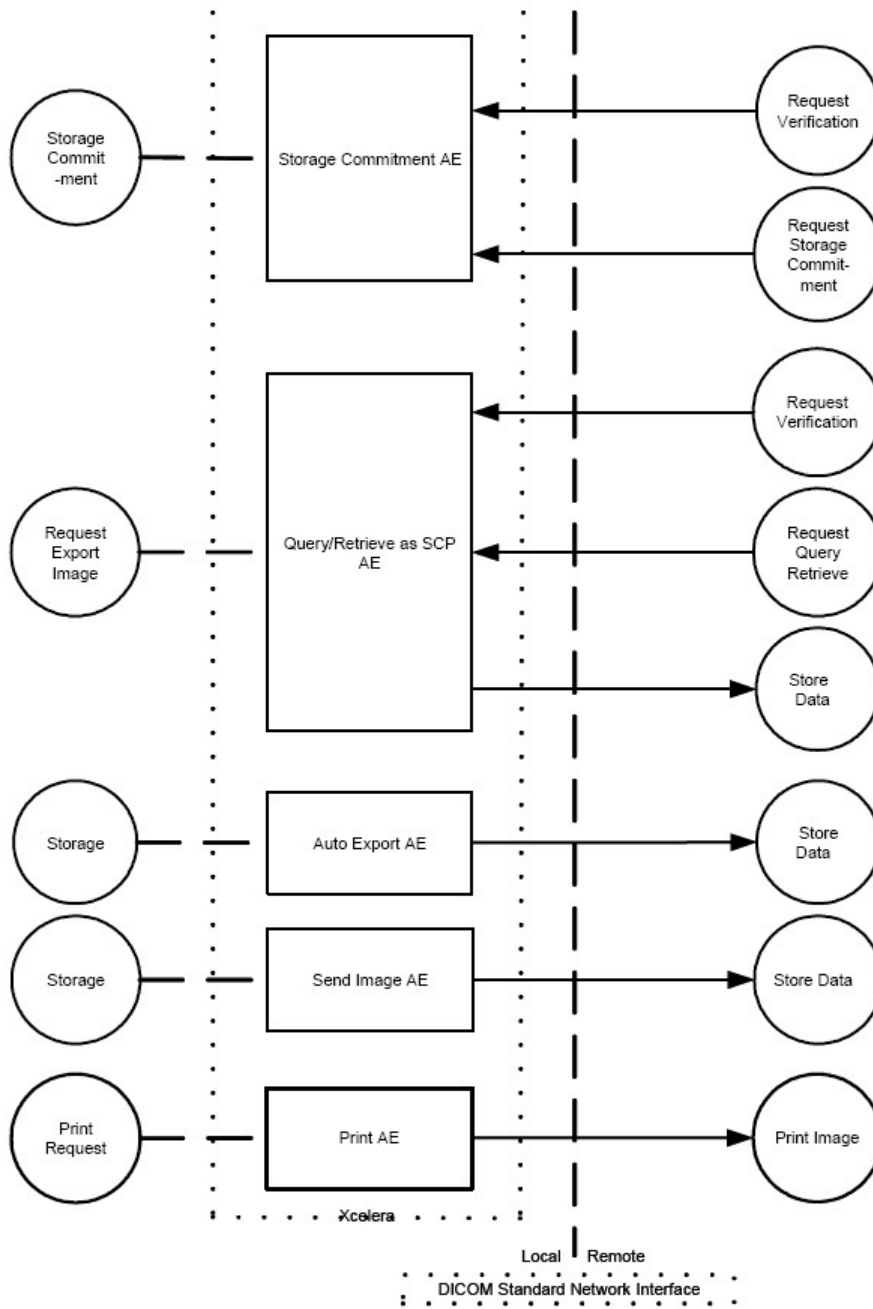
Figure 2: Application Data Flow Diagram (2)

4.1.2.   Functional Definition of AE's

This section contains a functional definition for each individual local Application Entity.

4.1.2.1.   Functional Definition of Archive AE

The Archive AE handles the communication between Xcelera and the DICOM Archive. For storing instances to an archive, an automatic function, Storage with Storage Commitment will be used. To pull the instance from an archive, a C-MOVE with Study Instance UID handles this action. The study/instance will be retrieved via the Import AE.

4.1.2.2.   Functional Definition of Auto Export AE

Xcelera (SCU) automatically initiates an association with a remote DICOM AE (SCP) to send a storage request and the applicable instance data. (DICOM Storage Service Class)
This Auto export behavior of Xcelera, when configured, happens for all imported studies. It is also possible to auto export only studies from an import AE-Title.

4.1.2.3.   Functional Definition of Image Import AE

Xcelera (SCP) accepts an association with a remote DICOM AE (SCU) to receive a storage request and the applicable instance data. (DICOM Storage Service Class)

4.1.2.4.   Functional Definition of Print AE

The Print AE in Xcelera supports the functionality for basic grayscale print management, basic annotation box, and print job. On demand, Xcelera (SCU) initiates an association with a printer (SCP) and sends a create requests to the printer (DICOM Print Management SOP class).

4.1.2.5.   Functional Definition of Query Retrieve as SCP AE

Xcelera Query/Retrieve as SCP AE consists of two functions. Xcelera (SCP) accepts an association from a remote DICOM AE (SCU) to receive a Query/Retrieve request. (DICOM Query/Retrieve Service Class). - When a retrieve of an instance is requested, Xcelera sends that requested instance through Store SCU AE (DICOM Storage Service Class)

4.1.2.6.   Functional Definition of Query Retrieve as SCU AE

Xcelera (SCU) initiates an association, on request the user, with a remote DICOM AE (SCP) to send a Query/Retrieve request. (DICOM Storage Service Class).

4.1.2.7.   Functional Definition of Send AE

When the Send function in Xcelera is addressed, Xcelera (SCU) initiates an association, on request by the user, with a remote DICOM AE (SCP) to send a storage request and the applicable instance data. (DICOM Storage Service Class)

4.1.2.8.   Functional Definition of Storage Commitment AE

Xcelera (SCP) accepts an association from a remote DICOM AE (SCU) to receive a storage commitment request. After handling the requested storage commitment, Xcelera initiates an association with the SCU to report the status of the storage commitment (DICOM Storage Commitment Service Class)

4.1.3.   Sequencing of Real World Activities

All Real-World Activities as specified in the Functional Definition of Application Entities may occur independently from each other.

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.   Archive AE

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

4.2.1.1.   SOP Classes

Archive AE is used for archiving the patient studies either in Xcelera Server (Xcelera DICOM Archive) or in external DICOM Archive. Archive AE is intended to do the functioning of storing the patient studies in the DICOM Archive, Sending the Storage Commitment to the DICOM Archive and Retrieving studies from the DICOM Archive whenever they are needed. These functions are undertaken automatically.

Archive AE, for its functioning, makes use of following DICOM functions:

 - Verification as SCU, which uses C-ECHO service element.
 - Storage as SCU, which uses C-STORE as service element.
 - Storage Commitment as SCU, which uses N-ACTION, N-EVENT-REPORT service elements.
 - Retrieve as SCU, which uses C-MOVE as service element.
 - Patient / Study are always updates with the latest information in the DICOM Archive. (Refer to the tables in section 4.2.1.3.3.3 for the list of updated patient and study attributes.)

 Separate Application Entities need to be configured for Storage, Storage Commitment and Fetch (Retrieve) functionalities.

 These DICOM functionalities are described here.

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

Table 5: SOP Classes for Archive AE

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	Yes	No
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Yes	No
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	Yes	Yes
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	Yes	Yes
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	Yes	Yes
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	Yes	Yes
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	Yes
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	Yes	Yes
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	Yes
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	Yes	Yes
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	Yes
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	Yes	Yes
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes
Standalone VOI LUT Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.11	Yes	Yes
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	Yes	Yes
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes
X-Ray Angiographic Bi-Plane Image Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.12.3	Yes	Yes
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	Yes	Yes
Standalone PET Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.129	Yes	Yes

SOP Class Name	SOP Class UID	SCU	SCP
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	Yes	Yes
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	Yes	Yes
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Yes	Yes
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	Yes	Yes
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Yes	Yes
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	Yes	Yes
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	Yes	Yes
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	Yes	Yes
RT Plan Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.5	Yes	Yes
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Yes	Yes
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	Yes	Yes
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	Yes	Yes
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Yes	Yes
Multi-frame Single Bit Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.1	Yes	Yes
Multi-frame Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2	Yes	Yes
Multi-frame Grayscale Word SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.3	Yes	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	Yes
Standalone Overlay Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.8	Yes	Yes
Basic Text SR SOP Class	1.2.840.10008.5.1.4.1.1.88.11	Yes	Yes
Enhanced SR SOP Class	1.2.840.10008.5.1.4.1.1.88.22	Yes	Yes
Detail SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.3	Yes	Yes
Comprehensive SR SOP Class	1.2.840.10008.5.1.4.1.1.88.33	Yes	Yes
Standalone Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.9	Yes	Yes
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	Yes
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Yes	No
Philips Private X-Ray Image Storage	1.3.46.670589.2.3.1.1	Yes	Yes
Philips Private Reconstructed X-ray Storage	1.3.46.670589.2.4.1.1	Yes	Yes
Philips Private iE33 3D NEO Presentation State Subpage Storage	1.3.46.670589.2.5.1.1	Yes	Yes
Philips Private ViewForum 3D Volume New Storage	1.3.46.670589.5.0.1.1	Yes	Yes
Philips Private ViewForum MR Synthetic Image Storage	1.3.46.670589.5.0.10	Yes	Yes
Philips Private ViewForum MR Cardio Analysis New Storage	1.3.46.670589.5.0.11.1	Yes	Yes
Philips Private ViewForum CX Synthetic Image Storage	1.3.46.670589.5.0.12	Yes	Yes
Philips Private ViewForum Perfusion Storage	1.3.46.670589.5.0.13	Yes	Yes
Philips Private ViewForum Perfusion Analysis Storage	1.3.46.670589.5.0.14	Yes	Yes
Philips Private ViewForum 3D Volume Object New Storage	1.3.46.670589.5.0.2.1	Yes	Yes
Philips Private ViewForum Surface New Storage	1.3.46.670589.5.0.3.1	Yes	Yes
Philips Private ViewForum MR Cardio New Storage	1.3.46.670589.5.0.8.1	Yes	Yes
Philips Private ViewForum CT Synthetic Image Storage	1.3.46.670589.5.0.9	Yes	Yes

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

<div align="center">**Table 6: DICOM Application Context**</div>

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.

<div align="center">**Table 7: Number of associations as an Association Initiator for this AE**</div>

Description	Value
Maximum number of simultaneous associations	1

4.2.1.2.3.   Asynchronous Nature

The implementation supports negotiation of multiple outstanding transactions, along with the maximum number of outstanding transactions supported.

<div align="center">**Table 8: Asynchronous nature as an Association Initiator for this AE**</div>

Description	Value
Maximum number of outstanding asynchronous transactions	Unlimited

4.2.1.2.4.   Implementation Identifying Information

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

<div align="center">**Table 9: DICOM Implementation Class and Version for Archive AE**</div>

Implementation Class UID	1.3.46.670589.16.14.3.2.1
Implementation Version Name	Xcelera R3.2.L1

4.2.1.2.5.   Communication Failure Handling

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

<div align="center">**Table 10: Communication Failure Behavior**</div>

Exception	Behavior
ARTIM Timeout	The association is closed and the reason is logged.

4.2.1.3.   Association Initiation Policy

The Application Entity will respond on a received reject Association attempt as shown in next table.

Table 11: Association Rejection response

Result	Source	Reason/Diagnosis	Explanation
1 - rejected-permanent	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - application-context-name-not supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service-provider(Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.
2 - rejected-transient	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - application-context-name-not-supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service-provider (Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.

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

Table 12: Association Abort Handling

Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user (initiated abort)	0 - reason-not-specified	When received, terminates the connection and logs the event.
2 - DICOM UL service-provider (initiated abort)	0 - reason-not-specified	When received, terminates the connection and logs the event.
	1 - unrecognized-PDU	When received, terminates the connection and logs the event.
	2 - unexpected-PDU	When received, terminates the connection and logs the event.
	4 - unrecognized-PDU-parameter	When received, terminates the connection and logs the event.
	5 - unexpected-PDU-parameter	When received, terminates the connection and logs the event.

Source	Reason/Diagnosis	Behavior
	6 - invalid-PDU-parameter-value	When received, terminates the connection and logs the event.

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

4.2.1.3.1.1.   Description and Sequencing of Activities

The Archive AE sends associations to systems to verify application level communication using the C-ECHO command.
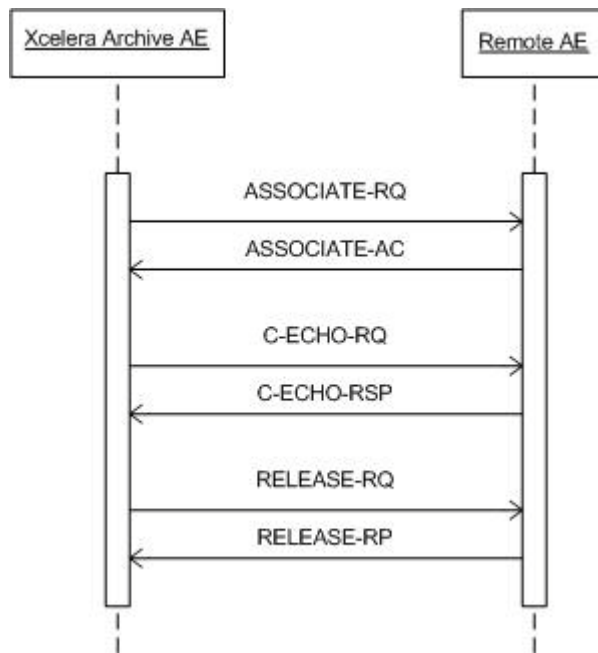
Figure 3: (Real World) Activity - Verification as SCU

4.2.1.3.1.2.   Proposed Presentation Contexts

The Archive AE proposes the following presentation contexts to the remote AE during the association request before sending the C-ECHO.

Table 13: 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

The Archive AE provides standard conformance to Verification SOP Class.

4.2.1.3.1.3.1.   Dataset Specific Conformance for Verification C-ECHO SCU

Detail 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 14: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Confirmation	the SCU has successfully send C-ECHO
Other than success	<>0000	Problems with sending the C-ECHO	Reason is logged

4.2.1.3.2.   (Real-World) Activity – MOVE as SCU

4.2.1.3.2.1.   Description and Sequencing of Activities
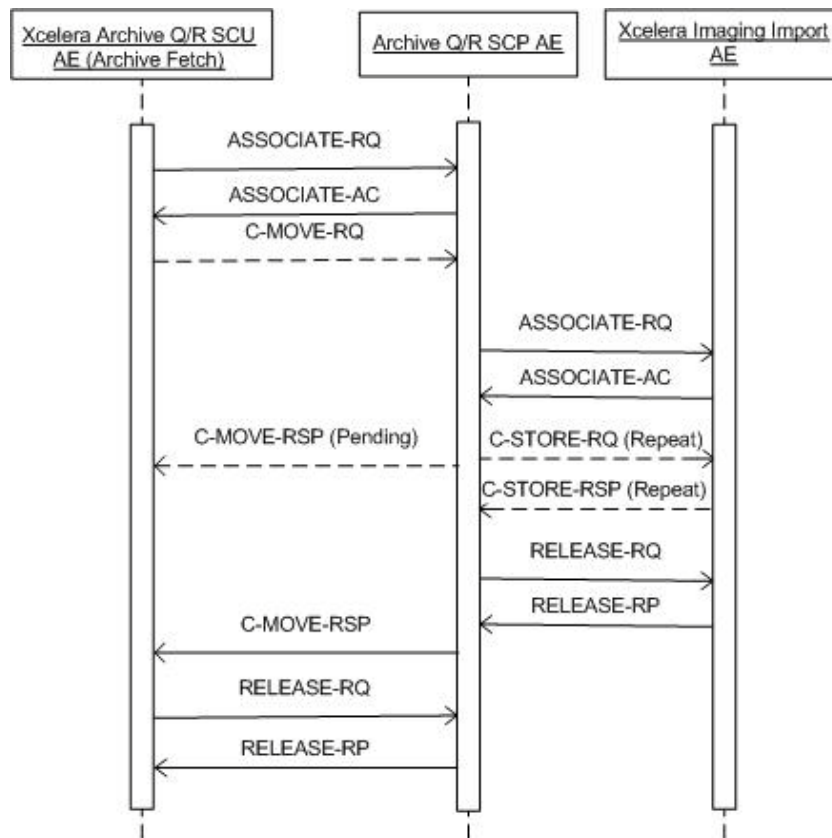
Figure 4: (Real World) Activity - MOVE As SCU (Archive Fetch)

Steps in fetch from DICOM Archive:

1. Send a DICOM C-MOVE (using Study UID from the database as identifier) request to the DICOM archive for each study to be

fetched.

 2. In response to the C-MOVE, DICOM Archive performs a C-STORE to Xcelera data Import AE.

4.2.1.3.2.2.   Proposed Presentation Contexts

The presentation contexts proposed by Archive QR SCU AE for (Real-World) Activity – C-MOVE are defined in next table.

Table 15: Proposed Presentation Contexts for (Real-World) Activity – MOVE As SCU

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	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		

4.2.1.3.2.3.   SOP Specific Conformance for Study Root QR Information Model - MOVE SOP Class

Only Study level queries are supported.

 The Archive QR SCU AE supports queries based on the combination of the following (Study level) attributes and attribute matching types (as defined in [DICOM] PS 3.4).

Exceptions:

 1. If after setting up the connection and sending the move request, if no data is received from the external DICOM node before a (user configurable) time out has passed, the QR SCU AE aborts the connection.
 2. If an error occurs on the external DICOM node while setting up the connection, the QR SCU AE will abort all actions related to the connection and report errors.
 3. If no agreement between the two parties can be reached concerning communication parameters the connection will be closed and no query communications will take place.
 4. If an error occurs on the DICOM Archive server during query communications, the DICOM Archive server will abort the connection.

4.2.1.3.2.3.1.   Dataset Specific Conformance for Study Root QR Information Model - MOVE SOP Class C-MOVE-SCU

Detail regarding the Dataset Specific response behavior will be reported in this section.

Table 16: Identifiers for MOVE Study Root Information Model as SCU

Study Root Information Model			
Attribute Name	Tag	VR	Comment
Query/Retrieve Level	0008,0052	CS	-
Q/R Study level			
Study Instance UID	0020,000D	UI	Universal Matching.

C-MOVE-SCU acts on the possible Status Responses with are shown in the next Table.

Table 17: Dicom command response status handling behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Sub-operations complete – No failures	The Retrieve job is marked as Completed at the queue manager. The association is released.
Failed	A900	Identifier does not match SOP class	The Retrieve job is marked as Failed at the queue manager. The association is released. The reason is logged.
	Cxxx	Unable to process	The Retrieve job is marked as Failed at the queue manager. The association is released. The reason is logged.
Refused	A701	Out of resources – Unable to calculate number of matches	The Retrieve job is marked as Failed at the queue manager. The association is released. The reason is logged.
	A702	Out of resources – Unable to perform sub-operations	The Retrieve job is marked as Failed at the queue manager. The association is released. The reason is logged.
	A801	Destination unknown	The Retrieve job is marked as Failed at the queue manager. The association is released. The reason is logged.
Pending	FF00	Sub-operations are continuing	The Retrieve job continues.
Warning	B000	Sub-operations complete – One or more failures	The Retrieve job is marked as Completed at the queue manager. The association is released. The reason is logged.
Cancel	FE00	Sub-operations terminated due to Cancel indication	The Retrieve job is marked as Failed at the queue manager. The association is released. The reason is logged.
	When no status match		The Retrieve job is marked as Failed at the queue manager. The association is released. The reason is logged.

The possible Communication Failures are listed here.

Table 18: DICOM Command Communication Failure Behavior

Exception	Behavior
Reply Time-out	The job fails and the association is aborted. The reason is logged and reported to the user.
Association Time-out SCU	N/A
Association Aborted	The job fails. The reason is logged and reported to the user.

4.2.1.3.3.   (Real-World) Activity – Instance Archiving

4.2.1.3.3.1.   Description and Sequencing of Activities

In this chapter the Export of Instance (Archive Storage SCU) behavior of the Xcelera will be described.

Normal flow of events for Instance Archiving (Archive Storage SCU):
 1. When the condition for Archiving of a study/studies are met (based on the Archive Configuration settings), Xcelera sets up a store connection and negotiates communication parameters with this Archive DICOM node. Connection setup is executed according to DICOM Store protocols, with Xcelera acting as DICOM Store SCU.
 2. After this connection is setup, Xcelera send study/studies to the external DICOM node. Upon completion of this, the connection is closed. Start and end of the connection and data transfer are logged.
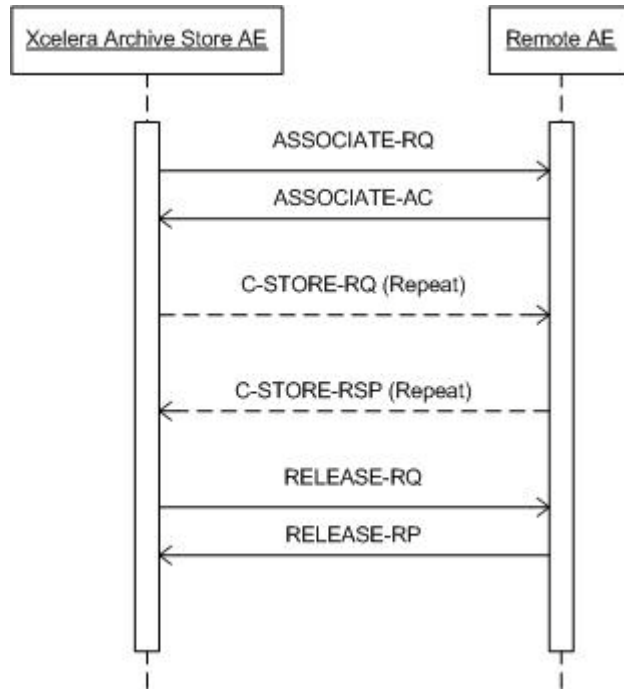
Figure 5: (Real World) Activity – Export of Instances (Archive Storage SCU)

4.2.1.3.3.2.   Proposed Presentation Contexts

The presentation contexts for the Export Instances are defined in the next table.

Table 19: Proposed Presentation Contexts for (Real-World) Activity – Instance Archiving

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Exten ded Negoti ation
Name	UID	Name List	UID List		
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	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		
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	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		
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	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		
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	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		
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	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		
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.2.1	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		
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	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		
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	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		
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	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		
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	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		
Standalone VOI LUT Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.11	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		
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	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		
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70	SCU	None
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	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		
X-Ray Angiographic Bi-Plane Image Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.12.3	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	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		
Standalone PET Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.129	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
		Implicit VR Little Endian	1.2.840.10008.1.2		
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	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		
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	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		
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	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		
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	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		
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	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		
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	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		
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	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		
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Multi-frame Single Bit Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.1	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Multi-frame Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Multi-frame Grayscale Word SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.3	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Multi-frame True Color Secondary Capture Image	1.2.840.10008.5.1.4.1.1.7.4	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Storage		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Standalone Overlay Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.8	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		
Basic Text SR SOP Class	1.2.840.10008.5.1.4.1.1.88.11	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		
Enhanced SR SOP Class	1.2.840.10008.5.1.4.1.1.88.22	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		
Detail SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.3	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		
Comprehensive SR SOP Class	1.2.840.10008.5.1.4.1.1.88.33	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		
Standalone Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.9	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		
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	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		
Philips Private X-Ray Image Storage	1.3.46.670589.2.3.1.1	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		
Philips Private Reconstructed X-ray Storage	1.3.46.670589.2.4.1.1	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		
Philips Private iE33 3D NEO Presentation State Subpage Storage	1.3.46.670589.2.5.1.1	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		
Philips Private ViewForum 3D Volume New Storage	1.3.46.670589.5.0.1.1	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		
Philips Private ViewForum MR Synthetic Image Storage	1.3.46.670589.5.0.10	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		
Philips Private ViewForum MR Cardio Analysis New Storage	1.3.46.670589.5.0.11.1	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		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Philips Private ViewForum CX Synthetic Image Storage	1.3.46.670589.5.0.12	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		
Philips Private ViewForum Perfusion Storage	1.3.46.670589.5.0.13	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		
Philips Private ViewForum Perfusion Analysis Storage	1.3.46.670589.5.0.14	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		
Philips Private ViewForum 3D Volume Object New Storage	1.3.46.670589.5.0.2.1	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		
Philips Private ViewForum Surface New Storage	1.3.46.670589.5.0.3.1	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		
Philips Private ViewForum MR Cardio New Storage	1.3.46.670589.5.0.8.1	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		
Philips Private ViewForum CT Synthetic Image Storage	1.3.46.670589.5.0.9	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		

4.2.1.3.3.3.   SOP Specific Conformance for Storage SOP Classes

During DICOM based auto-forward, transfer negotiations may indicate that the original format of the data is not accepted by the target node. In such cases, the DICOM ARCHIVE server will try to apply one of the transfer syntax conversions indicated by '+', in order to get to transfer syntax that is supported by the external system. The Transfer syntax conversion is supported from SCU to SCP.

Source Syntax	Destination Syntax		
	ILE	**ELE**	**EBE**
ILE	-	+	+
ELE	+	-	+
EBE	+	+	-
JPEG Baseline	-	-	-
JPEG Lossless FOP Non-Hierarchical 14	+	+	+
RLE	+	+	+

Figure 6: Transfer Syntax Convertion from Source to Destination.

The Archive AE conforms to the SOP classes of the Storage Service Class at level 2 (full). No data elements are discarded or coerced by the Archive AE.

The list of updated patient and study attributes are mentioned in the tables below.

Table 20: List of updated Patient Attributes

Attribute	DICOM Tag
Last Name	Part of (0010,0010)
First name	Part of (0010,0010)
Middle name	Part of (0010,0010)
Date of birth	(0010,0030)
Sex	(0010,0040)
Issuer of Patient ID	(0010,0021)
MRN	(0010,0020)
Alternate ID#	(0010,1000)
Title	Part of (0010,0010)
Honorific	Part of (0010,0010)
Address 1	Part of (0010,1040)
Address 2 (if Address1 is empty)	Part of (0010,1040)
City	Part of (0010,1040)
State/Province	(0010,2152)
Postal code	Part of (0010,1040)
Country	(0010,2150)
Race	(0010,2160)
Home phone	Part of (0010,2154)
Business phone	Part of (0010,2154)
Mobile phone	Part of (0010,2154)

Table 21: List of updated Study Attributes

Attribute	DICOM Tag
Study Description	(0008,1030)
Accession Number	(0008,0050)
Body Part	(0018,0015)
Protocol Name	(0018,1030)
Reason for Study	(0008,1080)
Performed By	(0008,1050)
Reading Physician	(0008,1060)
Ordering Physician	(0032,1032)
Reviewer	(300E,0008)
Referring Physician	(0008,0090)
Institution Department Name	(0008,1040)
Station Name	(0008,1010)
Study Comments	(0032,4000)

4.2.1.3.3.3.1.   Dataset Specific Conformance for C-STORE-RQ

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

STORE-SCU acts on the Status Reponses which are shown in the next table:

Table 22: Dicom command response status handling behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Successful stored	Log; Continue.
Refused	A700	Data set does not match SOP class	Log.
Warning	B000	Coercion of data elements	Log; Continue.
	B006	Elements discarded	Log; Continue.
	B007	Data set does not match SOP class	Log; Continue.
Error	0110	Error – Processing failure	Log.
	A900	Error – Data set does not match SOP class	Log.
	C000	Error – Cannot understand	Log.

Exceptions:

1. If, after setting up the connection, no data can be sent to the external DICOM node for 2 minutes, Xcelera will retry for 15 times with a interval of 2^n and then it will abort the connection.
2. If an error occurs on Xcelera while setting up the connection, Xcelera aborts and reports error.
3. If an error occurs on the external DICOM node while setting up the connection, Xcelera will abort all actions related to that connection and report errors.
4. If no agreement between the two parties can be reached concerning communication parameters the connection will be closed and no data transfer will take place.
5. When a network error occurs during connection set up or during data transfer, Xcelera will abort all actions related to the connection.
6. If an error occurs on Xcelera during the data transfer, Xcelera will notify the external DICOM node of this problem. After retrying notifying the external DICOM node of this problem for 15 times, with an interval of 2^n, the connection will be closed.

Table 23: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	The association is closed and the reason logged
Association aborted	The association is closed and the reason logged

4.2.1.3.4.   (Real-World) Activity – Storage Commitment Push Model AS SCU

4.2.1.3.4.1.   Description and Sequencing of Activities

Normal Flow of events:

1. After the configured time, Xcelera will initiate a Storage Commit request for the study that it stored into the DICOM Archive.
2. When a successful response from the DICOM archive is received, for this study, Xcelera mark this study as correctly archived.
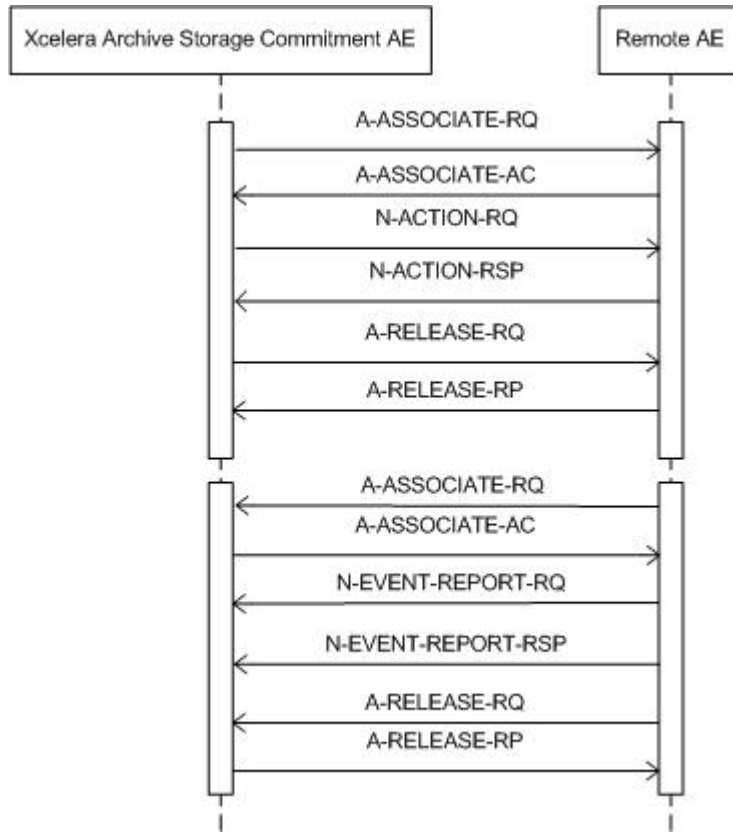
Figure 7: (Real World) Activity - Storage Commitment Push Model AS SCU

4.2.1.3.4.2.   Proposed Presentation Contexts

The presentation contexts are defined in the next table.

Table 24: Proposed Presentation Contexts for (Real-World) Activity – Storage Commitment Push Model AS SCU

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	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		

4.2.1.3.4.3.   SOP Specific Conformance for Storage Commitment Push Model SOP Class

The Archive AE (Storage Commitment) provides standard conformance to the Storage Commitment Push Model SOP Class.

4.2.1.3.4.3.1.   Dataset Specific Conformance for Storage Commitment Push Model SOP Class N-EVENT-REPORT-SCP

Detail regarding the Dataset Specific response behavior will be reported in this section.

The N-EVENT-REPORT-SCP can send the next status responses as listed in the table below:

Table 25: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Confirmation	The association will be released. The reason is logged.
Failure	xxxx	(any failure)	The reason is logged.

Table 26: DICOM Command Communication Failure Behavior

Exception	Behavior
Reply Time-out	The association is released.
Association Time-out SCU	The association is released.
Association Aborted	The association is released.

4.2.1.3.4.3.2.   Dataset Specific Conformance for Storage Commitment Push Model SOP Class N-ACTION-SCU

Detail regarding the Dataset Specific response behavior will be reported in this section.

Table 27: Storage Commitment Attribute for N-ACTION-RQ

Attribute Name	Tag	Comment
Storage Commitment Module		
Transaction UID	0008,1195	-
Referenced SOP Sequence	0008,1199	-
>Referenced SOP Class UID	0008,1150	-
>Referenced SOP Instance UID	0008,1155	-

The N-ACTION-SCU will act the status responses as listed in the table below:

Table 28: Dicom command response status handling behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Confirmation	The association will not released. The reason is logged.
Failure	xxxx	(any failure)	The reason is logged.

During the N-ACTION-SCU communication the next failures can occurred:

Table 29: DICOM Command Communication Failure Behavior

Exception	Behavior
Reply Time-out	The association is released.
Association Time-out SCU	The association is released.
Association Aborted	The association is released.

Exceptions:

1. After setting up the connection, if no data can be sent to the external node for 60 seconds, Xcelera aborts the connection and

reports an error.
 2. An error occurs on the target node while setting up the connection. If the retries are unsuccessful, the system will mark the data for later archiving.
 3. If an error or warning concerning data transfer is received from the target node during data transfer. If it is related to the data being send Xcelera tries to correct the cause of the error
 4. When Xcelera can not setup connection with the DICOM Archive, Xcelera will retry for 3 times (configurable). If within these retries, if it is still not possible to setup the connection, the study will be re-archived, conforms its own retry mechanism and a warning will be reported.
 5. When Xcelera does not receive a storage commit report within 72 hours, the study will be re-archived, conforms its won retry mechanism and a warning will be reported.
 6. When the Xcelera receives a storage commit response other than successful, the study will be re-archived, conforms to its own retry mechanism and a warning will be reported.

4.2.1.4. Association Acceptance Policy

Not applicable, Archive AE does not accept associations.

4.2.2. Auto Export AE

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

4.2.2.1. SOP Classes

The Image Export AE is used for exporting DICOM Instances (images, objects) from Xcelera Server to remote system. The Image Export AE makes use of the following DICOM functions:

- Verification as SCU, which uses C-ECHO service element.
- Storage as SCU, which uses C-STORE as service element.
- Patient / Study are always updates with the latest information for the exported studies. (Refer to the tables in section 4.2.2.3.2.3 for the list of updated patient and study attributes.)

 These DICOM functions will be described in the following subsections.

The Auto Export Application Entity provides Standard Conformance to the following SOP Classes:

Table 30: SOP Classes for Auto Export AE

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	Yes	No
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	Yes	No
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	Yes	No
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	Yes	No
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	Yes	No
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	No
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	Yes	No
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	No
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	Yes	No
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	No
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	Yes	No
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	No
Standalone VOI LUT Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.11	Yes	No
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Yes	No
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	Yes	No
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	Yes	No
X-Ray Angiographic Bi-Plane Image Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.12.3	Yes	No
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	Yes	No
Standalone PET Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.129	Yes	No
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	Yes	No
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	Yes	No
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Yes	No
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	Yes	No
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Yes	No
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	Yes	No
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	Yes	No
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	Yes	No
RT Plan Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.5	Yes	No
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Yes	No
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	Yes	No
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	Yes	No
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Yes	No

SOP Class Name	SOP Class UID	SCU	SCP
Multi-frame Single Bit Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.1	Yes	No
Multi-frame Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2	Yes	No
Multi-frame Grayscale Word SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.3	Yes	No
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	No
Standalone Overlay Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.8	Yes	No
Basic Text SR SOP Class	1.2.840.10008.5.1.4.1.1.88.11	Yes	No
Enhanced SR SOP Class	1.2.840.10008.5.1.4.1.1.88.22	Yes	No
Detail SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.3	Yes	No
Comprehensive SR SOP Class	1.2.840.10008.5.1.4.1.1.88.33	Yes	No
Standalone Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.9	Yes	No
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	No
Philips Private X-Ray Image Storage	1.3.46.670589.2.3.1.1	Yes	No
Philips Private Reconstructed X-ray Storage	1.3.46.670589.2.4.1.1	Yes	No
Philips Private iE33 3D NEO Presentation State Subpage Storage	1.3.46.670589.2.5.1.1	Yes	No
Philips Private ViewForum 3D Volume New Storage	1.3.46.670589.5.0.1.1	Yes	No
Philips Private ViewForum MR Synthetic Image Storage	1.3.46.670589.5.0.10	Yes	No
Philips Private ViewForum MR Cardio Analysis New Storage	1.3.46.670589.5.0.11.1	Yes	No
Philips Private ViewForum CX Synthetic Image Storage	1.3.46.670589.5.0.12	Yes	No
Philips Private ViewForum Perfusion Storage	1.3.46.670589.5.0.13	Yes	No
Philips Private ViewForum Perfusion Analysis Storage	1.3.46.670589.5.0.14	Yes	No
Philips Private ViewForum 3D Volume Object New Storage	1.3.46.670589.5.0.2.1	Yes	No
Philips Private ViewForum Surface New Storage	1.3.46.670589.5.0.3.1	Yes	No
Philips Private ViewForum MR Cardio New Storage	1.3.46.670589.5.0.8.1	Yes	No
Philips Private ViewForum CT Synthetic Image Storage	1.3.46.670589.5.0.9	Yes	No

Note that any SOP specific behavior is documented later in this conformance statement into the applicable SOP specific conformance section.

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 31: 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 32: Number of associations as an Association Initiator for this AE

Description	Value
Maximum number of simultaneous associations	Limited by system resource.

4.2.2.2.3.   Asynchronous Nature

The implementation supports negotiation of multiple outstanding transactions, along with the maximum number of outstanding transactions supported.

Table 33: 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 34: DICOM Implementation Class and Version for Auto Export AE

Implementation Class UID	1.3.46.670589.16.14.3.2.1
Implementation Version Name	Xcelera R3.2.L1

4.2.2.2.5.   Communication Failure Handling

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

Table 35: Communication Failure Behavior

Exception	Behavior
ARTIM Timeout	The association closed and the reason is logged.

4.2.2.3.   Association Initiation Policy

The Application Entity will respond on a received reject Association attempt as shown in next table.

Table 36: Association Rejection response

Result	Source	Reason/Diagnosis	Explanation
1 - rejected-permanent	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - application-context-name-not supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service-provider(Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.

Result	Source	Reason/Diagnosis	Explanation
2 - rejected-transient	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - application-context-name-not-supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service-provider (Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.

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

Table 37: Association Abort Handling

Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user (initiated abort)	0 - reason-not-specified	When received, terminates the connection and logs the event.
2 - DICOM UL service-provider (initiated abort)	0 - reason-not-specified	When received, terminates the connection and logs the event.
	1 - unrecognized-PDU	When received, terminates the connection and logs the event.
	2 - unexpected-PDU	When received, terminates the connection and logs the event.
	4 - unrecognized-PDU-parameter	When received, terminates the connection and logs the event.
	5 - unexpected-PDU-parameter	When received, terminates the connection and logs the event.
	6 - invalid-PDU-parameter-value	When received, terminates the connection and logs the event.

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

4.2.2.3.1.1.   Description and Sequencing of Activities

Auto Export AE initiates an association with the remote AE.
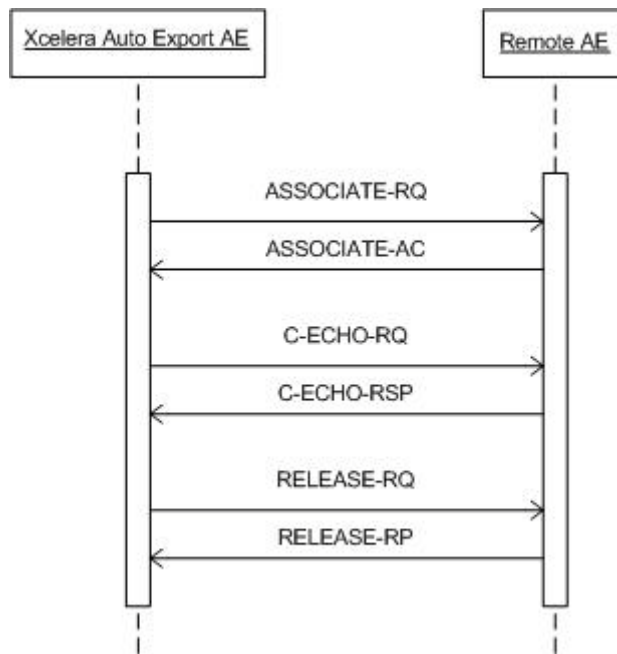
Figure 8: (Real World) Activity - Verification as SCU.

4.2.2.3.1.2.   Proposed Presentation Contexts

Each time an association is initiated, the association initiator proposes a number of presentation contexts to be used on that association. The association will be closed immediately upon receiving the response.
 The presentation contexts proposed by DICOM Manager for (Real-World) Activity - Verification as SCU are defined in the following table.

Table 38: 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		

4.2.2.3.1.3.   SOP Specific Conformance for Verification SOP Class

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

4.2.2.3.1.3.1.   Dataset Specific Conformance for Verification C-ECHO SCU

Detail 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 39: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success, Matching is complete	The SCU has successfully send C-ECHO.
Other than success	<>0000	Problems with sending the C-ECHO	The SCU failed to send the C-ECHO; user is notified. Logged

4.2.2.3.2.   (Real-World) Activity – Image Export

4.2.2.3.2.1.   Description and Sequencing of Activities

The (Real World) Activity - Image Export (Data Export) is explained here for a Normal flow of events:

 1. Xcelera sets up a connection with the target DICOM node and negotiates communications parameters. If the two parties cannot agree on transfer using the data format stored on the server, Xcelera will negotiate an alternative DICOM transfer syntax and create a converted copy of the study data to be transferred.
 2. Then Xcelera transfers data (complete study or SC only) to the target DICOM node depending on configuration setting, Xcelera auto forwards studies completely, or only new deltas such as photo files or new instances coming from an acquisition system.
 3. Upon completion of this transfer, the connection is closed. Connection set up and connection release, and data transfer takes place according to the DICOM Store protocol defined as part of the DICOM 3.0 standard.

The next figure shows the image (instance) export functionality.
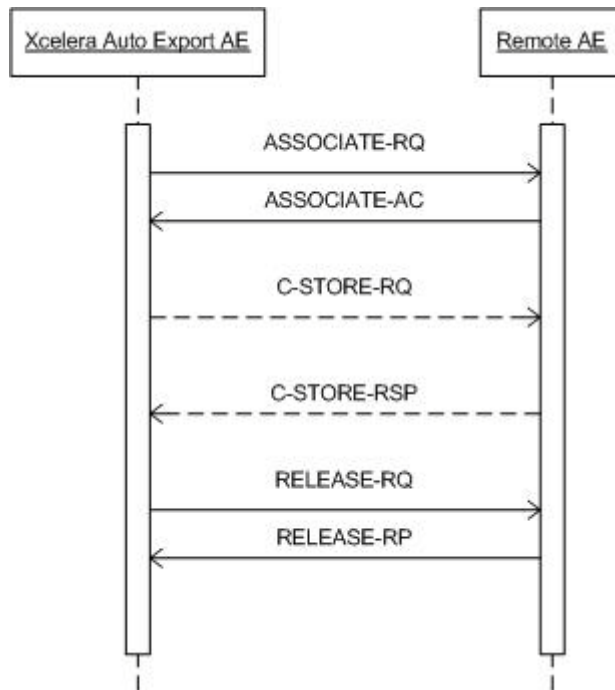
Figure 9: (Real World) Activity - Image Export (Data Export)

4.2.2.3.2.2. Proposed Presentation Contexts

The presentation contexts are defined in the next table.

Table 40: Proposed Presentation Contexts for (Real-World) Activity – Image Export

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	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		
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	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		
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	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		
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	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		
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	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		
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	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		
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	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		
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	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		
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	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		
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	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		
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	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		
Standalone VOI LUT Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.11	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		
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	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		
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Exten ded Negoti ation**
Name	**UID**	**Name List**	**UID List**		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	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		
X-Ray Angiographic Bi-Plane Image Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.12.3	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	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		
Standalone PET Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.129	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		
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	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		
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		RLE Lossless	1.2.840.10008.1.2.5		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		RLE Lossless	1.2.840.10008.1.2.5		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	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		
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	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		
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	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		
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
SOP Class		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		RLE Lossless	1.2.840.10008.1.2.5		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		RLE Lossless	1.2.840.10008.1.2.5		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	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		
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Multi-frame Single Bit Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.1	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Multi-frame Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Multi-frame Grayscale Word SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.3	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Standalone Overlay Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.8	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		
Basic Text SR SOP Class	1.2.840.10008.5.1.4.1.1.88.11	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		
Enhanced SR SOP Class	1.2.840.10008.5.1.4.1.1.88.22	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		
Detail SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.3	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		
Comprehensive SR SOP Class	1.2.840.10008.5.1.4.1.1.88.33	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		
Standalone Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.9	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		
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	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		
Philips Private X-Ray Image Storage	1.3.46.670589.2.3.1.1	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		
Philips Private Reconstructed X-ray Storage	1.3.46.670589.2.4.1.1	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		
Philips Private iE33 3D NEO Presentation State Subpage Storage	1.3.46.670589.2.5.1.1	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		
Philips Private ViewForum 3D Volume New Storage	1.3.46.670589.5.0.1.1	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		
Philips Private ViewForum MR Synthetic Image Storage	1.3.46.670589.5.0.10	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		
Philips Private ViewForum MR Cardio Analysis New Storage	1.3.46.670589.5.0.11.1	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		
Philips Private ViewForum CX Synthetic Image Storage	1.3.46.670589.5.0.12	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		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Philips Private ViewForum Perfusion Storage	1.3.46.670589.5.0.13	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		
Philips Private ViewForum Perfusion Analysis Storage	1.3.46.670589.5.0.14	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		
Philips Private ViewForum 3D Volume Object New Storage	1.3.46.670589.5.0.2.1	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		
Philips Private ViewForum Surface New Storage	1.3.46.670589.5.0.3.1	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		
Philips Private ViewForum MR Cardio New Storage	1.3.46.670589.5.0.8.1	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		
Philips Private ViewForum CT Synthetic Image Storage	1.3.46.670589.5.0.9	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		

4.2.2.3.2.3.   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.

4.2.2.3.2.3.1.   Dataset Specific Conformance for C-STORE-RQ

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

Table 41: Dicom command response status handling behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Successful stored	Log: Continue.
Refused	A700	Refused – Out of resources	Log; Release association; Release application; Retry to send the images.
Failure	0110	Error – Processing failure	Log; Release association; Release application; Retry to send the images
	A900	Error – Data set does not match SOP class	Log; Release association; Release application; Retry to send the images
	C000	Error – Cannot understand	Log; Release association; Release application; Retry to send the images
Warning	B000	Coercion of Data Elements	Log; Continue
	B007	Data Set does not match SOP Class	Log; Continue
	B006	Elements Discarded	Log; Continue

Exceptions:

Xcelera always retry in case of errors for 15 times, with an interval of 2^n, before aborting the connection in the following cases:

1. If, after setting up the connection, no data can be sent to the external node for 60 seconds, Xcelera aborts the connection.
    2. If an error occurs on Xcelera while setting up the connection, Xcelera aborts the connection .
    3. If an error occurs on the target node while setting up the connection. If the retries are unsuccessful, the system will mark the data for later.
    4. If an error occurs on Xcelera during the instance conversion or the instance transfer, Xcelera will abort the auto forward process. A final error will be reported.
    5. If an error occurs on the target node during data transfer, results the connection to be aborted Xcelera will report this error.
    6. An error or warning concerning data transfer is received from the target node during data transfer. If it is related to the data being send, Xcelera tries to correct the cause of the error (e.g. by redoing the conversion). All information available on the error or warning will be reported.
    7. Only the DICOM instances of the services where both parties agreed upon are forwarded, this will be reported.

4.2.2.3.2.3.2. SOP Specific Conformance for Storage SOP Classes

During the DICOM based auto-forward, the transfer negotiations may indicate that the original format of the data is not accepted by the target node. In such cases, the DICOM auto-forward server will try to apply one of the transfer syntax conversions indicated by '+', in order to get to transfer syntax that is supported by the external system.

Next table gives an overview of the supported Transfer Syntax conversions from SCU to SCP.

Source Syntax	Destination Syntax		
	ILE	**ELE**	**EBE**
ILE	-	+	+
ELE	+	-	+
EBE	+	+	-
JPEG Baseline	-	-	-
JPEG Lossless FOP Non-Hierarchical 14	+	+	+
RLE	+	+	+

Figure 10: Transfer Syntax Conversion from SCU to SCP.

The list of updated patient and study attributes are mentioned in the tables below.

Table 42: List of updated Patient Attributes

Attribute	DICOM Tag
Last Name	Part of (0010,0010)
First name	Part of (0010,0010)
Middle name	Part of (0010,0010)
Date of birth	(0010,0030)
Sex	(0010,0040)
Issuer of Patient ID	(0010,0021)
MRN	(0010,0020)
Alternate ID#	(0010,1000)
Title	Part of (0010,0010)
Honorific	Part of (0010,0010)
Address 1	Part of (0010,1040)

Attribute	DICOM Tag
Address 2 (if Address1 is empty)	Part of (0010,1040)
City	Part of (0010,1040)
State/Province	(0010,2152)
Postal code	Part of (0010,1040)
Country	(0010,2150)
Race	(0010,2160)
Home phone	Part of (0010,2154)
Business phone	Part of (0010,2154)
Mobile phone	Part of (0010,2154)

Table 43: List of updated Study Attributes

Attribute	DICOM Tag
Study Description	(0008,1030)
Accession Number	(0008,0050)
Body Part	(0018,0015)
Protocol Name	(0018,1030)
Reason for Study	(0008,1080)
Performed By	(0008,1050)
Reading Physician	(0008,1060)
Ordering Physician	(0032,1032)
Reviewer	(300E,0008)
Referring Physician	(0008,0090)
Institution Department Name	(0008,1040)
Station Name	(0008,1010)
Study Comments	(0032,4000)

The possible Communication Failures are given in the following table:

Table 44: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	The association is closed and the reason is logged.
Association aborted	The association is closed and the reason is logged.

4.2.2.4. Association Acceptance Policy

Not applicable, Auto Export AE does not accept any associations.

4.2.3.   Image Import AE

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

4.2.3.1.   SOP Classes

The Image Import AE is used for importing DICOM Instances (images, objects) from remote system into Xcelera Server. The Image Import AE makes use of the following DICOM functions:

- Verification as SCP, which uses C-ECHO service element.
- Storage as SCP, which uses C-STORE as service element.
- Storage Commitment as SCP, which uses N-ACTION and N-EVENT-REPORT service elements.

The separate AE's need to be configured for Storage and Storage Commitment functionalities.

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

Table 45: SOP Classes for Image Import AE

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	No	Yes
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	No	Yes
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	No	Yes
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	No	Yes
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	No	Yes
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	No	Yes
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	No	Yes
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	No	Yes
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	No	Yes
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	No	Yes
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	No	Yes
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	No	Yes
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	No	Yes
Standalone VOI LUT Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.11	No	Yes
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	No	Yes
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	No	Yes
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	No	Yes
X-Ray Angiographic Bi-Plane Image Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.12.3	No	Yes
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	No	Yes
Standalone PET Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.129	No	Yes
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	No	Yes
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	No	Yes
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	No	Yes
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	No	Yes
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	No	Yes
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	No	Yes
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	No	Yes
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	No	Yes
RT Plan Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.5	No	Yes
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	No	Yes
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	No	Yes
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	No	Yes
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	No	Yes

SOP Class Name	SOP Class UID	SCU	SCP
Multi-frame Single Bit Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.1	No	Yes
Multi-frame Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2	No	Yes
Multi-frame Grayscale Word SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.3	No	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	No	Yes
Standalone Overlay Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.8	No	Yes
Basic Text SR SOP Class	1.2.840.10008.5.1.4.1.1.88.11	No	Yes
Enhanced SR SOP Class	1.2.840.10008.5.1.4.1.1.88.22	No	Yes
Detail SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.3	No	Yes
Comprehensive SR SOP Class	1.2.840.10008.5.1.4.1.1.88.33	No	Yes
Standalone Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.9	No	Yes
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	No	Yes
Philips Private X-Ray Image Storage	1.3.46.670589.2.3.1.1	No	Yes
Philips Private Reconstructed X-ray Storage	1.3.46.670589.2.4.1.1	No	Yes
Philips Private iE33 3D NEO Presentation State Subpage Storage	1.3.46.670589.2.5.1.1	No	Yes
Philips Private ViewForum 3D Volume New Storage	1.3.46.670589.5.0.1.1	No	Yes
Philips Private ViewForum MR Synthetic Image Storage	1.3.46.670589.5.0.10	No	Yes
Philips Private ViewForum MR Cardio Analysis New Storage	1.3.46.670589.5.0.11.1	No	Yes
Philips Private ViewForum CX Synthetic Image Storage	1.3.46.670589.5.0.12	No	Yes
Philips Private ViewForum Perfusion Storage	1.3.46.670589.5.0.13	No	Yes
Philips Private ViewForum Perfusion Analysis Storage	1.3.46.670589.5.0.14	No	Yes
Philips Private ViewForum 3D Volume Object New Storage	1.3.46.670589.5.0.2.1	No	Yes
Philips Private ViewForum Surface New Storage	1.3.46.670589.5.0.3.1	No	Yes
Philips Private ViewForum MR Cardio New Storage	1.3.46.670589.5.0.8.1	No	Yes
Philips Private ViewForum CT Synthetic Image Storage	1.3.46.670589.5.0.9	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 46: 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 a Initiator or Acceptor is specified here.

Table 47: Number of associations as an Association Acceptor for this AE

Description	Value
Maximum number of simultaneous associations	Limit of system resources.

4.2.3.2.3. Asynchronous Nature

The implementation supports negotiation of multiple outstanding transactions, along with the maximum number of outstanding transactions supported.

Table 48: Asynchronous nature as an Association Initiator 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 49: DICOM Implementation Class and Version for Image Import AE

Implementation Class UID	1.3.46.670589.16.14.3.2.1
Implementation Version Name	Xcelera R3.2.L1

4.2.3.2.5. Communication Failure Handling

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

Table 50: Communication Failure Behavior

Exception	Behavior
ARTIM Timeout	The association is released and the reason is logged.

4.2.3.3. Association Initiation Policy

Not applicable, Image Import AE does not initiate any associations.

4.2.3.4. Association Acceptance Policy

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

Table 51: Association Reject Reasons

Result	Source	Reason/Diagnosis	Behavior
1 - rejected permanent	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - application-context-name-not-supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service provider (Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.
2 - rejected-transient	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - application-context-name-not-supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service provider (Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.

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

Table 52: Association Abort Policies

Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user (initiated abort)	0 - reason-not-specified	Notifies Remote AE, terminates the connection and logs the event.
2 - DICOM UL service-provider (initiated abort)	0 - reason-not-specified	Notifies Remote AE, terminates the connection and logs the event
	1 - unrecognized-PDU	Notifies Remote AE, terminates the connection and logs the event
	2 - unexpected-PDU	Notifies Remote AE, terminates the connection and logs the event
	4 - unrecognized-PDU parameter	Notifies Remote AE, terminates the connection and logs the event
	5 - unexpected-PDU parameter	Notifies Remote AE, terminates the connection and logs the event
	6 - invalid-PDU-parameter value	Notifies Remote AE, terminates the connection and logs the event

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

4.2.3.4.1.1.   Description and Sequencing of Activities

The Import Image AE accepts associations from systems that wish to verify application level communication using the C-ECHO command.
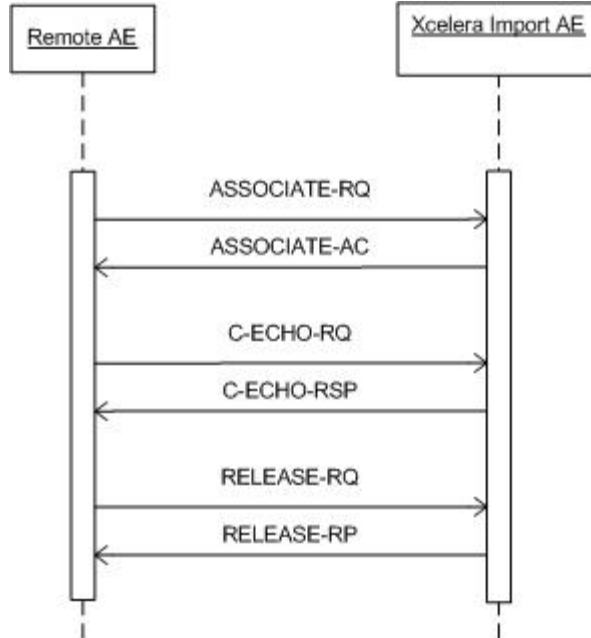
Figure 11: (Real World) Activity - Verification as SCP

4.2.3.4.1.2.   Accepted Presentation Contexts

The presentation contexts are defined in the next table.

Table 53: Acceptable 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		

The Import Image AE accepts all contexts in the intersection of the proposed and acceptable Presentation Context. This means that the Import Image AE will accept multiple proposed Presentation Contexts with the same SOP Class but different Transfer Syntaxes, so there will be no checks for duplicate Presentation Contexts.

4.2.3.4.1.3.   SOP Specific Conformance for Verification SOP Class

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

4.2.3.4.1.3.1.   Dataset Specific Conformance for Verification C-ECHO SCP

The DICOM command communication behavior is shown in the following table. The standard as well as the specific status codes and their corresponding behavior are also specified.

Table 54: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Confirmation	Message in log file.

4.2.3.4.2.   (Real-World) Activity – Image Import

4.2.3.4.2.1.   Description and Sequencing of Activities

A remote system can sets up an association with Xcelera. If Xcelera has not reached already the maximum number of associations, Xcelera will communicate with each remote system.
If suitable, Xcelera will accept the association with a preferred presentation context. Then the remote system may transfer its instance data to Xcelera. When the complete instance has been received, Xcelera will send a C-STORE response to notify the remote system that the transfer is completed successfully and the remote system may release the association.
Next figure shows the Image Import functionality.
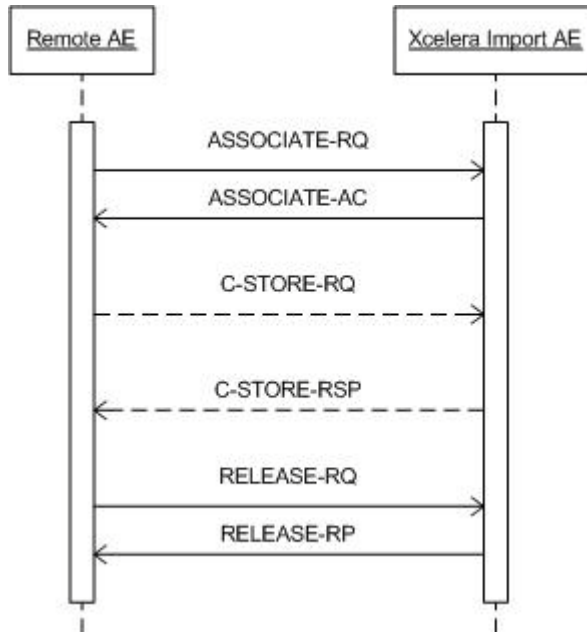
Figure 12: (Real World) Activity - Image Import

Note that only for configured systems some additional information can be configured, like institution-, department- and station - name, and whether the study must be archived or not.

4.2.3.4.2.2.   Accepted Presentation Contexts

The presentation contexts are defined in the next table.

Table 55: Acceptable Presentation Contexts for (Real-World) Activity – Image Import

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Exten ded Negoti ation
Name	UID	Name List	UID List		
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	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		
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	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		
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	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		
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	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		
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	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		
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	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		
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	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		
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	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		
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	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		
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	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		
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	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		
Standalone VOI LUT Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.11	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		
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	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		
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Exten ded Negoti ation**
Name	**UID**	**Name List**	**UID List**		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	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		
X-Ray Angiographic Bi-Plane Image Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.12.3	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	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		
Standalone PET Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.129	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		
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	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		
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	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		
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		RLE Lossless	1.2.840.10008.1.2.5		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		RLE Lossless	1.2.840.10008.1.2.5		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	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		
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Exten ded Negoti ation
Name	UID	Name List	UID List		
		Implicit VR Little Endian	1.2.840.10008.1.2		
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	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		
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	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		
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		RLE Lossless	1.2.840.10008.1.2.5		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		RLE Lossless	1.2.840.10008.1.2.5		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	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		
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Multi-frame Single Bit Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.1	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Multi-frame Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Multi-frame Grayscale Word SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.3	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Standalone Overlay Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.8	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		
Basic Text SR SOP Class	1.2.840.10008.5.1.4.1.1.88.11	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		
Enhanced SR SOP Class	1.2.840.10008.5.1.4.1.1.88.22	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		
Detail SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.3	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		
Comprehensive SR SOP Class	1.2.840.10008.5.1.4.1.1.88.33	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		
Standalone Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.9	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		
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	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		
Philips Private X-Ray Image Storage	1.3.46.670589.2.3.1.1	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		
Philips Private Reconstructed X-ray Storage	1.3.46.670589.2.4.1.1	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		
Philips Private iE33 3D NEO Presentation State Subpage Storage	1.3.46.670589.2.5.1.1	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		
Philips Private ViewForum 3D Volume New Storage	1.3.46.670589.5.0.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Philips Private ViewForum MR Synthetic Image Storage	1.3.46.670589.5.0.10	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		
Philips Private ViewForum MR Cardio Analysis New Storage	1.3.46.670589.5.0.11.1	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		
Philips Private ViewForum CX Synthetic Image Storage	1.3.46.670589.5.0.12	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		
Philips Private ViewForum Perfusion Storage	1.3.46.670589.5.0.13	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		
Philips Private ViewForum Perfusion Analysis Storage	1.3.46.670589.5.0.14	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		
Philips Private ViewForum 3D Volume Object New Storage	1.3.46.670589.5.0.2.1	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		
Philips Private ViewForum Surface New Storage	1.3.46.670589.5.0.3.1	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		
Philips Private ViewForum MR Cardio New Storage	1.3.46.670589.5.0.8.1	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		
Philips Private ViewForum CT Synthetic Image Storage	1.3.46.670589.5.0.9	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		

The Import Image AE accepts all Presentation contexts listed in the above table. This means that the Import Image AE will accept multiple proposed Presentation Contexts with the same SOP Class but different Transfer Syntaxes, so there will be no checks for duplicate Presentation Contexts.

4.2.3.4.2.3. 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.

Xcelera conforms to the SOP classes of the Storage Service Class. Xcelera discards no data elements.

The instances received by Xcelera are merged on Study UID and Series UID.
For ultrasound images only the Image Information Entity level is supported.

The following are the restrictions and exceptions for the normal behavior of the Image Import AE:

1. Xcelera try to notify the external DICOM node about the reason for not accepting the connection and will be reported.
2. If no agreement between the two parties can be reached concerning (DICOM) communication parameters the connection will be

closed and no data transfer will take place and this will be reported.
 3. Xcelera will close the connection if no data is received within 2 minutes after the setup and will be reported.
 4. If a network error occurs during set up of a connection or during data transfer, this is reported. Xcelera will abort the connection and data transfer will not be completed.
 5. By errors during data transfer Xcelera will notify the external DICOM node and closed the connection and will be reported.
 6. DICOM Type 1 Attributes Checked During Storing Of Study Objects:

DICOM Attribute	Presence	Non Empty Value
Study Instance UID	☑	☑
Series Instance UID	☑	☑
SOP Class UID	☑	☑
SOP Instance UID	☑	☑

The following attributes are checked as well for image objects:

DICOM Attribute	Presence	Non Empty Value
Samples per Pixel	☑	☑
Rows	☑	☑
Columns	☑	☑
Bits Allocated	☑	☑
Bits Stored	☑	☑
High Bit	☑	☑
Photometric Interpretation	☑	☑
Pixel Data	☑	☑

If DICOM composite-object attributes are missing or empty then the system will:
   a. Discard all data received for the associated object,
   b. Return an appropriate DICOM error message to the DICOM image system making the store request,
 7 . If an object received has the same DICOM SOP Instance UID as an object already stored on Xcelera, Xcelera will do either of the following:

 - If the already stored object has the same UID's on instance, study and series level as the new one, Xcelera will replace the stored object with the new object. This will not be communicated to the DICOM instance system, which will thus perceive this as a normal store.

OR

 - Depending on the configuration setting "Send Study after Finalized State or Time our Expired" on the Archive page of the service tool, the following will be done. When the study has the status "finalize" and has the same requirements as the previous bullet point, the study will be discarded and will be communicated to the external DICOM node with the status "C-STORE_DUPLICATE_SOP_INSTANCES".
 - If the already stored object has a different study or series UID as the new one; Xcelera will discard the object and send an error to the DICOM image system. The connection will remain open in order to allow the DICOM image system to recover from this error.

Importing of DICOM Structure Reports.

Xcelera Image Import AE supports the DICOM Structured Reports from any DICOM nodes. Xcelera uses the DICOM Structured Reports objects for displaying and reporting of the measurement values of the Adult Echocardiography Reports.

Xcelera is multi vendor compliance for Structured Reports.

4.2.3.4.2.3.1.   Dataset Specific Conformance for C-STORE-RSP

Detail regarding the Dataset Specific response behavior will be reported in this section.

This includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 56: C-STORE-RSP Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	Log: Continue
Refused		Remote is not Licensed	Log; Abort association.
Error		Abort by remote System	Log.
		Time-out reached	Log; Abort association.
	0110	Internal error Xcelera	Send notification; Log; Abort association.
	0111	Duplicate SOP Class	Study will be rejected.
	A900	Invalid dataset	Send notification; Log.

Table 57: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	Time-out for reception is set fixed to 2 minutes.

4.2.4.   Print AE
Detail of this specific Application Entity is specified in this section.

4.2.4.1.   SOP Classes
After the print job is selected, Xcelera will initiate DICOM associations for the DICOM Basic Grayscale Printing Service and the DICOM Verification Service with the DICOM printer (SCP).
 The print job with or without annotation is send to the printer. Xcelera supports a maximum PDU size of 28KBytes.
The printer prints the print job and sends a successful response back to Xcelera. Xcelera shows this response on the system screen.

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

Table 58: SOP Classes for Print AE

SOP Class Name	SOP Class UID	SCU	SCP
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	No	No
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Yes	No
>Print Job SOP Class	1.2.840.10008.5.1.1.14	Yes	No
>Basic Annotation Box SOP Class	1.2.840.10008.5.1.1.15	Yes	No

Any SOP specific behavior above is documented later in this 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 maximum PDU Size that the Print AE will use is not configurable.

The DICOM standard application context is specified below.

Table 59: 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 a Initiator or Acceptor is specified here.
Print AE can have only one open connection at a given time.

Table 60: Number of associations as an Association Initiator for this AE

Description	Value
Maximum number of simultaneous associations	1

4.2.4.2.3. Asynchronous Nature

The implementation supports negotiation of multiple outstanding transactions, along with the maximum number of outstanding transactions supported.

Table 61: 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 62: DICOM Implementation Class and Version for Print AE

Implementation Class UID	1.3.46.670589.16.14.3.2.1
Implementation Version Name	Xcelera R3.2.L1

4.2.4.2.5. Communication Failure Handling

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

Table 63: Communication Failure Behavior

Exception	Behavior
ARTIM Timeout	The association is closed and the reason is logged.

4.2.4.3. Association Initiation Policy

The Application Entity will respond on a received reject Association attempt as shown in next table.

Table 64: Association Rejection response

Result	Source	Reason/Diagnosis	Behavior
1 - rejected-permanent	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - application-context-name-not supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service-provider (Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.
2 - rejected-transient	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.

Result	Source	Reason/Diagnosis	Behavior
		2 - application-context-name-not-supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service-provider (Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.

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

Table 65: Association Abort Handling

Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user (initiated abort)	0 - reason-not-specified	When received, terminates the connection and logs the event.
2 - DICOM UL service-provider (initiated abort)	0 - reason-not-specified	When received, terminates the connection and logs the event.
	1 - unrecognized-PDU	When received, terminates the connection and logs the event.
	2 - unexpected-PDU	When received, terminates the connection and logs the event.
	4 - unrecognized-PDU-parameter	When received, terminates the connection and logs the event.
	5 - unexpected-PDU-parameter	When received, terminates the connection and logs the event.
	6 - invalid-PDU-parameter-value	When received, terminates the connection and logs the event.

4.2.4.3.1. (Real-World) Activity – Print Management As SCU

4.2.4.3.1.1. Description and Sequencing of Activities

The sequence of interactions between the Xcelera Print AE (in figure 13, System AE) and a remote printer AE to print one film sheet is presented as follows:

 After the print job is selected on Xcelera a connection with the DICOM printer will be made.
The print job consists of data describing the images and graphics to be printed as well as the requested layout and other parameters. One print job on the Xcelera may result in a number of film sessions with the printer equal to the number of printed film sheets. Each film sheet within the print job is internally processed, converted to a STANDARD/1,1 page and then an association towards the remote Print Server is established and the page image is sent with or without annotation to the selected DICOM printer.

 The printer prints the print job and sends a successful response back to the Xcelera. The Xcelera reports the success on the screen for the user.

Once the transmission of the film sheet is completed, the association with the printer is closed.
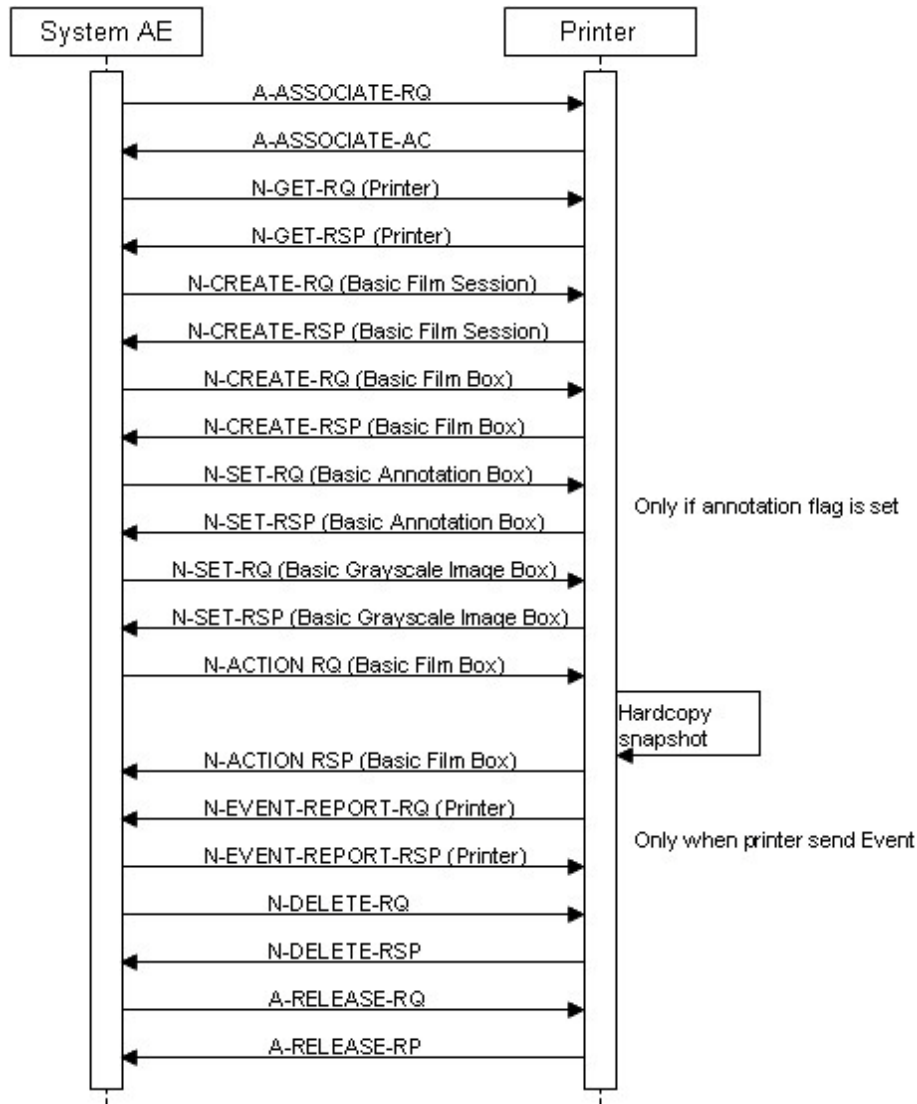
Figure 13: (Real World) Activity - Print Management As SCU

4.2.4.3.1.2.   Proposed Presentation Contexts

The presentation contexts are defined in the next table.

Table 66: Proposed Presentation Contexts for (Real-World) Activity – Print Management As SCU

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9			SCU	None
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	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		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
>Print Job SOP Class	1.2.840.10008.5.1.1.14	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		
>Basic Annotation Box SOP Class	1.2.840.10008.5.1.1.15	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		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9			SCU	None
>Printer SOP Class	1.2.840.10008.5.1.1.16	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		
>Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	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		
>Stored Print Storage SOP Class (Retired)	1.2.840.10008.5.1.1.27	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		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9			SCU	None
>Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	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		

This section specifies each IOD created (including private IOD's).

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
VNAPCV	The attribute is present under specified condition – if present then its Value is Not Always Present (attribute sent zero length if condition applies and no value is present)
ANAPEV	The attribute is present under specified condition – if present then it will not have any 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

4.2.4.3.1.3.   SOP Specific Conformance for Basic Film Session SOP Class of the Basic Grayscale Print Management Meta SOP Class

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

Exceptions:

The print job cannot be completed by the printer:

1. Printer errors are handled as given in the next table.
2. DICOM transfer errors to the printer are treated as normal DICOM transfer errors and are recorded appropriately.
3. The printer can use the Basic Annotation Box SOP Class when the annotation flag is set. A control on the SOP Classes during setup of the Association is used to check of the printer known this SOP Class.

Table 67: DICOM Command Response Status Handling Behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	Log; Continue.
Warning/Failure	<>0000	(any warning/failure)	Log; Continue.
Error	<>0000	(any error)	Log; Abort.

4.2.4.3.1.3.1.   Dataset Specific Conformance for Basic Film Session SOP Class N-CREATE-SCU

Detail regarding the Dataset Specific response behavior will be reported in this section.

Table 68: Basic Film Session Presentation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Copies	2000,0010	IS		ANAPCV	USER	-
Print Priority	2000,0020	CS		ANAPCV	USER	-

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 69: Dicom command response status handling behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film Session successfully created	The print job continues.
Warning	B600	Memory Allocation not supported	The print job continues and the warning is logged.

Table 70: DICOM Command Communication Failure Behavior

Exception	Behavior
ARTIM Time-out	Print job Fails
Reply Time-out	The association is rejected.
Association Time-out SCU	The association is released.
Association aborted	The Print job is marked as failed. The reason is logged and reported to the user.

4.2.4.3.1.4. SOP Specific Conformance for Print Job SOP Class of the

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

Exceptions:

The print job cannot be completed by the printer:

1. Printer errors are handled as given in the next table.
2. DICOM transfer errors to the printer are treated as normal DICOM transfer errors and are recorded appropriately.
3. The printer can use the Basic Annotation Box SOP Class when the annotation flag is set. A control on the SOP Classes during setup of the Association is used to check of the printer known this SOP Class.

Table 71: DICOM Command Response Status Handling Behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	Log; Continue.
Warning/Failure	<>0000	(any warning/failure)	Log; Continue.
Error	<>0000	(any error)	Log; Abort.

4.2.4.3.1.4.1. Dataset Specific Conformance for Print Job N-EVENT-REPORT SCU

Detail regarding the Dataset Specific response behavior will be reported in this section.

Xcelera does not respond to N-EVENT-REPORT from the Printer.

Note:

N-EVENT-REPORT is an asynchronous message from the printer in situations such as no film supply, low cartridge, print door opened, etc. Xcelera does not handle this and responds with either ABORT or releasing the association. On the User Interface the Print Job is displayed as failed and the user needs to resend the image.

4.2.4.3.1.5. SOP Specific Conformance for Basic Annotation Box SOP Class of the

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

Exceptions:

The print job cannot be completed by the printer:

1. Printer errors are handled as given in the next table.
2. DICOM transfer errors to the printer are treated as normal DICOM transfer errors and are recorded appropriately.
3. The printer can use the Basic Annotation Box SOP Class when the annotation flag is set. A control on the SOP Classes during setup of the Association is used to check of the printer known this SOP Class.

Table 72: DICOM Command Response Status Handling Behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	Log; Continue
Warning/Failure	<>0000	(any warning/failure)	Log; Continue.
Error	<>0000	(any error)	Log; Abort.

4.2.4.3.1.5.1.　Dataset Specific Conformance for Basic Annotation Box SOP Class N-SET-SCU

Detail regarding the Dataset Specific response behavior will be reported in this section.

Table 73: Basic Annotation Presentation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Annotation Position	2030,0010	US		ALWAYS	AUTO	-
Text String	2030,0020	LO		ALWAYS	AUTO	Contains Patient Name (0010,0010).

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 74: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	The association is closed and the reason is logged.
Association aborted	The association is closed and the reason is logged.

4.2.4.3.1.6.　SOP Specific Conformance for Printer SOP Class of the Basic Grayscale Print Management Meta SOP Class

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

Exceptions:

The print job cannot be completed by the printer:

1. Printer errors are handled as given in the next table.
2. DICOM transfer errors to the printer are treated as normal DICOM transfer errors and are recorded appropriately.
3. The printer can use the Basic Annotation Box SOP Class when the annotation flag is set. A control on the SOP Classes during setup of the Association is used to check of the printer known this SOP Class.

Table 75: DICOM Command Response Status Handling Behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	
Warning/Failure	<>0000	(any warning/failure)	Log; Continue.
Error	<>0000	(any error)	Log; Abort.

4.2.4.3.1.6.1.　Dataset Specific Conformance for Printer SOP Class N-EVENT-REPORT-SCP

Detail regarding the Dataset Specific response behavior will be reported in this section.

Xcelera does not respond to N-EVENT-REPORT from the Printer.

Note:
 N-EVENT-REPORT is an asynchronous message from the printer in situations such as no film supply, low cartridge, print door opened, etc. Xcelera does not handle this and responds with either ABORT or releasing the association. On the User Interface the Print Job is displayed as failed and the user needs to resend the image.

4.2.4.3.1.6.2. Dataset Specific Conformance for Printer SOP Class N-GET-SCU

Detail regarding the Dataset Specific response behavior will be reported in this section.

Table 76: Printer Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		ALWAYS	AUTO	-
Manufacturer's Model Name	0008,1090	LO		ALWAYS	AUTO	-
Device Serial Number	0018,1000	LO		ALWAYS	AUTO	-
Software Version(s)	0018,1020	LO		ALWAYS	AUTO	-
Date of Last Calibration	0018,1200	DA		ALWAYS	AUTO	-
Time of Last Calibration	0018,1201	TM		ALWAYS	AUTO	-
Printer Status	2110,0010	CS		ALWAYS	AUTO	-
Printer Status Info	2110,0020	CS		ALWAYS	AUTO	-
Printer Name	2110,0030	LO		ALWAYS	AUTO	-

4.2.4.3.1.7. SOP Specific Conformance for Basic Film Box SOP Class of the Basic Grayscale Print Management Meta SOP Class

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

The Print AE conforms to the Basic Film Box SOP Class. No data elements are discarded or coerced by the Print AE.

Exceptions:

The print job cannot be completed by the printer:

1. Printer errors are handled as given in the next table.
2. DICOM transfer errors to the printer are treated as normal DICOM transfer errors and are recorded appropriately.
3. The printer can use the Basic Annotation Box SOP Class when the annotation flag is set. A control on the SOP Classes during setup of the Association is used to check of the printer known this SOP Class.

Table 77: DICOM Command Response Status Handling Behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	Log; Continue
Warning/Failure	<>0000	(any warning/failure)	Log; Continue.
Error	<>0000	(any error)	Log; Abort.

4.2.4.3.1.7.1. Dataset Specific Conformance for Basic Film Box SOP Class N-CREATE-SCU

Detail regarding the Dataset Specific response behavior will be reported in this section.

Table 78: Basic Film Box Presentation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Display Format	2010,0010	ST	STANDARD, Value 2: 1,1, 1,2, 2,1, 2,2, 2,3, 3,2, 3,3, 3,4, 3,5, 4,4, 4,5, 4,6	ALWAYS	AUTO	-
Annotation Display Format ID	2010,0030	CS	ANNOTATION	ALWAYS	AUTO	-
Film Orientation	2010,0040	CS	LANDSCAPE, PORTRAIT	ALWAYS	AUTO	-

Table 79: Basic Film Box Relationship Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Referenced Film Session Sequence	2010,0500	SQ		ALWAYS	AUTO	-
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	-
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	-

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 80: Dicom command response status handling behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film Box successfully created	The print job continues.
Warning	B605	Requested Min Density or Max Density outside of Printer's operating Range	The print job continues and the warning is logged.
Failure	C616	There is an existing Film Box that has not been printed	The print job is marked as failed and the reason is logged.

Table 81: DICOM Command Communication Failure Behavior

Exception	Behavior
ARTIM Time-out	Print job Fails.
Reply Time-out	The association is rejected.
Association Time-out SCU	The association is released.
Association aborted	The Print job is marked as failed. The reason is logged and reported to the user.

4.2.4.3.1.7.2. Dataset Specific Conformance for Basic Film Box SOP Class N-ACTION-SCU

Detail 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 82: Dicom command response status handling behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film accepted for printing	The print job continues.

Service Status	Error Code	Further Meaning	Behavior
Warning	B603	Film Box SOP Instance Hierarchy does not contain Image Box SOP Instances	The print job continues and the warning is logged and reported to the user.
	B604	Image Size is larger than Image Box Size – The Image has been de-magnified	The print job continues and the warning is logged and reported to the user.
	B609	Image Size is larger than Image Box Size – The Image has been cropped to fit	The print job continues and the warning is logged and reported to the user.
	B60A	Image Size or combined Print Image Size is larger than Image Box Size – The Image or combined Print Image has been decimated to fit	The print job continues and the warning is logged and reported to the user.
Failure	C602	Unable to create Print Job SOP Instance – Print Queue is full	The print job is marked as failed and the reason is logged and reported to the user.
	C603	Image Size is larger than Image Box Size	The print job is marked as failed and the reason is logged and reported to the user.
	C613	Combined Print Image Size is larger than Image Box Size	The print job is marked as failed and the reason is logged and reported to the user.

Table 83: DICOM Command Communication Failure Behavior

Exception	Behavior
ARTIM Time-out	Print job Fails
Reply Time-out	The association is rejected
Association Time-out SCU	The association is released.
Association aborted	The Print job is marked as failed. The reason is logged and reported to the user.

4.2.4.3.1.8.   SOP Specific Conformance for Stored Print Storage SOP Class (Retired) of the

4.2.4.3.1.9.   SOP Specific Conformance for Basic Grayscale Image Box SOP Class of the Basic Grayscale Print Management Meta SOP Class

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

The Print AE conforms to the Basic Grayscale Image Box SOP Class. No data elements are discarded or coerced by the Print AE.

Exceptions:

The print job cannot be completed by the printer:

1. Printer errors are handled as given in the next table.
2. DICOM transfer errors to the printer are treated as normal DICOM transfer errors and are recorded appropriately.
3. The printer can use the Basic Annotation Box SOP Class when the annotation flag is set. A control on the SOP Classes during setup of the Association is used to check of the printer known this SOP Class.

Table 84: DICOM Command Response Status Handling Behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	Log; Continue
Warning/Failure	<>0000	(any warning/failure)	Log; Continue.
Error	<>0000	(any error)	Log; Abort.

4.2.4.3.1.9.1.　Dataset Specific Conformance for Basic Grayscale Image Box SOP Class N-SET-SCU

Detail regarding the Dataset Specific response behavior will be reported in this section.

Table 85: Image Box Pixel Presentation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Box Position	2020,0010	US		ALWAYS	AUTO	-
Requested Decimate/Crop Behavior	2020,0040	CS	DECIMATE	ALWAYS	AUTO	-
Basic Grayscale Image Sequence	2020,0110	SQ		ALWAYS	AUTO	-
>Samples per Pixel	0028,0002	US	1	ALWAYS	AUTO	-
>Photometric Interpretation	0028,0004	CS	MONOCHROME2	ALWAYS	AUTO	-
>Planar Configuration	0028,0006	US		ANAP	CONFIG	Additional attribute.
>Rows	0028,0010	US		ALWAYS	AUTO	-
>Columns	0028,0011	US		ALWAYS	AUTO	-
>Pixel Aspect Ratio	0028,0034	IS	Value 1: 1\1	ALWAYS	AUTO	-
>Bits Allocated	0028,0100	US	8	ALWAYS	AUTO	-
>Bits Stored	0028,0101	US	8	ALWAYS	AUTO	-
>High Bit	0028,0102	US	7	ALWAYS	AUTO	-
>Pixel Representation	0028,0103	US	0	ALWAYS	AUTO	-
>Window Center	0028,1050	DS		ANAP	CONFIG	Additional attribute.
>Window Width	0028,1051	DS		ANAP	CONFIG	Additional attribute.
>Pixel Data	7FE0,0010	OW/OB		ALWAYS	AUTO	-

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 86: Dicom command response status handling behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Image successfully stored in Image Box	The print job continues.
Warning	B604	Image Size is larger than Image Box Size – The Image has been de-magnified	The print job continues and the warning is logged and reported to the user.
	B605	Requested Min Density or Max Density outside of Printer's operating Range	The print job continues and the warning is logged and reported to the user.
	B609	Image Size is larger than Image Box Size – The Image has been cropped to fit	The print job continues and the warning is logged and reported to the user.
	B60A	Image Size or combined Print Image Size is larger than Image Box Size – The Image or combined Print Image has been decimated to fit	The print job continues and the warning is logged and reported to the user.
Error	C603	Image Size is larger than Image Box Size	The print job is marked as failed and the reason is logged and reported to the user.
	C605	Insufficient Memory in Printer to store the Image	The print job is marked as failed and the reason is logged and reported to the user.
	C613	Combined Print Image Size is larger than Image Box Size	The print job is marked as failed and the reason is logged and reported to the user.

Table 87: DICOM Command Communication Failure Behavior

Exception	Behavior
ARTIM Time-out	Print job Fails

Exception	Behavior
Reply Time-out	The association is rejected.
Association Time-out SCU	The association is released.
Association aborted	The Print job is marked as failed. The reason is logged and reported to the user.

4.2.4.4.   Association Acceptance Policy

Not applicable, Print AE does not accept any associations.

4.2.5.   Query Retrieve as SCP AE

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

4.2.5.1.   SOP Classes

The Query/Retrieve SCP AE is used for handling incoming Query/Retrieve requests. The actual sending of DICOM Instances (images, objects) from Xcelera Server to remote system is handled by another AE. The Query/Retrieve SCP AE makes use of the following DICOM functions:

- Verification as SCP, which uses C-ECHO service element.
- Query as SCP, which uses C-FIND as service element
 -Retrieve as SCP, which uses C-MOVE as service element.
- Patient / Study are always updates with the latest information for the exported studies. (Refer to the tables in section 4.2.5.3.2.4 for the list of updated patient and study attributes.)

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

<p align="center">**Table 88: SOP Classes for Query Retrieve as SCP AE**</p>

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	No	Yes
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	Yes	No
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	Yes	No
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	Yes	No
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	Yes	No
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	No
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	Yes	No
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	No
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	Yes	No
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	No
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	Yes	No
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	No
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Yes	No
Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.2	Yes	No
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	Yes	No
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	Yes	No
X-Ray Angiographic Bi-Plane Image Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.12.3	Yes	No
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	Yes	No
Standalone PET Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.129	Yes	No
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	Yes	No
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	Yes	No
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Yes	No
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	Yes	No
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Yes	No
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	Yes	No
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	Yes	No
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	Yes	No
RT Plan Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.5	Yes	No
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Yes	No
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	Yes	No
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	Yes	No

SOP Class Name	SOP Class UID	SCU	SCP
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Yes	No
Multi-frame Single Bit Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.1	Yes	No
Multi-frame Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2	Yes	No
Multi-frame Grayscale Word SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.3	Yes	No
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	No
Standalone Overlay Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.8	Yes	No
Basic Text SR SOP Class	1.2.840.10008.5.1.4.1.1.88.11	Yes	No
Enhanced SR SOP Class	1.2.840.10008.5.1.4.1.1.88.22	Yes	No
Detail SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.3	Yes	No
Comprehensive SR SOP Class	1.2.840.10008.5.1.4.1.1.88.33	Yes	No
Standalone Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.9	Yes	No
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	No
Patient Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.1.1	No	Yes
Patient Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.1.2	No	Yes
Study Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	No	Yes
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	No	Yes
PatientStudy Only QR Info. Model - FIND SOP Class (Retired)	1.2.840.10008.5.1.4.1.2.3.1	No	Yes
PatientStudy Only QR Info. Model - MOVE SOP Class (Retired)	1.2.840.10008.5.1.4.1.2.3.2	No	Yes
Philips Private X-Ray Image Storage	1.3.46.670589.2.3.1.1	Yes	No
Philips Private Reconstructed X-ray Storage	1.3.46.670589.2.4.1.1	Yes	No
Philips Private iE33 3D NEO Presentation State Subpage Storage	1.3.46.670589.2.5.1.1	Yes	No
Philips Private ViewForum 3D Volume New Storage	1.3.46.670589.5.0.1.1	Yes	No
Philips Private ViewForum MR Synthetic Image Storage	1.3.46.670589.5.0.10	Yes	No
Philips Private ViewForum MR Cardio Analysis New Storage	1.3.46.670589.5.0.11.1	Yes	No
Philips Private ViewForum CX Synthetic Image Storage	1.3.46.670589.5.0.12	Yes	No
Philips Private ViewForum Perfusion Storage	1.3.46.670589.5.0.13	Yes	No
Philips Private ViewForum Perfusion Analysis Storage	1.3.46.670589.5.0.14	Yes	No
Philips Private ViewForum 3D Volume Object New Storage	1.3.46.670589.5.0.2.1	Yes	No
Philips Private ViewForum Surface New Storage	1.3.46.670589.5.0.3.1	Yes	No
Philips Private ViewForum MR Cardio New Storage	1.3.46.670589.5.0.8.1	Yes	No
Philips Private ViewForum CT Synthetic Image Storage	1.3.46.670589.5.0.9	Yes	No

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

4.2.5.2.   Association Policies

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

4.2.5.2.1.   General

The DICOM standard application context is specified below.

Table 89: DICOM Application Context

Description	Value
Application Context Name	1.2.840.10008.3.1.1.1

4.2.5.2.2. Number of Associations

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

The number of associations that Query Retrieve SCP AE can handle is up to 10. For the verification service at least one association can be handled simultaneously. The Query Retrieve SCP AE will only accept DICOM associations from other DICOM nodes whose AE titles are listed in the Xcelera configuration files. The storage part of the Query Retrieve SCP function can handle maximum of 5 associations simultaneously.

Table 90: Number of associations as an Association Initiator for this AE (C-STORE)

Description	Value
Maximum number of simultaneous associations	5

Table 91: Number of associations as an Association Acceptor for this AE (C-FIND, C-MOVE)

Description	Value
Maximum number of simultaneous associations	5

Table 92: Number of associations as an Association Acceptor for this AE (C-ECHO)

Description	Value
Maximum number of simultaneous associations	1

4.2.5.2.3. Asynchronous Nature

The implementation supports negotiation of multiple outstanding transactions, along with the maximum number of outstanding transactions supported.

Table 93: Asynchronous nature as an Association Initiator for this AE

Description	Value
Maximum number of outstanding asynchronous transactions	Not applicable

4.2.5.2.4. Implementation Identifying Information

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

Table 94: DICOM Implementation Class and Version for Query Retrieve as SCP AE

Implementation Class UID	1.3.46.670589.16.14.3.2.1
Implementation Version Name	Xcelera R3.2.L1

4.2.5.2.5. Communication Failure Handling

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

Table 95: Communication Failure Behavior

Exception	Behavior
ARTIM Timeout	The association is released and the reason is logged.

4.2.5.3. Association Initiation Policy

The Application Entity will respond on a received reject Association attempt as shown in next table.

Table 96: Association Rejection response

Result	Source	Reason/Diagnosis	Behavior
1 - rejected-permanent	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - application-context-name-not supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service-provider (Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.
2 - rejected-transient	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - application-context-name-not-supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service-provider (Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.

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

Table 97: Association Abort Handling

Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user (initiated abort)	0 - reason-not-specified	When received, terminates the connection and logs the event.
2 - DICOM UL service-provider (initiated abort)	0 - reason-not-specified	When received, terminates the connection and logs the event.
	1 - unrecognized-PDU	When received, terminates the connection and logs the event.
	2 - unexpected-PDU	When received, terminates the connection and logs the event.
	4 - unrecognized-PDU-parameter	When received, terminates the connection and logs the event.
	5 - unexpected-PDU-parameter	When received, terminates the connection and logs the event.
	6 - invalid-PDU-parameter-value	When received, terminates the connection and logs the event.

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

4.2.5.3.1.1.   Description and Sequencing of Activities

The Query/Retrieve as SCP AE accepts associations from systems that wish to verify application level communication using the C-ECHO command.
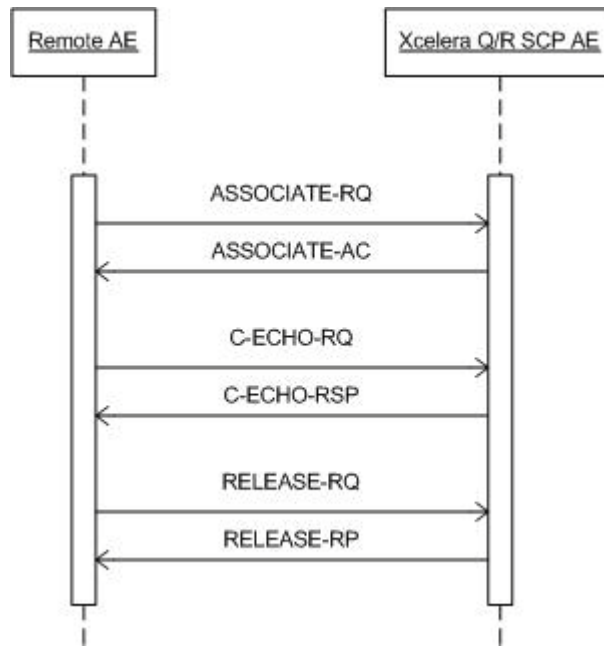
Figure 14: (Real World) Activity - Verification as SCP

4.2.5.3.1.2.   Accepted Presentation Contexts

The presentation contexts are defined in the next table.

Table 98: Acceptable 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		

4.2.5.3.1.3.   SOP Specific Conformance for Verification SOP Class

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

The Query/Retrieve as SCP AE provides standard conformance. to Verification SOP Class

 The Query/Retrieve as SCP (C-ECHO) accepts all contexts in the intersection of the proposed and acceptable Presentation Context.

This means that the Query/Retrieve as SCP AE will accept multiple proposed Presentation Contexts with the same SOP Class but different Transfer Syntaxes, so there will be no checks for duplicate Presentation Contexts.

4.2.5.3.1.3.1.   Dataset Specific Conformance for Verification C-ECHO SCP

Detail 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 99: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Confirmation	Message in log file.

4.2.5.3.2.   (Real-World) Activity – Instance Storage

4.2.5.3.2.1.   Description and Sequencing of Activities

Normal flow of events:

1. Xcelera accepts the set up request of the remote node. Once the connection has been set up Xcelera receives the query request. In response Xcelera will send (0 of more) queues in the result. The connection will be closed.
2. A new connection will be set up for the retrieve request. If request was successful an association with the store remote node will be set up.
3. The requested data will be send to the store remote node
4. Connection with the store remote node and the request retrieve node will be closed.
5. Patient Study data will be updated with the latest information. (Refer to the tables in section 4.2.1.3.3.3 for the list of updated patient and study attributes.)

After the C-MOVE request the Query/Retrieve as SCP (C-STORE) will only export the requested instances.
Xcelera send these instances intermediate during the C-MOVE responses or not intermediate than the C-MOVE status "PENDING" is sending to the Remote AE.
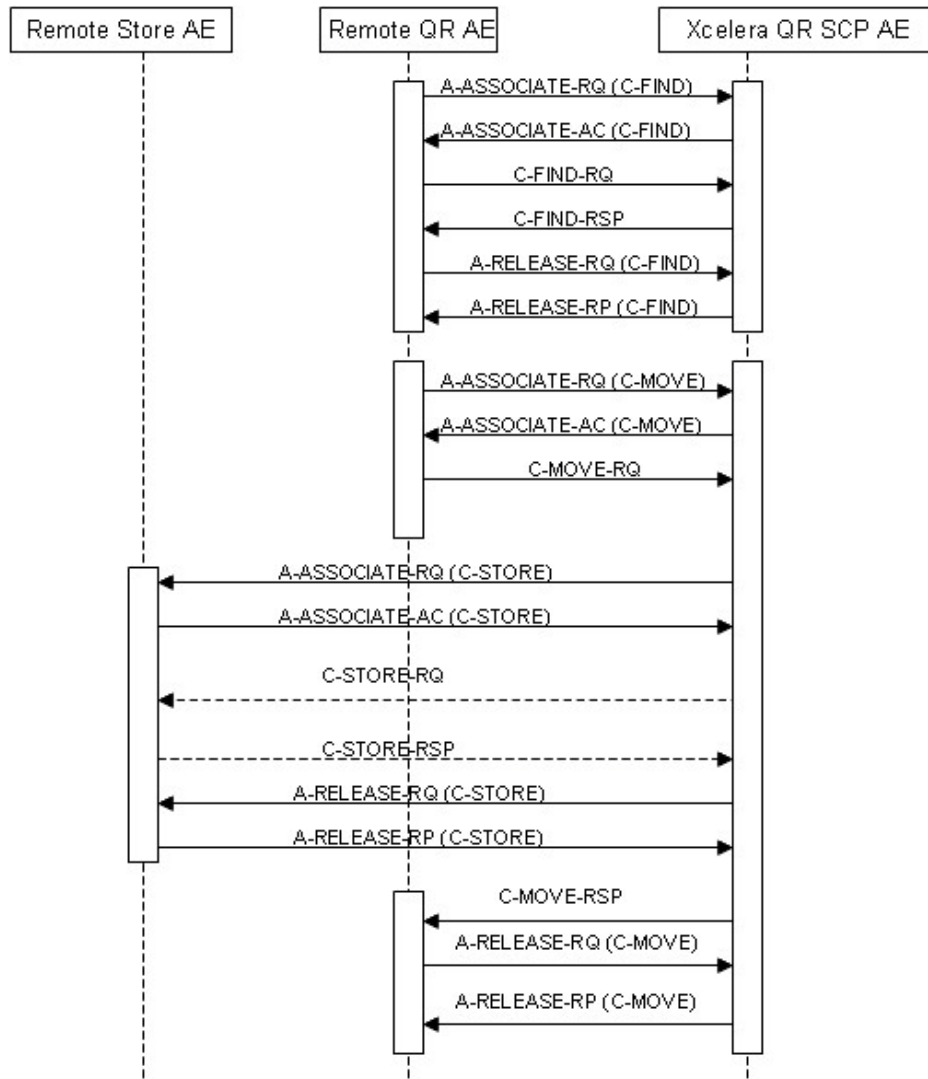
Figure 15: (Real World) Activity - Image Export

4.2.5.3.2.2.   Proposed Presentation Contexts

The presentation contexts are defined in the next table.

Table 100: Proposed Presentation Contexts for (Real-World) Activity – Image Export

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	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		
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	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		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	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		
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	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		
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	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		
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	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		
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	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		
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	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		
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	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		
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	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		
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	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		
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	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		
Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.2	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		
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	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		
X-Ray Angiographic Bi-Plane Image Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.12.3	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Exten ded Negoti ation**
Name	**UID**	**Name List**	**UID List**		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	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		
Standalone PET Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.129	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		
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	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		
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	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		
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	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		
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	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		
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	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		
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	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		
RT Plan Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.5	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		
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
(Retired)		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	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		
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Multi-frame Single Bit Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.1	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Multi-frame Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Multi-frame Grayscale Word SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.3	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Standalone Overlay Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.8	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		
Basic Text SR SOP Class	1.2.840.10008.5.1.4.1.1.88.11	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		
Enhanced SR SOP Class	1.2.840.10008.5.1.4.1.1.88.22	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		
Detail SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.3	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		
Comprehensive SR SOP Class	1.2.840.10008.5.1.4.1.1.88.33	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		
Standalone Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.9	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		
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	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		
Philips Private X-Ray Image Storage	1.3.46.670589.2.3.1.1	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		
Philips Private Reconstructed X-ray Storage	1.3.46.670589.2.4.1.1	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		
Philips Private iE33 3D NEO Presentation State Subpage Storage	1.3.46.670589.2.5.1.1	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		
Philips Private ViewForum 3D Volume New Storage	1.3.46.670589.5.0.1.1	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		
Philips Private ViewForum MR Synthetic Image Storage	1.3.46.670589.5.0.10	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		
Philips Private ViewForum MR Cardio Analysis New Storage	1.3.46.670589.5.0.11.1	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		
Philips Private ViewForum CX Synthetic Image Storage	1.3.46.670589.5.0.12	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		
Philips Private ViewForum Perfusion Storage	1.3.46.670589.5.0.13	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		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Philips Private ViewForum Perfusion Analysis Storage	1.3.46.670589.5.0.14	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		
Philips Private ViewForum 3D Volume Object New Storage	1.3.46.670589.5.0.2.1	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		
Philips Private ViewForum Surface New Storage	1.3.46.670589.5.0.3.1	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		
Philips Private ViewForum MR Cardio New Storage	1.3.46.670589.5.0.8.1	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		
Philips Private ViewForum CT Synthetic Image Storage	1.3.46.670589.5.0.9	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		

4.2.5.3.2.3.   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.

Not mentioned SOP classes are also supported, but only with the stored transfer syntax. This implies that not mentioned SOP classes are handled in such manner that what comes in will be sent out.

 - The DICOM Store SCU exports the same attribute values as were imported into Xcelera.
 - The DICOM Store SCU updates the patient study with the latest information.
 - The DICOM Store SCU supports all transfer syntaxes that are supported by DICOM import.
 - The DICOM Store SCU supports conversion of transfer syntax (must be prepared to do a conversion from the transfer syntax in which the data is stored to the transfer syntax which is negotiated with the remote DICOM Store SOP Specific Conformance for SOP Classes.
 - Only the DICOM instances of services where both parties agreed upon are stored, this will be reported.

4.2.5.3.2.3.1.   Dataset Specific Conformance for C-STORE-RQ

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

The possible Status responses during the C-STORE-SCU request are listed here:
Table 101: Dicom command response status handling behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Successful stored	Log; Continue.
Refused	A700	Refused: Out of Resources	Log; Continue.
Error	0110	Error: Processing Failure	Log; Continue.
	A900	Error: Data Set does not match SOP Class	Log; Continue.
	C000	Error: cannot understand	Log; Continue.

Service Status	Error Code	Further Meaning	Behavior
Warning	B000	Coercion of Data Elements	Log; Continue.
	B007	Data Set does not match SOP Class	Log; Continue.
	B006	Elements Discarded	Log; Continue.

Next table shows the possible Communication Failure during C-STORE request.

Table 102: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	The association released and the reason is logged.
Association aborted.	The association released and the reason is logged.

Exceptions:

1. If, after setting up the connection, no data can be sent to the external DICOM node for 2 minutes, Xcelera will retry once and then it will abort the connection and reports error

2. If an error occurs on Xcelera while setting up the connection, Xcelera will abort the connection and reports an error

3. If an error occurs on the external DICOM node while setting up the connection, Xcelera will abort all actions related to that connection and reports an error.

4. If no agreement between the two parties can be reached concerning communication parameters the connection will be closed and no data transfer will take place. Xcelera reports an error.

5. When a network error occurs during connection set up or during data transfer, Xcelera will abort all actions related to the connection and reports and error.

4.2.5.3.2.4.   SOP Specific Conformance for Storage SOP Classes

During DICOM based store, transfer negotiations may indicate that the original format of the data is not accepted by the target node. In such cases, the remote store server will try to apply one of the transfer syntax conversions indicated by '+', in order to get to transfer syntax that is supported by the external system. The Transfer syntax conversion is supported from SCU to SCP.

Source Syntax	Destination Syntax		
	ILE	ELE	EBE
ILE	-	+	+
ELE	+	-	+
EBE	+	+	-
JPEG Baseline	-	-	-
JPEG Lossless FOP Non-Hierarchical 14	+	+	+
RLE	+	+	+

Figure 16: Transfer Syntax Convertion from Source to Destination.

The Archive AE conforms to the SOP classes of the Storage Service Class at level 2 (full). No data elements are discarded or coerced by the Archive AE.

The list of updated patient and study attributes are mentioned in the tables below.

Table 103: List of updated Patient Attributes

Attribute	DICOM Tag
Last Name	Part of (0010,0010)
First name	Part of (0010,0010)
Middle name	Part of (0010,0010)
Date of birth	(0010,0030)
Sex	(0010,0040)
Issuer of Patient ID	(0010,0021)
MRN	(0010,0020)
Alternate ID#	(0010,1000)
Title	Part of (0010,0010)
Honorific	Part of (0010,0010)
Address 1	Part of (0010,1040)
Address 2 (if Address1 is empty)	Part of (0010,1040)
City	Part of (0010,1040)
State/Province	(0010,2152)
Postal code	Part of (0010,1040)
Country	(0010,2150)
Race	(0010,2160)
Home phone	Part of (0010,2154)
Business phone	Part of (0010,2154)
Mobile phone	Part of (0010,2154)

Table 104: List of updated Study Attributes

Attribute	DICOM Tag
Study Description	(0008,1030)
Accession Number	(0008,0050)
Body Part	(0018,0015)
Protocol Name	(0018,1030)
Reason for Study	(0008,1080)
Performed By	(0008,1050)
Reading Physician	(0008,1060)
Ordering Physician	(0032,1032)
Reviewer	(300E,0008)
Referring Physician	(0008,0090)
Institution Department Name	(0008,1040)
Station Name	(0008,1010)
Study Comments	(0032,4000)

4.2.5.4.   Association Acceptance Policy

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

Table 105: Association Reject Reasons

Result	Source	Reason/Diagnosis	Behavior
1 - rejected permanent	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - application-context-name-not-supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service provider (Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.
2 - rejected-transient	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - application-context-name-not-supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service provider (Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.

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

Table 106: Association Abort Policies

Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user (initiated abort)	0 - reason-not-specified	When received, terminates the connection and logs the event.
2 - DICOM UL service-provider (initiated abort)	0 - reason-not-specified	When received, terminates the connection and logs the event.
	1 - unrecognized-PDU	When received, terminates the connection and logs the event.
	2 - unexpected-PDU	When received, terminates the connection and logs the event.
	4 - unrecognized-PDU parameter	When received, terminates the connection and logs the event.
	5 - unexpected-PDU parameter	When received, terminates the connection and logs the event.
	6 - invalid-PDU-parameter value	When received, terminates the connection and logs the event.

4.2.5.4.1. (Real-World) Activity – FIND As SCP

4.2.5.4.1.1. Description and Sequencing of Activities

Xcelera allows the clinical user to query and retrieve data from other systems in the DICOM network. In communications with other nodes, Xcelera operates as a DICOM Query/Retrieve SCP and DICOM Store SCU, which are compatible with DICOM Query/Retrieve SCU and Store SCP provided by other products.

Query/Retrieve as SCP AE accepts associations from systems that wish to query Xcelera database using the C-FIND command.

4.2.5.4.1.2. Accepted Presentation Contexts

The presentation contexts are defined in the next table.

Table 107: Acceptable Presentation Contexts for (Real-World) Activity – FIND As SCP

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Patient Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.1.1	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		
Study Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	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		
PatientStudy Only QR Info. Model - FIND SOP Class (Retired)	1.2.840.10008.5.1.4.1.2.3.1	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		

4.2.5.4.1.3. SOP Specific Conformance for Patient Root QR Information Model - FIND SOP Class

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

The Query/Retrieve as SCP provides standard conformance.

The Query/Retrieve as SCP accepts all contexts in the intersection of the proposed and acceptable Presentation Context. This means that the Query/Retrieve as SCP will accept multiple proposed Presentation Contexts with the same SOP Class but different Transfer Syntaxes, so there will be no checks for duplicate Presentation Contexts.

If the C-FIND query is such that more than 1000 matches are found the Query/Retrieve SCP will return an error "out of resources" indicating there are more matches than the system can handle.

If a wildcards are used in a C-FIND, all matching records and all null records are returned by Xcelera.

4.2.5.4.1.3.1. Dataset Specific Conformance for Patient Root QR Information Model - FIND SOP Class C-FIND-SCP

Detail regarding the Dataset Specific response behavior will be reported in this section.

Table 108: Requested Query Keys for Patient Root Information Model

Attribute Name	Tag	VR	Type Of Matching	Comment
Patient Root Information Model				
Query/Retrieve Level	0008,0052	CS		Patient, Study, Series.
Specific Character Set	0008,0005	CS		-
Q/R Patient level				
Patient ID	0010,0020	LO		-
Patient's Birth Date	0010,0030	DA		-
Patient's Name	0010,0010	PN		-
Patient's Sex	0010,0040	CS		-
Q/R Study level				
Accession Number	0008,0050	SH		-
Referring Physician's Name	0008,0090	PN		-
Study Date	0008,0020	DA		-
Study ID	0020,0010	SH		-
Study Instance UID	0020,000D	UI		-
Study Time	0008,0030	TM		-
Q/R Series level				
Body Part Examined	0018,0015	CS		-
Modality	0008,0060	CS		-
Performing Physician's Name	0008,1050	PN		-
Protocol Name	0018,1030	LO		-
Series Instance UID	0020,000E	UI		-
Series Number	0020,0011	IS		-
Q/R Image level				
Instance Number	0020,0013	IS		-
SOP Instance UID	0008,0018	UI		-

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Possible Status Responses during C-FIND responses are listed here:

Table 109: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Matching is complete	No final identifier is supplied. Logged and continued.
Failed	A900	Invalid dataset	Related fields (0000,0901) (0000,0902)
Pending	FF01	Current match is supplied	Matches are continuing; Current match is supplied and any Optional Keys were supported in the same manner as Required Keys. (Related fields: identifier)
	FF01	Warning	Matches are continuing; Warning that one or more Optional Keys were not supported for existence and/or matching for this identifier (Related fields: identifier).
Refused	A700	Out of resources	Related fields (0000,0902)

If a query returns more than 1000 results, the system sends an "out of resources" messages back to the client instead or returning query results.

Possible communication failures during the query process are:

Table 110: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	The association is released and the reason is logged.
Association aborted	The association is released and the reason is logged.

4.2.5.4.1.4. SOP Specific Conformance for Study Root QR Information Model - FIND SOP Class

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

The Xcelera Query/Retrieve SCP AE provides standard conformance to the Study Root Q/R Information model.

4.2.5.4.1.4.1. Dataset Specific Conformance for Study Root QR Information Model - FIND SOP Class C-FIND-SCP

Detail regarding the Dataset Specific response behavior will be reported in this section.

Table 111: Requested Query Keys for Study Root Information Model

Study Root Information Model				
Attribute Name	**Tag**	**VR**	**Type Of Matching**	**Comment**
Query/Retrieve Level	0008,0052	CS		Patient, Study, Series.
Specific Character Set	0008,0005	CS		-
Q/R Study level				
Accession Number	0008,0050	SH	Single Value, Universal	-
Patient ID	0010,0020	LO	Single Value	-
Patient's Birth Date	0010,0030	DA	Single Value, Universal, WildCard	-
Patient's Name	0010,0010	PN	Single Value, Universal, WildCard	Wildcard matching not case sensitive.
Patient's Sex	0010,0040	CS	Single Value, Universal	-
Referring Physician's Name	0008,0090	PN	Single Value, Universal	-
Study Date	0008,0020	DA	Range, Single Value, Universal	-
Study ID	0020,0010	SH	Single Value, Universal, WildCard	-
Study Instance UID	0020,000D	UI	List Of UID, Single Value, Universal	-
Study Time	0008,0030	TM	Single Value, Universal	-
Q/R Series level				
Modality	0008,0060	CS	Single Value, Universal	-
Series Instance UID	0020,000E	UI	List Of UID, Single Value, Universal	-
Series Number	0020,0011	IS	Single Value, Universal	-
Q/R Image level				
Instance Number	0020,0013	IS	Single Value, Universal	-
SOP Instance UID	0008,0018	UI	List Of UID, Single Value, Universal	-

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 112: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Matching is complete	The C-FIND request handling is completed, no more C-FIND responses are sent.
Refused	A700	Out of Resources	N/A
Failed	A900	Identifier does not match SOP class	N/A

Service Status	Error Code	Further Meaning	Behavior
	C000	Unable to process	The C-FIND request cannot be parsed. ViewForum logs the reason.
Cancel	FE00	Matching terminated due to Cancel Request	The C-FIND request is canceled, no more C-FIND responses are sent.
Pending	FF00	Matches are continuing – Current match is supplied and any optional keys were supported in the same manner as required keys	The C-FIND responses are continuing.
	FF01	Matches are continuing – Warning that one or more optional keys were not supported for existence and/or matching for this identifier	The C-FIND responses are continuing.

Table 113: DICOM Command Communication Failure Behavior

Exception	Behavior
ARTIM Time-out	The query fails in case of association setup. The reason is logged.
Reply Time-out	The query fails and association is aborted. The reason is logged.

4.2.5.4.1.5.   SOP Specific Conformance for PatientStudy Only QR Info. Model - FIND SOP Class (Retired)

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

The Xcelera Query/Retrieve SCP AE provides standard conformance to the Patient/ Study only Q/R Information model.

4.2.5.4.1.5.1.   Dataset Specific Conformance for PatientStudy Only QR Info. Model - FIND SOP Class C-FIND-SCP

Detail regarding the Dataset Specific response behavior will be reported in this section.

Table 114: Requested Query Keys for Patient/Study Only Information Model

Attribute Name	Tag	VR	Type Of Matching	Comment

Patient/Study Only Information Model				
Attribute Name	**Tag**	**VR**	**Type Of Matching**	**Comment**
Query/Retrieve Level	0008,0052	CS		Patient, Study.
Specific Character Set	0008,0005	CS		-
Q/R Patient level				
Patient ID	0010,0020	LO	Single Value, Universal, WildCard	-
Patient's Birth Date	0010,0030	DA	Range, Single Value, Universal	-
Patient's Name	0010,0010	PN	Single Value, Universal, WildCard	Wildcard matching not case sensitive.
Patient's Sex	0010,0040	CS	Single Value, Universal	-
Q/R Study level				
Accession Number	0008,0050	SH		-
Referring Physician's Name	0008,0090	PN		-
Study Date	0008,0020	DA		-
Study ID	0020,0010	SH		-
Study Instance UID	0020,000D	UI		-
Study Time	0008,0030	TM		-

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

The table with possible Status Reponses for C-FIND request handling are shown here:

Table 115: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Matching is complete	The C-FIND request handling is completed, no more C-FIND responses are sent. status logged; continued
Refused	A700	Out of Resources	N/A
Failed	A900	Identifier does not match SOP class	N/A
	C000	Unable to process	The C-FIND request cannot be parsed. ViewForum logs the reason.
Cancel	FE00	Matching terminated due to Cancel Request	The C-FIND request is canceled, no more C-FIND responses are sent.
Pending	FF00	Matches are continuing – Current match is supplied and any optional keys were supported in the same manner as required keys	The C-FIND responses are continuing.
	FF01	Matches are continuing – Warning that one or more optional keys were not supported for existence and/or matching for this identifier	The C-FIND responses are continuing.

Below can be seen the table with the possible communication failures during the C-FIND request handling:

Table 116: DICOM Command Communication Failure Behavior

Exception	Behavior
ARTIM Time-out	The query fails in case of association setup. The reason is logged.
Reply Time-out	The query fails and association is aborted. The reason is logged.

4.2.5.4.2. (Real-World) Activity – MOVE As SCP

4.2.5.4.2.1. Description and Sequencing of Activities

The Query/Retrieve as SCP AE accepts associations from systems that wish to retrieve instances from Xcelera database using the C-MOVE service. The Query/Retrieve as SCP AE accepts all contexts in the intersection of the proposed and acceptable Presentation Context. This means that the Query/Retrieve as SCP AE will accept multiple proposed Presentation Contexts with the same SOP Class but different Transfer Syntaxes, so there will be no checks for duplicate Presentation Contexts.

4.2.5.4.2.2. Accepted Presentation Contexts

The presentation contexts are defined in the next table.

Table 117: Acceptable Presentation Contexts for (Real-World) Activity – MOVE As SCP

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Patient Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.1.2	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		
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

Presentation Context Table						
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
		Implicit VR Little Endian	1.2.840.10008.1.2		
PatientStudy Only QR Info. Model - MOVE SOP Class (Retired)	1.2.840.10008.5.1.4.1.2.3.2	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		

4.2.5.4.2.3.   SOP Specific Conformance for Patient Root QR Information Model - MOVE SOP Class

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

The Xcelera Query/Retrieve as SCP AE provides standard conformance to Patient Root Q/R Information Model – MOVE SOP Class.

The Query/Retrieve as SCP AE supports all Query/Retrieve SOP classes. A C-STORE association is built after the C-MOVE request. The Query/Retrieve as SCP AE does not send intermediate C-MOVE responses with status pending.

4.2.5.4.2.3.1.   Dataset Specific Conformance for Patient Root QR Information Model - MOVE SOP Class C-MOVE-SCP

Detail regarding the Dataset Specific response behavior will be reported in this section.

Table 118: Identifiers for MOVE Patient Root Information Model as SCP

Patient Root Information Model			
Attribute Name	**Tag**	**VR**	**Comment**
Query/Retrieve Level	0008,0052	CS	-
Q/R Patient level			
Patient ID	0010,0020	LO	-
Q/R Study level			
Study Instance UID	0020,000D	UI	-
Q/R Series level			
Series Instance UID	0020,000E	UI	-
Q/R Image level			
SOP Instance UID	0008,0018	UI	-

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 119: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Sub-operations complete	No final identifier is supplied Related fields (0000,1020) (0000,1021) (0000,1022) (0000,1023).
Warning	B000	Sub-operations complete	One or more failures Related fields (0000,1020) (0000,1022) (0000,1023).
Failed	A900	Invalid dataset	Related fields (0000,0901) (0000,0902).
	C001	Unable to process	Related fields (0000,0901) (0000,0902).
Pending	FF00	Sub-operations are continuing	The move job continues.

Table 120: DICOM Command Communication Failure Behavior

Exception	Behavior
ARTIM Time-out	The query fails in case of association setup. The reason is logged.
Reply Time-out	The query fails and association is aborted. The reason is logged.

4.2.5.4.2.4.   SOP Specific Conformance for Study Root QR Information Model - MOVE SOP Class

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

The Xcelera Query/Retrieve as SCP AE provides standard conformance to Study Root Q/R Information Model – MOVE SOP Class.

4.2.5.4.2.4.1.   Dataset Specific Conformance for Study Root QR Information Model - MOVE SOP Class C-MOVE-SCP

Detail regarding the Dataset Specific response behavior will be reported in this section.

Table 121: Identifiers for MOVE Study Root Information Model as SCP

Study Root Information Model			
Attribute Name	**Tag**	**VR**	**Comment**
Query/Retrieve Level	0008,0052	CS	-
Q/R Study level			
Study Instance UID	0020,000D	UI	-
Q/R Series level			
Series Instance UID	0020,000E	UI	-
Q/R Image level			
SOP Instance UID	0008,0018	UI	-

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 122: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Sub-operations complete	No final identifier is supplied. Related fields (0000,1020) (0000,1021) (0000,1022) (0000,1023).
Warning	B000	Sub-operations complete	One or more failures. Related fields (0000,1020) (0000,1022) (0000,1023).
Failed	A900	Invalid dataset	Related fields (0000,0901) (0000,0902).
	C001	Unable to process	Related fields (0000,0901) (0000,0902).

Table 123: DICOM Command Communication Failure Behavior

Exception	Behavior
ARTIM Time-out	The query fails in case of association setup. The reason is logged.
Reply Time-out	The query fails and association is aborted. The reason is logged.

4.2.5.4.2.5.   SOP Specific Conformance for PatientStudy Only QR Info. Model - MOVE SOP Class (Retired)

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

The Xcelera Query/Retrieve as SCP AE provides standard conformance to Patient/Study Only Q/R Information Model – MOVE SOP Class.

4.2.5.4.2.5.1.   Dataset Specific Conformance for PatientStudy Only QR Info. Model - MOVE SOP Class C-MOVE-SCP

Detail regarding the Dataset Specific response behavior will be reported in this section.

Table 124: Identifiers for MOVE Patient/Study Only Information Model as SCP

Patient/Study Only Information Model			
Attribute Name	**Tag**	**VR**	**Comment**
Query/Retrieve Level	0008,0052	CS	-
Q/R Patient level			
Patient ID	0010,0020	LO	-
Q/R Study level			
Study Instance UID	0020,000D	UI	-

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 125: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Sub-operations complete	No final identifier is supplied Related fields (0000,1020) (0000,1021) (0000,1022) (0000,1023).
Warning	B000	Sub-operations complete	One or more failures Related fields (0000,1020) (0000,1022) (0000,1023).
Failed	A900	Invalid dataset	Related fields (0000,0901) (0000,0902).
	C001	Unable to process	Related fields (0000,0901) (0000,0902).

Table 126: DICOM Command Communication Failure Behavior

Exception	Behavior
ARTIM Time-out	The query fails in case of association setup. The reason is logged.
Reply Time-out	The query fails and association is aborted. The reason is logged.

4.2.6.　　Query Retrieve as SCU AE

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

4.2.6.1.　　SOP Classes

The Query/Retrieve SCU AE is used for sending Query/Retrieve requests to remote system. The actual import of DICOM Instances (images, objects) into Xcelera Server is handled by another AE. The Query/Retrieve SCU AE makes use of the following DICOM functions:

- Query/Retrieve SCU, which uses C-ECHO as service element
 - Query as SCU, which uses C-FIND as service element
 - Retrieve as SCU, which uses C-MOVE as service element.
This Application Entity provides Standard Conformance to the following SOP Classes.

Table 127: SOP Classes for Query Retrieve as SCU AE

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	Yes	No
Study Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	Yes	No
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Yes	No

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

4.2.6.2.　　Association Policies

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

4.2.6.2.1.　　General

The DICOM standard application context is specified below.

Table 128: DICOM Application Context

Description	Value
Application Context Name	1.2.840.10008.3.1.1.1

4.2.6.2.2.　　Number of Associations

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

Table 129: Number of associations as an Association Initiator for this AE

Description	Value
Maximum number of simultaneous associations	5

4.2.6.2.3.　　Asynchronous Nature

The implementation supports negotiation of multiple outstanding transactions, along with the maximum number of outstanding transactions supported.

Table 130: Asynchronous nature as an Association Initiator for this AE

Description	Value
Maximum number of outstanding asynchronous transactions	Not applicable

4.2.6.2.4.   Implementation Identifying Information

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

Table 131: DICOM Implementation Class and Version for Query Retrieve as SCU AE

Implementation Class UID	1.3.46.670589.16.14.3.2.1
Implementation Version Name	Xcelera R3.2.L1

4.2.6.2.5.   Communication Failure Handling

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

Table 132: Communication Failure Behavior

Exception	Behavior
ARTIM Timeout	The association is released and the reason is logged.

4.2.6.3.   Association Initiation Policy

The Application Entity will respond on a received reject Association attempt as shown in next table.

Table 133: Association Rejection response

Result	Source	Reason/Diagnosis	Behavior
1 - rejected-permanent	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - application-context-name-not supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service-provider (Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.
2 - rejected-transient	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - application-context-name-not-supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.

Result	Source	Reason/Diagnosis	Behavior
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service-provider (Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.

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

Table 134: Association Abort Handling

Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user (initiated abort)	0 - reason-not-specified	When received, terminates the connection and logs the event.
2 - DICOM UL service-provider (initiated abort)	0 - reason-not-specified	When received, terminates the connection and logs the event.
	1 - unrecognized-PDU	When received, terminates the connection and logs the event.
	2 - unexpected-PDU	When received, terminates the connection and logs the event.
	4 - unrecognized-PDU-parameter	When received, terminates the connection and logs the event.
	5 - unexpected-PDU-parameter	When received, terminates the connection and logs the event.
	6 - invalid-PDU-parameter-value	When received, terminates the connection and logs the event.

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

4.2.6.3.1.1. Description and Sequencing of Activities

As defined the Network AE acts as a Verification SCP for any Remote SCU as Verification SCU.
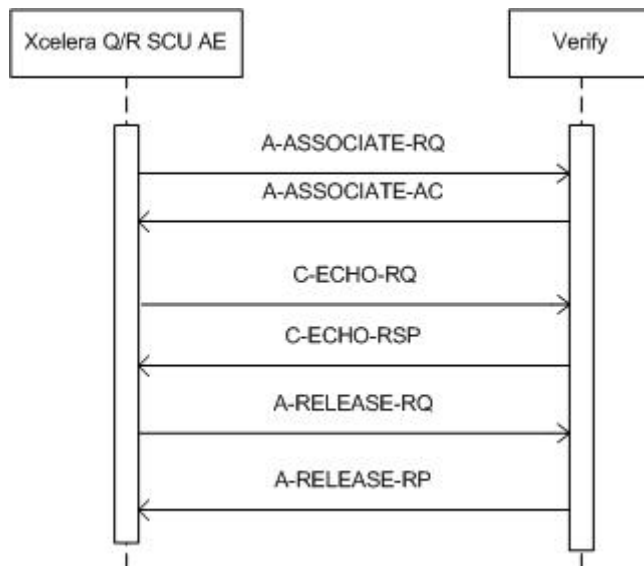
Figure 17: Sequencing of Verify

4.2.6.3.1.2. Proposed Presentation Contexts

The presentation contexts are defined in the next table.

Table 135: 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		

Note: No extended negotiations supported by Xcelera Network AE.

4.2.6.3.1.3. SOP Specific Conformance for Verification SOP Class

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

4.2.6.3.1.3.1. Dataset Specific Conformance for Verification C-ECHO SCU

Detail 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 136: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Matching is complete	Continue, information logged.

4.2.6.3.2. (Real-World) Activity – FIND As SCU

4.2.6.3.2.1. Description and Sequencing of Activities

The Query/Retrieve as SCU AE initiates associations to other systems that support the Study Root Query/Retrieve C-FIND service.

Normal flow of events for C-FIND

 1. The user selects criteria's where to query on and after that, Xcelera sets up a connection with the selected external DICOM node.
 2. In response, the external DICOM node returns (0 or more) query results in the form of a list of studies that meet the search criteria entered earlier by the clinical user. The user selects the studies to retrieve from the external DICOM node.
 4. When the requested instances are stored, the remote host closes the connection with Xcelera.
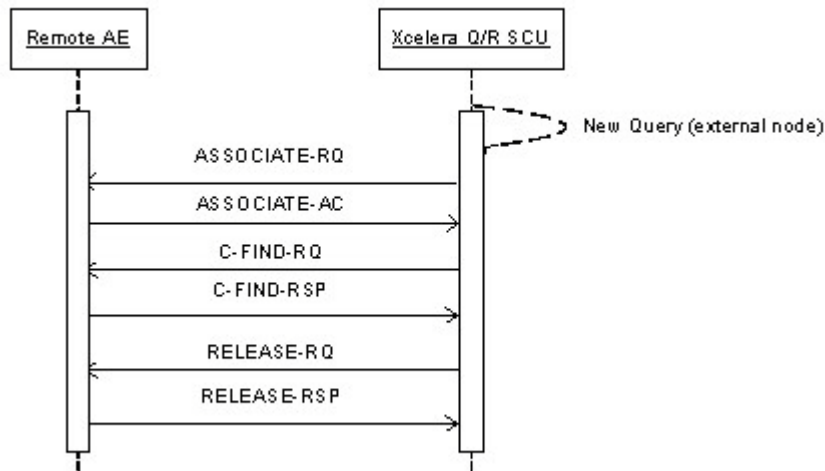
Figure 18: (Real World) Activity - FIND As SCU

Normal flow of events for C-MOVE

1. Based on query results, the user selected on or more entries to be retrieved.
2. Xcelera sets up a request connection with the external DICOM node that provided the query results, and negotiates communication parameters.
 3. Xcelera sends a retrieve request to the external DICOM node. The external DICOM node sets up a store connection with the Store SCP. Connection set up take place and is only accepted by the Store SCP, if the Query/Retrieve SCU has an open retrieve connection with the external DICOM node. Meanwhile it is possible to send C-MOVE-RSP PENDING to the Xcelera server.
 4. The external DICOM node sends over the requested DICOM instance data.
 5. The connection will be closed by Xcelera.
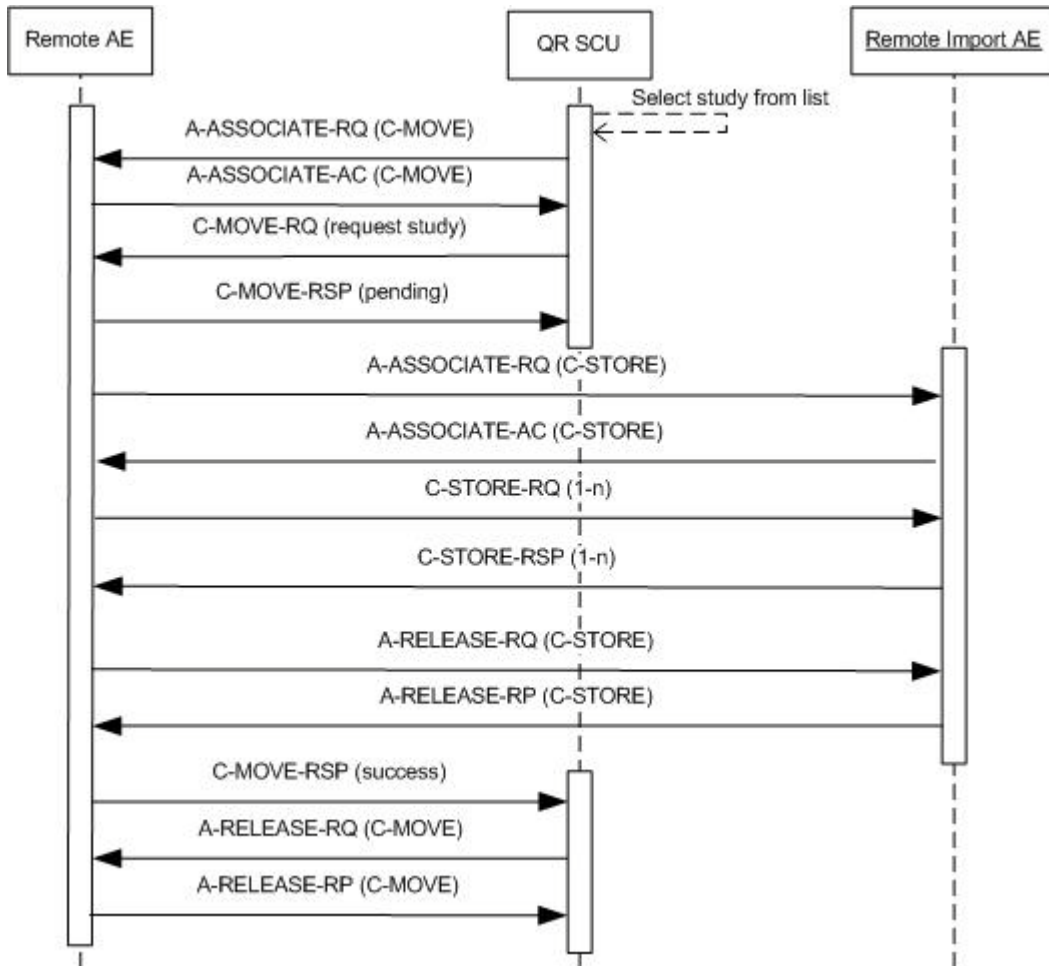
Figure 19: Flow diagram Retrieve DICOM image data from external DICOM node.

4.2.6.3.2.2.   Proposed Presentation Contexts

The presentation contexts are defined in the next table.

Table 137: Proposed Presentation Contexts for (Real-World) Activity – FIND As SCU

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Study Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	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		

4.2.6.3.2.3. SOP Specific Conformance for Study Root QR Information Model - FIND SOP Class

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

Only Study level queries are supported.

The Query/Retrieve as SCU AE supports queries based on the combination of the following (Study level) attributes and attribute matching types (as defined in [DICOM] PS 3.4).

4.2.6.3.2.3.1. Dataset Specific Conformance for Study Root QR Information Model - FIND SOP Class C-FIND-SCU

Detail regarding the Dataset Specific response behavior will be reported in this section.

Table 138: Supported Query Keys for Study Root Information Model

Attribute Name	Tag	VR	Type Of Matching	Comment
Study Root Information Model				
Query/Retrieve Level	0008,0052	CS		-
Specific Character Set	0008,0005	CS		-
Q/R Study level				
Accession Number	0008,0050	SH	Single Value, Universal, WildCard	-
Modalities in Study	0008,0061	CS	Universal	-
Patient ID	0010,0020	LO	Single Value, Universal, WildCard	-
Patient's Birth Date	0010,0030	DA	Single Value, Universal	-
Patient's Name	0010,0010	PN	Universal, WildCard	-
Patient's Sex	0010,0040	CS	Single Value, Universal	-
Study Date	0008,0020	DA	Range, Universal	-
Study Instance UID	0020,000D	UI	Universal	-
Q/R Series level				
Number of Series Related Instances	0020,1209	IS		-
Series Instance UID	0020,000E	UI	Universal	-
Series Number	0020,0011	IS		-
Q/R Image level				
Instance Number	0020,0013	IS		-
SOP Instance UID	0008,0018	UI		-

Note: The Patient's Name key attribute matching type is implicitly converted from Single Value matching to Wild Card matching by adding a Wild Card "*" character at the end of its value.

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 139: Dicom command response status handling behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Matching is complete	Continue, Log.
Refused	A700	Refused – Out of resources	Log; Release association.
Failed	A900	Error – Identifier does not match SOP class	Log; Release association.
	C001	Error – Unable to process	Log; Release association.

Service Status	Error Code	Further Meaning	Behavior
Cancel	FE00	Matching terminated due to cancel request	Log; Release association.
Pending	FF00	Matches are continuing – current match is supplied and any optional keys were supported in the same manner as required keys	Continue
	FF01	Matches are continuing – warning that one or more optional keys were not supported for existence and/or matching for this identifier	Continue

Table 140: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	The association is released and the reason is logged.
Association aborted	The association is released and the reason is logged.

4.2.6.3.3.   (Real-World) Activity – MOVE As SCU

4.2.6.3.3.1.   Description and Sequencing of Activities

The Query/Retrieve as SCU AE initiates associations to other systems that support the Study Root Query/Retrieve C-MOVE service.

4.2.6.3.3.2.   Proposed Presentation Contexts

The presentation contexts are defined in the next table.

Table 141: Proposed Presentation Contexts for (Real-World) Activity – MOVE As SCU

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	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		

4.2.6.3.3.3.   SOP Specific Conformance for Study Root QR Information Model - MOVE SOP Class

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

Only Study level queries are supported. The Query/Retrieve as SCU AE supports queries based on the combination of the following (Study level) attributes and attribute matching types (as defined in [DICOM] PS 3.4).

4.2.6.3.3.3.1.   Dataset Specific Conformance for Study Root QR Information Model - MOVE SOP Class C-MOVE-SCU

Detail regarding the Dataset Specific response behavior will be reported in this section.

Table 142: Identifiers for MOVE Study Root Information Model as SCU

Study Root Information Model			
Attribute Name	**Tag**	**VR**	**Comment**
Query/Retrieve Level	0008,0052	CS	-
Q/R Study level			
Study Instance UID	0020,000D	UI	-
Q/R Series level			
Series Instance UID	0020,000E	UI	-
Q/R Image level			
SOP Instance UID	0008,0018	UI	-

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 143: Dicom command response status handling behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Sub-operations complete – no failures	Continue.
Refused	A700	Refused – Out of resources	Log; Release association.
Failed	A900	Error – Identifier does not match SOP class	Log; Release association.
	C001	Error – Unable to process	Log; Release association.
Warning	B000	Sub-operations complete – one or more failures	The SCP has retrieved all requested images. Release association.
Cancel	FE00	Sub-operations terminated due to cancel request	Log; Release association.
Pending	FF00	Sub-operations are continuing	Continue.
	FF01	Sub-operations are continuing	Continue.

Exceptions:

1. The maximum number of parallel query/retrieve is reached. The request is queued by FIFO order.
2. At any point in time, an error occurs in the network or on the external DICOM node, Xcelera will close the connection and report an error
3. If an error occurs during data transfer, Xcelera will close the connection and report an error
4. If an error occurs on de external DICOM node while setting up the connection, Xcelera will abort all actions related to that connection and report an error.

Table 144: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	The association is released and the reason is logged.
Association aborted	The association is released and the reason is logged.

4.2.6.4.   Association Acceptance Policy

Not applicable, the Query/Retrieve SCU AE doesn't accept any associations from other DICOM nodes.

4.2.7. Send AE

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

4.2.7.1. SOP Classes

Send AE, for its functioning, makes use of following DICOM functions:

 - Verification as SCU, which uses C-ECHO service element.
 - Storage as SCU, which uses C-STORE as service element.
- Patient / Study are always updates with the latest information for the exported studies. (Refer to the tables in section 4.2.7.3.2.4 for the list of updated patient and study attributes.)

 These DICOM functions will be described in the following subsections.

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

Table 145: SOP Classes for Send AE

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	Yes	No
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	Yes	No
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	Yes	No
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	Yes	No
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	Yes	No
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	No
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	Yes	No
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	No
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	Yes	No
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	No
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	Yes	No
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	No
Standalone VOI LUT Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.11	Yes	No
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Yes	No
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	Yes	No
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	Yes	No
X-Ray Angiographic Bi-Plane Image Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.12.3	Yes	No
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	Yes	No
Standalone PET Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.129	Yes	No
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	Yes	No
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	Yes	No
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Yes	No
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	Yes	No
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Yes	No
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	Yes	No
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	Yes	No
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	Yes	No
RT Plan Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.5	Yes	No
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Yes	No
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	Yes	No
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	Yes	No
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Yes	No

SOP Class Name	SOP Class UID	SCU	SCP
Multi-frame Single Bit Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.1	Yes	No
Multi-frame Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2	Yes	No
Multi-frame Grayscale Word SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.3	Yes	No
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	No
Standalone Overlay Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.8	Yes	No
Basic Text SR SOP Class	1.2.840.10008.5.1.4.1.1.88.11	Yes	No
Enhanced SR SOP Class	1.2.840.10008.5.1.4.1.1.88.22	Yes	No
Detail SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.3	Yes	No
Comprehensive SR SOP Class	1.2.840.10008.5.1.4.1.1.88.33	Yes	No
Standalone Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.9	Yes	No
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	No
Philips Private X-Ray Image Storage	1.3.46.670589.2.3.1.1	Yes	No
Philips Private Reconstructed X-ray Storage	1.3.46.670589.2.4.1.1	Yes	No
Philips Private iE33 3D NEO Presentation State Subpage Storage	1.3.46.670589.2.5.1.1	Yes	No
Philips Private ViewForum 3D Volume New Storage	1.3.46.670589.5.0.1.1	Yes	No
Philips Private ViewForum MR Synthetic Image Storage	1.3.46.670589.5.0.10	Yes	No
Philips Private ViewForum MR Cardio Analysis New Storage	1.3.46.670589.5.0.11.1	Yes	No
Philips Private ViewForum CX Synthetic Image Storage	1.3.46.670589.5.0.12	Yes	No
Philips Private ViewForum Perfusion Storage	1.3.46.670589.5.0.13	Yes	No
Philips Private ViewForum Perfusion Analysis Storage	1.3.46.670589.5.0.14	Yes	No
Philips Private ViewForum 3D Volume Object New Storage	1.3.46.670589.5.0.2.1	Yes	No
Philips Private ViewForum Surface New Storage	1.3.46.670589.5.0.3.1	Yes	No
Philips Private ViewForum MR Cardio New Storage	1.3.46.670589.5.0.8.1	Yes	No
Philips Private ViewForum CT Synthetic Image Storage	1.3.46.670589.5.0.9	Yes	No

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

4.2.7.2.   Association Policies

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

4.2.7.2.1.   General

The DICOM standard application context is specified below.

Table 146: DICOM Application Context

Description	Value
Application Context Name	1.2.840.10008.3.1.1.1

4.2.7.2.2.   Number of Associations

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

For Xcelera the maximum number of associations limited by the availability of the system resources. The license number of the external DICOM nodes is one of these limits.

Table 147: Number of associations as an Association Initiator for this AE

Description	Value
Maximum number of simultaneous associations	5

4.2.7.2.3.   Asynchronous Nature

The implementation supports negotiation of multiple outstanding transactions, along with the maximum number of outstanding transactions supported.

Table 148: Asynchronous nature as an Association Initiator for this AE

Description	Value
Maximum number of outstanding asynchronous transactions	Not applicable

4.2.7.2.4.   Implementation Identifying Information

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

Table 149: DICOM Implementation Class and Version for Send AE

Implementation Class UID	1.3.46.670589.16.14.3.2.1
Implementation Version Name	Xcelera R3.2.L1

4.2.7.2.5.   Communication Failure Handling

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

Table 150: Communication Failure Behavior

Exception	Behavior
ARTIM Timeout	The association is closed and the reason is logged.

4.2.7.3.   Association Initiation Policy

The Application Entity will respond on a received reject Association attempt as shown in next table.

Table 151: Association Rejection response

Result	Source	Reason/Diagnosis	Behavior
1 - rejected-permanent	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - application-context-name-not supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.

Result	Source	Reason/Diagnosis	Behavior
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service-provider (Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.
2 - rejected-transient	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - application-context-name-not-supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service-provider (Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.

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

Table 152: Association Abort Handling

Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user (initiated abort)	0 - reason-not-specified	When received, terminates the connection and logs the event.
2 - DICOM UL service-provider (initiated abort)	0 - reason-not-specified	When received, terminates the connection and logs the event.
	1 - unrecognized-PDU	When received, terminates the connection and logs the event.
	2 - unexpected-PDU	When received, terminates the connection and logs the event.
	4 - unrecognized-PDU-parameter	When received, terminates the connection and logs the event.
	5 - unexpected-PDU-parameter	When received, terminates the connection and logs the event.
	6 - invalid-PDU-parameter-value	When received, terminates the connection and logs the event.

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

4.2.7.3.1.1.   Description and Sequencing of Activities

As defined the Network AE acts as a Verification SCP for any Remote SCU as Verification SCU.
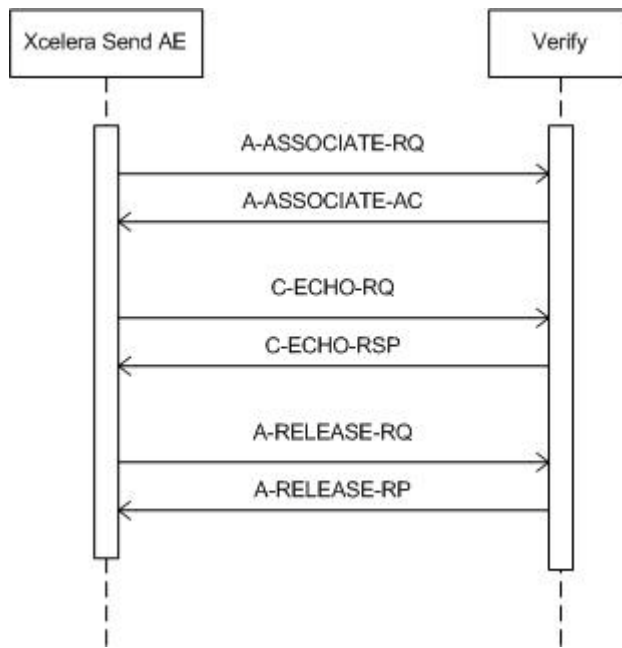
Figure 20: Sequence Verification SCU.

4.2.7.3.1.2.   Proposed Presentation Contexts

The presentation contexts are defined in the next table.

Table 153: 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		

4.2.7.3.1.3.   SOP Specific Conformance for Verification SOP Class

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

4.2.7.3.1.3.1.   Dataset Specific Conformance for Verification C-ECHO SCU

Detail 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 154: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Complete	Contine, matching information logged.

4.2.7.3.2.　(Real-World) Activity – Instance Storage

4.2.7.3.2.1.　Description and Sequencing of Activities

Normal flow of events:

1. The user selects one or more studies from the list of studies being displayed.
2. After selection of the external DICOM node, Xcelera sets up a store connection and negotiates communications parameters with this external DICOM node. Connection set up is executed according to the DICOM Store protocols, with Xcelera acting as a DICOM Store SCU.
3. After this connection is set up, Xcelera sends the user selected study to the external DICOM node. Upon completion of this, the connection is closed. Start and end of the connection and data transfer are logged.
4. Patient Study data will be updated with the latest information. (Refer to the tables in section 4.2.1.3.3.3 for the list of updated patient and study attributes.)
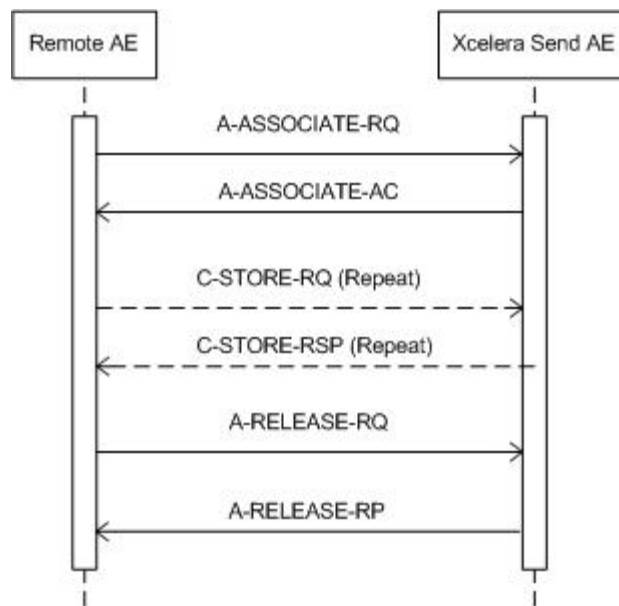
Figure 21:　(Real World) Activity - Image Import

4.2.7.3.2.2.　Proposed Presentation Contexts

The proposed presentation contexts are defined in the next table.

Table 155: Proposed Presentation Contexts for (Real-World) Activity – Image Export

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	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		
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	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		
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	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		
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	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		
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	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		
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	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		
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	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		
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	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		
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	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		
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	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		
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	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		
Standalone VOI LUT Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.11	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		
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	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		
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	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		
X-Ray Angiographic Bi-Plane Image Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.12.3	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	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		
Standalone PET Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.129	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		
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	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		
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	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		
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	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		
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	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		
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	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		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	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		
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	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		
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Multi-frame Single Bit Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.1	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Multi-frame Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Multi-frame Grayscale Word SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.3	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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Multi-frame True Color Secondary Capture Image	1.2.840.10008.5.1.4.1.1.7.4	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Storage		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Standalone Overlay Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.8	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		
Basic Text SR SOP Class	1.2.840.10008.5.1.4.1.1.88.11	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		
Enhanced SR SOP Class	1.2.840.10008.5.1.4.1.1.88.22	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		
Detail SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.3	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		
Comprehensive SR SOP Class	1.2.840.10008.5.1.4.1.1.88.33	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		
Standalone Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.9	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		
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	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		
Philips Private X-Ray Image Storage	1.3.46.670589.2.3.1.1	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		
Philips Private Reconstructed X-ray Storage	1.3.46.670589.2.4.1.1	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		
Philips Private iE33 3D NEO Presentation State Subpage Storage	1.3.46.670589.2.5.1.1	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		
Philips Private ViewForum 3D Volume New Storage	1.3.46.670589.5.0.1.1	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		
Philips Private ViewForum MR Synthetic Image Storage	1.3.46.670589.5.0.10	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		
Philips Private ViewForum MR Cardio Analysis New Storage	1.3.46.670589.5.0.11.1	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		
Philips Private ViewForum CX Synthetic Image Storage	1.3.46.670589.5.0.12	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Philips Private ViewForum Perfusion Storage	1.3.46.670589.5.0.13	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		
Philips Private ViewForum Perfusion Analysis Storage	1.3.46.670589.5.0.14	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		
Philips Private ViewForum 3D Volume Object New Storage	1.3.46.670589.5.0.2.1	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		
Philips Private ViewForum Surface New Storage	1.3.46.670589.5.0.3.1	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		
Philips Private ViewForum MR Cardio New Storage	1.3.46.670589.5.0.8.1	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		
Philips Private ViewForum CT Synthetic Image Storage	1.3.46.670589.5.0.9	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		

4.2.7.3.2.3.   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.

The Send Image AE conforms to the SOP classes of the Storage Service Class at level 2 (full). No data elements are discarded or coerced by the Send Image AE.

4.2.7.3.2.3.1.   Dataset Specific Conformance for C-STORE-RQ

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

Possible status responses during C-STORE request are listed in the next table:

Table 156: Dicom command response status handling behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Successful stored	Log; continue.
Refused	A700	Refused: Out of Resources	Log; continue.
Failure	0110	Error: Processing Failure	Log; continue.
	A900	Error: Data Set does not match SOP Class	Log; continue.
	C000	Error: cannot understand	Log; continue.
Warning	B000	Coercion of Data Elements	Log; continue.
	B007	Data Set does not match SOP Class	Log; continue.
	B006	Elements Discarded	Log; continue.

Exceptions:

1. The clinical user cancels the 'Send' request. If the request is already active, the store connection will be closed and no more data will be sent. If the request is not active yet, no connection will be initiated and no data will be sent.
2. If, after setting up the connection, no data can be sent to the external DICOM node, for 2 minutes, Xcelera will retry once and than it will abort the connection. Xcelera reports an error.
3. If an error occurs on Xcelera while setting up the connection, Xcelera aborts and reports an error.
4. If an error occurs on the external DICOM node while setting up the connection, Xcelera will aborts all actions related to that connection. Xcelera reports an error.
5. If no agreement between the two parties can be reached concerning communication parameters the connection will be closed and no data transfer will take place. Xcelera reports an error.
6. When a network error occurs during connection set up or during data transfer, Xcelera will abort all actions related to the connection and reports an error.
7. If an error occurs on Xcelera during data transfer, Xcelera will notify the external DICOM node of this problem and after that close the connection. Xcelera reports an error.
8. If an error occurs on the external DICOM node during data transfer, this causes the connection to be aborted. Xcelera reports an error.

Notes:

1. If the Institution Name is present in private DICOM object data it is taken from there (this only applies for CD import) If not - step 2.
2. If HIS is present and "resolve institution from HIS configured", then it is taken from HIS. If not - step 3.
3. If DICOM tag - Issuer of Patient ID (0010, 0021) in the Patient Identification Module - is not empty, Institution Name is taken from there. If not - step 4.
4. Institution Name is taken from the configuration data - default institution per AE_TITLE defined in the Service Tool (DICOM import page).

4.2.7.3.2.4.   SOP Specific Conformance for Storage SOP Classes

During DICOM based Send, transfer negotiations may indicate that the original format of the data is not accepted by the target node. In such cases, the remote server will try to apply one of the transfer syntax conversions indicated by '+', in order to get to transfer syntax that is supported by the external system. The Transfer syntax conversion is supported from SCU to SCP.

Source Syntax	Destination Syntax		
	ILE	**ELE**	**EBE**
ILE	-	+	+
ELE	+	-	+
EBE	+	+	-
JPEG Baseline	-	-	-
JPEG Lossless FOP Non-Hierarchical 14	+	+	+
RLE	+	+	+

Figure 22: Transfer Syntax Convertion from Source to Destination.

The Archive AE conforms to the SOP classes of the Storage Service Class at level 2 (full). No data elements are discarded or coerced by the Archive AE.

The list of updated patient and study attributes are mentioned in the tables below.

Table 157: List of updated Patient Attributes

Attribute	DICOM Tag
Last Name	Part of (0010,0010)
First name	Part of (0010,0010)
Middle name	Part of (0010,0010)
Date of birth	(0010,0030)
Sex	(0010,0040)
Issuer of Patient ID	(0010,0021)
MRN	(0010,0020)
Alternate ID#	(0010,1000)
Title	Part of (0010,0010)
Honorific	Part of (0010,0010)
Address 1	Part of (0010,1040)
Address 2 (if Address1 is empty)	Part of (0010,1040)
City	Part of (0010,1040)
State/Province	(0010,2152)
Postal code	Part of (0010,1040)
Country	(0010,2150)
Race	(0010,2160)
Home phone	Part of (0010,2154)
Business phone	Part of (0010,2154)
Mobile phone	Part of (0010,2154)

Table 158: List of updated Study Attributes

Attribute	DICOM Tag
Study Description	(0008,1030)
Accession Number	(0008,0050)
Body Part	(0018,0015)
Protocol Name	(0018,1030)
Reason for Study	(0008,1080)
Performed By	(0008,1050)
Reading Physician	(0008,1060)
Ordering Physician	(0032,1032)
Reviewer	(300E,0008)
Referring Physician	(0008,0090)
Institution Department Name	(0008,1040)
Station Name	(0008,1010)
Study Comments	(0032,4000)

Possible communication failures during the C-STORE request are listed her:

Table 159: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	The association is closed and the reason is logged.
Association aborted	The association is closed and the reason is logged.

4.2.7.4.   Association Acceptance Policy

Not applicable, the Send AE doesn't accept any associations.

4.2.8.   Storage Commitment AE

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

4.2.8.1.   SOP Classes

Xcelera will support DICOM Storage Commitment as SCP, only for asynchronous workflow. The C-STORE, N-ACTION and N-EVENT-REPORT will be handled in a separate association. In the next sections the storage commitment behavior of Xcelera will be explained in detail.

- Verification as SCP, which uses C-ECHO service element
- Storage Commitment as SCP, which uses N-ACTION, N-EVENT-REPORT service elements.

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

Table 160: SOP Classes for Storage Commitment AE

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	No	Yes
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	No	Yes

Note that any SOP specific behavior is documented later in this conformance statement in the applicable SOP class specific conformance section.

4.2.8.2.   Association Policies

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

4.2.8.2.1.   General

The DICOM standard application context is specified below.

Table 161: DICOM Application Context

Description	Value
Application Context Name	1.2.840.10008.3.1.1.1

4.2.8.2.2.   Number of Associations

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

For the verification service only one can be handled at a time.

Table 162: Number of associations as an Association Initiator for this AE

Description	Value
Maximum number of simultaneous associations	Limit of system resource

4.2.8.2.3.   Asynchronous Nature

The implementation supports negotiation of multiple outstanding transactions, along with the maximum number of outstanding transactions supported.

Table 163: Asynchronous nature as an Association Initiator for this AE

Description	Value
Maximum number of outstanding asynchronous transactions	Limit of system resource

4.2.8.2.4.   Implementation Identifying Information

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

Table 164: DICOM Implementation Class and Version for Storage Commitment AE

Implementation Class UID	1.3.46.670589.16.14.3.2.1
Implementation Version Name	Xcelera R3.2.L1

4.2.8.2.5.   Communication Failure Handling

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

Table 165: Communication Failure Behavior

Exception	Behavior
ARTIM Timeout	The association is closed and the reason is logged.

4.2.8.3.   Association Initiation Policy

Not applicable, Storage Commitment AE does not initiate any associations.

4.2.8.4. Association Acceptance Policy

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

Table 166: Association Reject Reasons

Result	Source	Reason/Diagnosis	Behavior
1 - rejected permanent	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - application-context-name-not-supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service provider (Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.
2 - rejected-transient	1 - DICOM UL service-user	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - application-context-name-not-supported	The user is informed. Details are logged in central log file.
		3 - calling-AE-title-not-recognized	The user is informed. Details are logged in central log file.
		7 - called-AE-title-not-recognized	The user is informed. Details are logged in central log file.
	2 - DICOM UL service provider (ACSE related function)	1 - no-reason-given	The user is informed. Details are logged in central log file.
		2 - protocol-version-not-supported	The user is informed. Details are logged in central log file.
	3 - DICOM UL service provider (Presentation related function)	1 - temporary-congestion	The user is informed. Details are logged in central log file.
		2 - local-limit-exceeded	The user is informed. Details are logged in central log file.

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

Table 167: Association Abort Policies

Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user (initiated abort)	0 - reason-not-specified	Notifies Remote AE, terminates the connection and logs the event.
2 - DICOM UL service-provider (initiated abort)	0 - reason-not-specified	Notifies Remote AE, terminates the connection and logs the event.
	1 - unrecognized-PDU	Notifies Remote AE, terminates the connection and logs the event.
	2 - unexpected-PDU	Notifies Remote AE, terminates the connection and logs the event.

Source	Reason/Diagnosis	Behavior
	4 - unrecognized-PDU parameter	Notifies Remote AE, terminates the connection and logs the event.
	5 - unexpected-PDU parameter	Notifies Remote AE, terminates the connection and logs the event.
	6 - invalid-PDU-parameter value	Notifies Remote AE, terminates the connection and logs the event.

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

4.2.8.4.1.1. Description and Sequencing of Activities

The Storage Commitment AE as SCP AE accepts associations from systems that wish to verify application level communication using the C-ECHO command.
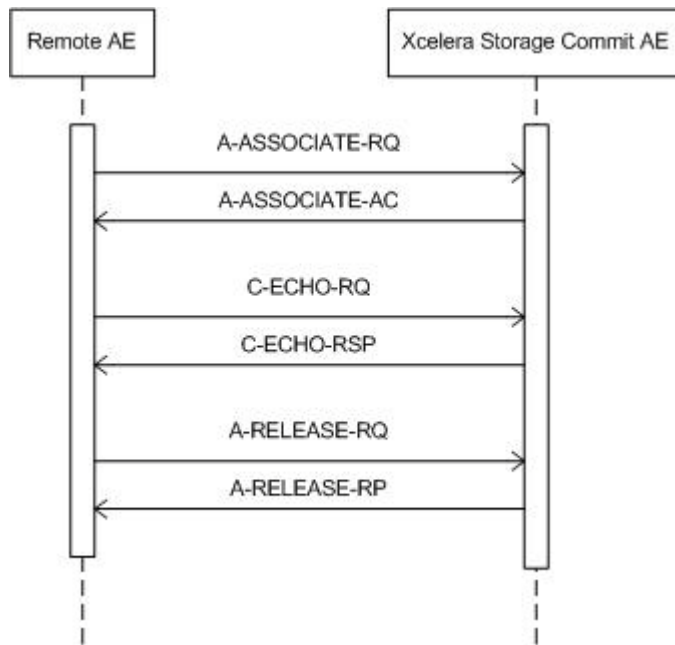
Figure 23: (Real-World) Activity – Verification as SCP

4.2.8.4.1.2. Accepted Presentation Contexts

The presentation contexts are defined in the next table.

Table 168: Acceptable 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		

4.2.8.4.1.3.   SOP Specific Conformance for Verification SOP Class

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

The Storage Commitment AE provides standard conformance to the verification SOP class.

4.2.8.4.1.3.1.   Dataset Specific Conformance for Verification C-ECHO SCP

Detail 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 169: Dicom command response status handling behavior

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success, Confirmation	The SCU has successfully send C-ECHO.
Failure	<>0000	Problems with sending the C-ECHO	The SCU failed to send the C-ECHO; user is notified. The reason is logged.

4.2.8.4.2.   (Real-World) Activity – Storage Commitment Push Model AS SCP

4.2.8.4.2.1.   Description and Sequencing of Activities

Xcelera will support DICOM Storage commitment as SCP, only for asynchronous workflow. The C-STORE, N-ACTION and N-EVENT-REPORT will be handled in a separate association.

Normal Flow of Events:

1. The external DICOM node set up storage commit request connection and negotiates communication parameters with the Xcelera server.
2. After the connection is setup, the external DICOM node sends a storage commit request for the data, where the responsibility has to be taken over by the Xcelera server.
3. The Xcelera server responds to the external DICOM node that the request is correctly received.
4. The external DICOM node will close the connection.

When the data is correctly archived (archived and verified):

1. The Xcelera server set up storage commit response connection and negotiates communication parameters with the external DICOM node that made the request. It could also response when it is only present on the repository (configuration option).
2. After the connection is setup, the Xcelera server sends the storage commit response, for the request it received, to the external DICOM node.
3. The Xcelera server will close the connection.
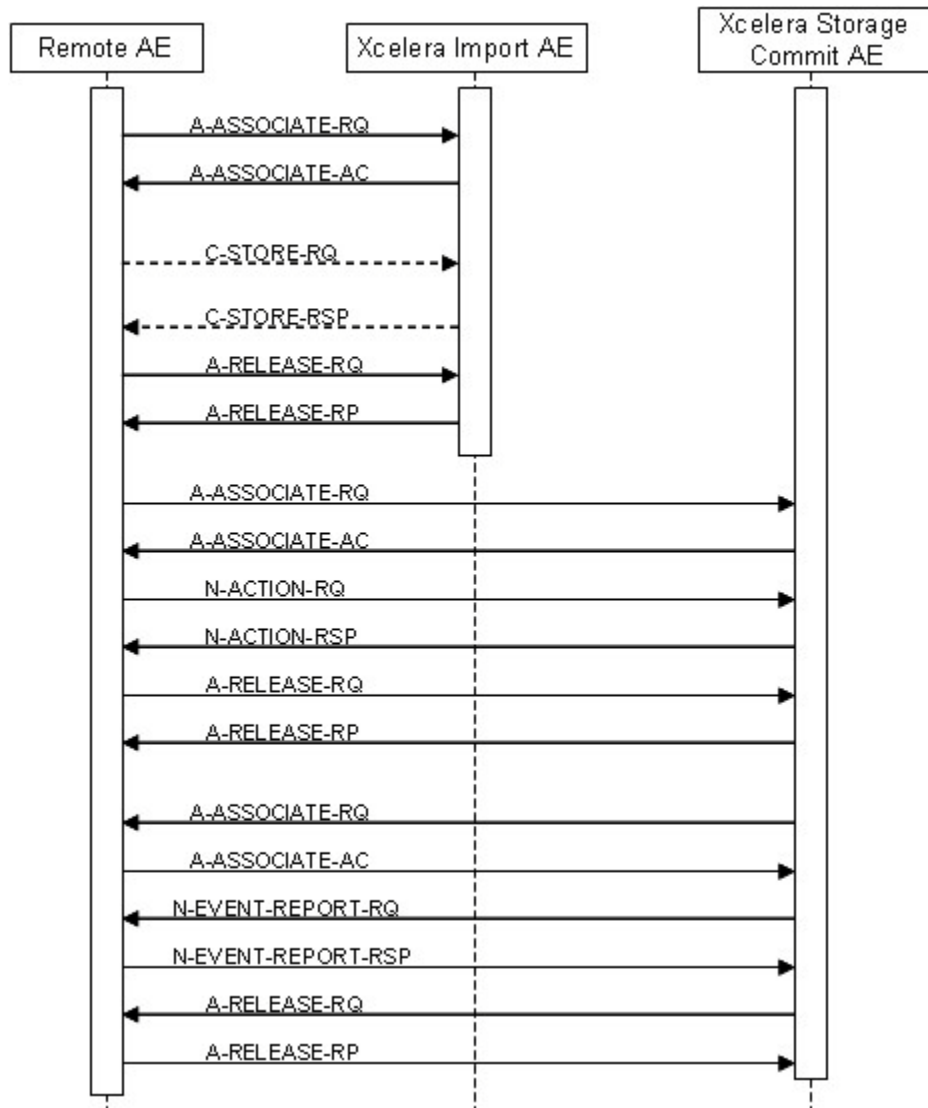
Figure 24: (Real World) Activity - Storage Commitment Push Model as SCP

4.2.8.4.2.2. Accepted Presentation Contexts

The presentation contexts are defined in the next table.

Table 170: Acceptable Presentation Contexts for (Real-World) Activity – Storage Commitment Push Model AS SCP

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	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		

4.2.8.4.2.3.   SOP Specific Conformance for Storage Commitment Push Model SOP Class

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

4.2.8.4.2.3.1.   Dataset Specific Conformance for Storage Commitment Push Model SOP Class N-EVENT-REPORT-SCU

Detail regarding the Dataset Specific response behavior will be reported in this section.

The Storage Commitment AE accepts all contexts in the intersection of the proposed and acceptable Presentation Context. This means that the Storage Commitment AE will accept multiple proposed Presentation Contexts with the same SOP Class but different Transfer Syntaxes, so there will be no checks for duplicate Presentation Contexts.

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 171: Status Response

Service Status	Error Code	Further Meaning	Description
Success	0000	Success	The storage commitment result has been successfully received. continue
Error	0110	Processing Failure	Send notification; Log.

Table 172: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	The association is closed and the reason is logged.
Association aborted	The association is closed and the reason is logged.

4.2.8.4.2.3.2.   Dataset Specific Conformance for Storage Commitment Push Model SOP Class N-ACTION-SCP

All details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors are provided in following tables for N-ACTION.

Table 173: Storage Commitment Attribute for N-ACTION-RSP

Attribute Name	Tag	Comment
Storage Commitment Module		
Transaction UID	0008,1195	
Referenced SOP Sequence	0008,1199	
>Referenced SOP Class UID	0008,1150	
>Referenced SOP Instance UID	0008,1155	

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 174: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Operation complete	The request for storage commitment is considered successfully stored.

Service Status	Error Code	Further Meaning	Behavior
Other than Success	<>0000	Problems with sending the N-ACTION Request	The request for storage commitment is marked as failed. The reason is logged.

Table 175: DICOM Command Communication Failure Behavior

Exception	Behavior
ARTIM Time-out	The reason is logged.
Reply Time-out	The association is released. Continues with waiting for storage commitment.
Association Time-out SCU	The association is released. Continues with waiting for storage commitment.
Association aborted	Continues with waiting for storage commitment.

Exceptions:

1. Not correctly archived within the verify delay + 8 hours, Xcelera responds with a failure.
2. All instances in the request have to be correctly archived, when one of them fails, the response will be reported with failure. Within the verify delay + 8 hours, Xcelera responds with a failure.
3. If no agreement between the two parties can be reached concerning (DICOM) communication parameters the connection will be closed and no data transfer will take place. Xcelera will retry 72 hours to send a response.
4. Xcelera will close the connection if no data is received within 2 minutes after the setup.
5. If a network error occurs during set up of a connection or during data transfer, this is reported. Xcelera will abort the connection and data transfer will not be completed.
6. If an error occurs on Xcelera during data transfer, Xcelera will notify the external DICOM node of this problem and after that close the connection. Xcelera reports an error.
7. If an error occurs on the external DICOM node during data transfer, this causes the connection to be aborted. Xcelera reports an error.

4.3.   Network Interfaces

4.3.1.   Physical Network Interfaces

The System provides only DICOM V3.0 TCP/IP Network Communication Support as defined in PS 3.8 of the standard.
TCP/IP is the only protocol stack supported.
Supported physical medium include:
IEEE 802.3-1995, 10BASE-T
IEEE 802.3-1995, 100BASE-TX (Fast Ethernet)
IEEE 802.3, 1000BASE-X (Fiber Optic Gigabit Ethernet).

The TCP/IP Stack as supported by the underlying Operating System.
 The API is the WinSock 2 interface as supported by the underlying Operating System.

4.3.2.   Additional Protocols

Xcelera operates according to DICOM protocols, in the application layer of standardized communications networks. From this perspective the system supports a number of protocol stacks and physical network media. The system supports DICOM protocols on top of the TCP/IP version 4.

A Point-to-Point Protocol (PPP) Connection over dial-up line in the same network is possible.

4.4.   Configuration

Any implementation's DICOM conformance may be dependent upon configuration, which takes place at the time of installation. Issues concerning configuration are addressed in this section.

4.4.1.   AE Title/Presentation Address Mapping

An important installation issue is the translation from AE title to presentation address. How this is to be performed is described here.

In Xcelera the local Network and Media AE titles as well as the IP Address and the TCP listen port associated with these AE are configurable. The different AE's in Xcelera can be configured to use the same AE title.

 Xcelera only accepts associations of AE Titles that are configured in Xcelera.

 Due to variety of network configurations that exist worldwide, no performance guaranties can be given with respect to the time it takes to complete the execution of a job.

4.4.1.1.   Local AE Titles

The local AE title mapping and configuration are specified as:

Table 176: AE Title configuration table

Application Entity	Default AE Title	Default TCP/IP Port
Image Import AE	INTURISPRO_SCP	104
Send AE	SEND_SCU	NA
Auto Export AE	INTURISPRO_SCU	104
Storage Commitment AE	STCO_SCP	4000
Query/Retrieve as SCU AE	QR_SCU	NA
Query/Retrieve as SCP AE	QR_SCP	7000
Print AE	VIEWER_PRINT_SCU	104
Archive AE	Configurable	Configurable

4.4.1.2. Remote AE Title/Presentation Address Mapping

The configuration of the remote application is specified here.

Table 177: Remote AE Title Configuration Table

AE Configuration	Description
Image Import AE	Import AE Title
	Hostname
	IP-address
	Listen Port
	Allowed AE Title
	Processing delay
	Archive data (yes/no)
	TTL (Time To Live) When not archiving. Import TTL is no also (yes/No)
Auto Export AE	SCP AE Title
	SCU AE Title
	Server IP Address
	Port number
	station name
	Instance name
	department name.
	Server Name
	Server description (not needed/configurable for DICOM)
	Server path (not needed/configurable for DICOM)
	Username (not needed/configurable for DICOM)
	Password (not needed/configurable for DICOM)
	Jpeg Quality Factor (not needed/configurable for DICOM)
	Export Rule (selection is possible)
Send AE	AE Title
	Send queue TTL (Days)
	Client AE Title
	Hostname
	IP-address
	Port number
	Logical name
Storage Commitment AE	AE Title
	Listen port
	Hostname
	Allowed AE Title
	Port number
Query/Retrieve as SCU AE	Q/R SCU AE Title
	Q/R SCU Dicom Timeout
	Q/R SCU Retrieve Timeout
	Store SCU AE Title
	Q/R SCP AE Title
	Hostname
	IP-Address
	Port number
	Logical name

AE Configuration	Description
Query/Retrieve as SCP AE	Q/R SCP AE Title
	Listen Port
	Store SCU AE Title
	Instance name.
	Department name
	Station name
	Archive data
	TTL,
	Allowed Client SCU AE Title
	Store SCP AE Title
	Hostname
	IP-address
	Port number
Print AE	AE Title
	IP-address
	Hostname
Archive AE	Store SCU AE Title
	Archive Hostname
	Archive IP-address
	Archive Store SCU AE Title
	Archive Store SCP AE Title
	Archive SCP port number
	Archive Q/R SCP Hostname
	Archive Q/R SCP IP-Address
	Archive Q/R AE Title
	Archive Q/R port number
	Fetch Move SCU AE Title
	Archive Storage Commit SCP hostname
	Archive Storage Commit IP-Address
	Archive Storage Commit SCP AE Title
	Archive Storage Commit port number
	Read only (yes/no)
	Fetch Time out
	Server Path
	User Name

4.4.2. Parameters

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

Table 178: Configuration Parameters Table

Parameter	Configurable	Default Value
General Parameters		
Max PDU Receive Size	No	28 Kbytes
Max PDU Send Size	No	28 Kbytes
Time-out for completion of a TCP/IP connect request (Low-level timeout).	No	60 seconds
Time-out awaiting a Response to a DIMSE Request (Low-level timeout).	No	60 seconds

Parameter	Configurable	Default Value
Time-out for waiting for data between TCP/IP-packets (Low-level timeout).	No	60 seconds
Storage Parameters		
Storage SCU time-out waiting for a response to a C-STORE RQ	No	60 seconds
Time out for reception	No	2 minutes
Maximum number of simultaneously initiated Associations by the Storage AE	No	10
Supported Transfer Syntaxes (separately configurable for each remote AE	No	
Query/Retrieve Parameters (SCU and SCP)		
Maximum PDU size	No	28 Kbytes
Maximum Number of simultaneous Associations (SCU)	No	1 (C-ECHO), 5 (C-STORE), 5 (C-FIND), 1 (Printer), 1 (Archiving)
Q/R SCU DICOM Timeout (SCU)	Yes {300-1500}	450 seconds
Q/R SCU Retrieve Timeout (SCU)	Yes {1..7}	1 days
Q/R best case query response time (SCP)	No	2 seconds
Q/R worst case query response time (SCP)	No	10 seconds
Storage Commitment Specific Parameters		
Maximum time to wait for cases to be archived	Yes	Maximum 8 hours
Maximum number of times for retrying sending a response – with one hours interval	Yes	Maximum 72 times
Print Parameters		
Maximum number of simultaneous Associations	No	1
Maximum numbers of connected printers	No	5

Additional configuration parameters such as hardware options for e.g. a printer are specified as well.

5. Media Interchange

5.1.   Implementation model

The implementation model identifies the DICOM Application Entities for Media in specific implementation and relates the Application Entities to Real-World Activities.

5.1.1.   Application Data Flow Diagram

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.
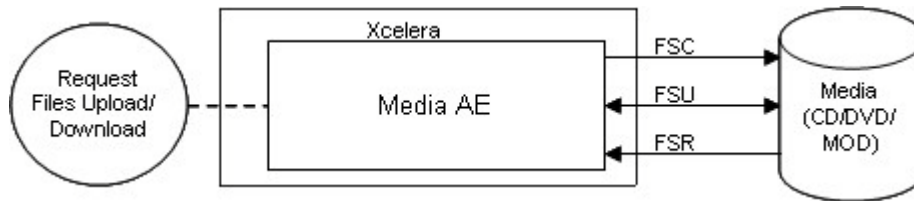
Figure 25: Application Data Flow Diagram

Note: DICOM FSU for CD and DVD as Media is not supported.

5.1.2.   Functional Definitions of AE's

The Media AE in an Xcelera supports the following functions for CD-R, DVD and MOD:
 - Read the DICOMDIR File from the medium (representing the directory of the DICOM File(s) as recorded on the medium). This information may be displayed as an ordered list of icon images and, if present, with pertinent identifying information (patient name, etc.).
 - Read the selected instances from the medium and displays it on the monitor of the View Station. This information is displayed as an ordered list of frames of the selected image or as a dynamic review of the selected image.

And for CD-R, DVD:
 - Initialize the medium.
 - Write a DICOM File-set onto the medium.
 - Create a DICOMDIR File.
 - Extend the DICOM File-set and update the DICOMDIR File accordingly. (DICOM Media Storage Service Class).

Note: It is not possible to finalize the DVDs from Xcelera. Because of this the studies written on DVD by Xcelera can only be read by Xcelera.

5.1.3.   Sequencing of Real World Activities

A Real World Activity of the Media AE is: The user selects a set of object to write these to the CD/DVD. Then the CD/DVD will be created with the selected objects. Once the CD/DVD has been created, the user can read this CD/DVD on the Xcelera or for transport to another device for reading.
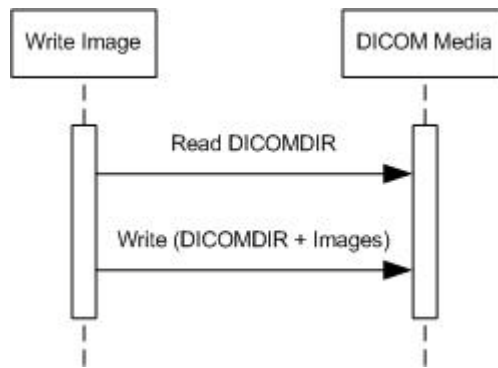
Figure 26: (Real World) Activity - Media.

Another Real World Activity of the Media AE is: A CD/DVD from another system Xcelera or previously created CD/DVD can be read by the Xcelera. The Xcelera cannot append (FSU) to this created CD/DVD.
 After data is written to CD/DVD, the CD/DVD is finalized automatically by Xcelera; the finalized CD/DVD can now be read on every CD/DVD reader.

A description of supported Application Profiles of that Media is described in the next table.

Table 179: Conformance Supported Application Profiles

Application Profile Identifier	Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax Name	Transfer Syntax UID
STD-XABC-CD	X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	JPEG Lossless FOP	1.2.840.10008.1.2.4.70
STD-XA1K-CD	X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	JPEG Lossless FOP	1.2.840.10008.1.2.4.70
	Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	ELE	1.2.840.10008.1.2.1
STD-US-ID-SF-CD	Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	ELE	1.2.840.10008.1.2.1
STD-US-ID-SF-MOD*			JPEG Lossy Baseline	1.2.840.10008.1.2.4.50
STD-US-ID-SF-DVD			RLE	1.2.840.10008.1.2.5
STD-US-ID-MF-CD	Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	ELE	1.2.840.10008.1.2.1
STD-US-ID-MF-MOD*			JPEG Lossy Baseline	1.2.840.10008.1.2.4.50
STD-US-ID-MF-DVD			RLE	1.2.840.10008.1.2.5
STD-GEN-CD/ DVD	Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	ELE	1.2.840.10008.1.2.1
	CT Image Storage	1.2.840.10008.5.1.4.1.1.2		
	Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20		
	X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1		
	X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2		
	Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1		
	MR Image Storage	1.2.840.10008.5.1.4.1.1.4		
	Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1		
	Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7		
ALL	Media Storage Directory Storage	1.2.840.10008.1.3.10	ELE	1.2.840.10008.1.2.1

  * The supported MOD (FSR) Application Profiles include all Application Profiles where MOD* is MOD12, MOD23, MOD128, MOD230, MOD540, or MOD650.

5.2.   AE Specifications

This section in the DICOM Conformance Statement specifies a set of Media Application Entities.

5.2.1.   Media AE Media - Specification

If applicable, this section contains a description of sequencing of Real-World Activities that the AE's require.

Depending on the study size, the viewer can write one or more complete studies to one or more CD's. Furthermore one viewer can review and upload:

- Multi-patient CDs and DVDs;
- Multi-study CDs and DVDs;
- Multi-CD studies.

The supported Application Profiles, their Roles and the Service Class (SC) options, all defined in DICOM terminology, are listed in next table.

Table 180: AE Media AE related Application Profiles, RWA activities and roles

Supported Application Profile	Identifier	Real-World Activities	Roles
1024 X-Ray Angiographic Studies on CD-R	STD-XA1K-CD	Create File-set	FSC
		Read File-set	FSR
Basic Cardiac X-RAY Anglographic Studies on CD-R	STD-XABC-CD	Create File-set	FSC
		Read File-set	FSR
CT/MR Studies on CD-R	STD-CTMR-CD	Create File-set	FSC
		Read File-set	FSR
General Purpose CD-R Interchange	STD-GEN-CD	Create File-set	FSC
		Read File-set	FSR
Image Display (Ultrasound {SF|MF})	STD-US-ID-SF-CDR/STD-US-ID-MF-CDR	Create File-set	FSC
		Read File-set	FSR
CT/MR Studies on DVD Media	STD-CTMR-DVD	Create File-set	FSC
		Read File-set	FSR
General Purpose DVD Interchange with JPEG	STD-GEN-DVD-JPEG	Create File-set	FSC
		Read File-set	FSR
Image Display (Ultrasound {SF|MF})	STD-US-ID-SF-DVD/STD-US-ID-MF-DVD	Create File-set	FSC
		Read File-set	FSR
CT/MR Studies on 1.2GB MOD	STD-CTMR-MOD12	Read File-set	FSR
CT/MR Studies on 2.3GB MOD	STD-CTMR-MOD23	Read File-set	FSR
CT/MR Studies on 4.1GB MOD	STD-CTMR-MOD41	Read File-set	FSR
CT/MR Studies on 650MB MOD	STD-CTMR-MOD650	Read File-set	FSR
Image Display (Ultrasound {SF|MF}) on 1.2GB 130mm MOD	STD-US-ID-SF-MOD12/STD-US-ID-MF-MOD12	Read File-set	FSR
Image Display (Ultrasound {SF|MF}) on 128MB MOD	STD-US-ID-SF-MOD128/STD-US-ID-MF-MOD128	Read File-set	FSR
Image Display (Ultrasound {SF|MF}) on 2.3GB 130mm MOD	STD-US-ID-SF-MOD23/STD-US-ID-MF-MOD23	Read File-set	FSR
Image Display (Ultrasound {SF|MF}) on 230MB 90mm MOD	STD-US-ID-SF-MOD230/STD-US-ID-MF-MOD230	Read File-set	FSR
Image Display (Ultrasound {SF|MF}) on 540MB 90mm MOD	STD-US-ID-SF-MOD540/STD-US-ID-MF-MOD540	Read File-set	FSR
Image Display (Ultrasound {SF|MF}) on 650MB 130mmMOD	STD-US-ID-SF-MOD650/STD-US-ID-MF-MOD650	Read File-set	FSR

5.2.1.1.   File Meta Information for the Media AE

The Application Entity title is registered in the DICOM File Meta Information header and is supported by the CD/DVD-writer (CD write option) acting only as FSC.

Table 181: File Meta Information for the Media AE

Implementation Class UID	1.3.46.670589.16.14.3.2.1
Implementation Version Name	Xcelera R3.2.L1

5.2.1.2.   Real-World Activities

The AE specification contains a description of the Real-World Activities, which invoke the particular AE.

5.2.1.2.1.   RWA - Read File-set

This Media Application Entity has a File-set Reader functionality which is described here.

For the Real World Activity Read File-set (DICOM Reading), the Media AE will act as an FSR using the Interchange option when reading the directory of the medium and when reading the requested images.

5.2.1.2.1.1.   Media Storage Application Profile

The table below gives an overview of the supported Application Profiles.

Table 182: Supported Application Profiles

Application Profile	Identifier	Real World Activity	Role	SC Option
CT/MR Studies on {650MB|1.2GB|2.3GB|4.1GB} MOD	STD-CTMR-MOD*	Read image(s) from MOD	FSR	Interchange
CT/MR Studies on CD-R	STD-CTMR-CD	Read image(s) from CD	FSR	Interchange
CT/MR Studies on DVD Media	STD-CTMR-DVD	Read image(s) from DVD	FSR	Interchange
General Purpose CD-R Interchange	STD_GEN-CD	Read image(s) from CD	FSR	Interchange
General Purpose Interchange on DVD Media	STD-GEN-DVD	Read image(s) from DVD	FSR	Interchange
Basic cardiac X-Ray Angiographic Studies on CD-R media	STD-XABC-CD	Read image(s) from CD	FSR	Interchange
1024 X-Ray Angiographic Studies on CD-R Media	STD-XA1K-CD	Read image(s) from CD	FSR	Interchange
Image Display (Ultrasound {SF|MF})	STD-US-ID-MF-CDR	Read image(s) from CD	FSR	Interchange
	STD-US-ID-SF-CDR	Read image(s) from CD	FSR	Interchange
	STD-US-ID-MF-MOD*	Read image(s) from MOD	FSR	Interchange
	STD-US-ID-SF-MOD*	Read image(s) from MOD	FSR	Interchange
	STD-US-ID-SF-DVD	Read image(s) from DVD	FSR	Interchange
	STD-US-ID-MF-DVD	Read image(s) from DVD	FSR	Interchange

 * The supported MOD (FSR) Application Profiles include all Application Profiles where MOD* is MOD12, MOD23, MOD128, MOD230, MOD540, or MOD650.

5.2.1.2.1.1.1.   Options

Not applicable.

5.2.1.2.2.   RWA - Create File-set

This Media Application Entity has a File-set Creator functionality which is described here.

For the Real World Activities DICOM Recording the Media AE will write the SOP instances as provided by the RWA to the record able DICOM medium and a corresponding DICOMDIR is created.

5.2.1.2.2.1. Media Storage Application Profile

See table below for an overview of the support of the Application Profiles.

Table 183: Supported Application Profiles

Application Profile	Identifier	Real World Activity	Role	SC Option
CT/MR Studies on CD-R	STD-CTMR-CD	Write image(s) to CD-R	FSC	Interchange
CT/MR Studies on DVD Media	STD-CTMR-DVD	Write image(s) to CD-R	FSC	Interchange
General Purpose CD-R Interchange	STD_GEN-CD	Write image(s) to CD-R	FSC	Interchange
General Purpose Interchange on DVD Media	STD-GEN-DVD	Write image(s) to DVD-RAM	FSC	Interchange
Basic cardiac X-Ray Angiographic Studies on CD-R media	STD-XABC-CD	Write image(s) to CD-R	FSC	Interchange
1024 X-Ray Angiographic Studies on CD-R Media	STD-XA1K-CD	Write image(s) to CD-R	FSC	Interchange
Image Display (Ultrasound {SF|MF})	STD-US-ID-MF-CDR	Write image(s) to CD-R	FSC	Interchange
	STD-US-ID-SF-CDR	Write image(s) to CD-R	FSC	Interchange
	STD-US-ID-SF-DVD	Write image(s) to DVD	FSC	Interchange
	STD-US-ID-MF-DVD	Write image(s) to DVD	FSC	Interchange

The following table presents an overview of the defined Photometric Interpretation and Transfer Syntax pairs for the Ultrasound Application Profiles (STD-US-xx-SF/MF…).

Table 184: Defined Photometric Interpretation and Transfer Syntax Pairs

Photometric Interpretation Value	Transfer Syntax Name	Transfer Syntax UID
MONOCHROME2	ELE	1.2.840.10008.1.2.1
	RLE	1.2.840.10008.1.2.5
RGB	ELE	1.2.840.10008.1.2.1
	RLE	1.2.840.10008.1.2.5
PALETTE COLOR	ELE	1.2.840.10008.1.2.1
	RLE	1.2.840.10008.1.2.5
YBR_FULL	RLE	1.2.840.10008.1.2.5
YBR_FULL_422	ELE	1.2.840.10008.1.2.1
	JPEG Lossy Baseline	1.2.840.10008.1.2.4.50
YBR_PARTIAL_422	ELE	1.2.840.10008.1.2.1
	JPEG Lossy Baseline	1.2.840.10008.1.2.4.50

5.2.1.2.2.1.1. Options

In the DICOMDIR file a Basic Directory IOD is present, containing PATIENT, STUDY, SERIES and IMAGE directory record types.

The following table describes the optional directory keys of the Media AE.

Table 185: Optional Keys

Attribute name	Tag	VR	Notes
Patient Keys			
Patient's Birth Date	0010,0030	DA	Explicit additional DICOMDIR key for Application Profiles STD-XABC-CD and STD-XA1K-CD (VT=2).
Patient's Sex	0010,0040	CS	Explicit additional DICOMDIR key for Application Profiles STD-XABC-CD and STD-XA1K-CD (VT=2).
Study Keys			
Referring Physician's Name	0008,0090	PN	-

Attribute name	Tag	VR	Notes
Named of Physician Reading Study	0008,1060	PN	-
Series Keys			
Series Date	0008,0021	DA	-
Series Time	0008,0031	TM	-
Institution Name	0008,0080	LO	Implicit additional DICOMDIR key for STD-US, and STD-GEN, Application Profiles. Explicit additional DICOMDIR key for Application Profiles STD-XABC-CD and STD-XA1K-CD (VT=2).
Institution Address	0008,0081	ST	Implicit additional DICOMDIR key for STD-US, and STD-GEN, Application Profiles. Explicit additional DICOMDIR key for Application Profiles STD-XABC-CD and STD-XA1K-CD (VT=2).
Series Description	0008,103E	LO	-
Performing Physician's Name	0008,1050	PN	Explicit additional DICOMDIR key for Application Profiles STD-XABC-CD and STD-XA1K-CD (VT=2).
Body Part Examined	0018,0015	CS	-
Protocol Name	0018,1030	LO	-
Image Keys			
Image Type	0008,0008	CS	Explicit additional DICOMDIR key for Application Profiles STD-XABC-CD, STD-XA1K-CD and STD-GEN-CD (VT=1).
Content Date	0008,0023	DA	-
Content Time	0008,0033	TM	-

During the copy of "PLACED" data of a DSR study on Xcelera to CD/DVD Media, it is possible to select the export parameter that will apply to all DSR studies.

Selectable are the following options:
- Export As: "DICOM" (default) and
- Compression: "Loop" and
- Compression: "Still".
Both compression values are default "RLE".

5.3. Augmented and Private Application Profiles

Not applicable

5.4. Media Configuration

Not applicable.

6. Support of Character Sets

Any support for character sets in Network and Media services is described here.

Table 186: Supported DICOM Character Sets

Character Set Description	Defined Term	ESC Sequence	ISO Registration Number	Code Element	Character Set
Latin alphabet No. 1	ISO 2022 IR 100	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/01	ISO-IR 100	G1	Supplementary set of ISO 8859
Japanese	ISO 2022 IR 13	ESC 02/08 04/10	ISO-IR 14	G0	JIS X 0201: Romaji
		ESC 02/09 04/09	ISO-IR 13	G1	JIS X 0201: Katakana
Japanese	ISO 2022 IR 159	-	ISO-IR 159	G0	JIS X 0212: Supplementary Kanji set
		-	-	-	-
Japanese	ISO 2022 IR 87	-	ISO-IR 87	G0	JIS X 0208: Kanji
		-	-	-	-
Latin alphabet No. 1	ISO_IR 100	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 100	G1	Supplementary set of ISO 8859

Notes:

If the internally stored character group has been updated using any Kanji character, this PN attribute will always be exported as "Ideographic" component group.

A DICOM Value Representation of type PN, containing Japanese characters can exists of three component groups in the format:

<Single byte character>=<Ideographic character>=<Phonetic character>
Each component group is separated by the equal delimiter "=".

Note that Xcelera is LEVEL 2 transparent, but not if using patients data containing Japanese characters.

The behavior of the Xcelera during DICOM data import as SCP

When Xcelera imports DICOM data with PN type attributes with the above three component groups, then Xcelera uses the <Single byte character> component group for storage into the internal database.

In the case the <Single byte character> component group is absent, Xcelera uses the <Ideographic character> component group for storage into the internal database.
In the case both the <Single byte character> and the <Ideographic character> component groups are absent, Xcelera uses the <phonetic character> component group for storage into the internal database.

The behavior of Xcelera during DICOM data export as SCU

When Xcelera exports DICOM data, it uses the internally stored character group while exporting the PN type attributes.

That means that if the <Single byte character> component group is internally saved, Xcelera only uses this component group during export and the other two component groups are not exported.

And if the <Ideographic character> group is internally saved, then that group is used for export and the other two component groups

are not exported.

 And if the <Phonetic character> group is internally saved, then that group is used for export and the other two component groups are not exported.

7. Security

7.1.   Security Profiles

All kind of Security Profiles are described below.

7.1.1.   Security use Profiles

Not applicable

7.1.2.   Security Transport Connection Profiles

Not applicable

7.1.3.   Digital Signature Profiles

Not applicable

7.1.4.   Media Storage Security Profiles

Not applicable

7.1.5.   Attribute Confidentiality Profiles

No instances of the encrypted attributes data set are created. No transfer syntaxes are supported for encoding/decoding of encrypted attributes data sets.

The table below lists the attributes for anonymization (De-Identification) within a patient record. The terms used to describe the replacement value are listed below:

Empty: The attribute value is left empty (zero length).
User editable: The user can enter or edit the value for an attribute manually.
User selectable: The user can select a predefined list of values for an attribute.
System: The attribute value will be changed automatically by the system. Not configurable.
As is: The attribute value will not be changed. The text field for the attribute is grayed out.
Fixed value: The attribute value is set according a predefined list of values set by the system administrator.
Free: The attribute value gets the user-entered value. The system administrator can set a default value or, for gender, can select a value from the list.

Table 187: Basic Application Level Confidentiality Profile Attributes

Attribute Name	Tag	VR	Replacement Value	Remarks
Implementation Class UID	0002,0012	UI	new UID	System automatically changes
Implementation Version Name	0002,0013	SH	new Name	System automatically changes
Source Application Entity Title	0002,0016	AE	new AE title	System automatically changes
Patient's Name	0010,0010	PN	Empty, Fixed value, As is, Free	Free editable
Patient ID (MRN)	0008,1020	LO	Empty, Fixed value, As is, Free	Free editable
Patient's Birth Date	0010,0030	DA	Empty, Fixed value, As is, Free	Free editable
Patient's Sex	0010,0040	CS	Empty, Fixed value (Female, Male, Other, Empty), As is, Free	Free editable
Other Patient ID's	0010,1000	LO	Empty, Fixed value, As is, Free	Free editable

Attribute Name	Tag	VR	Replacement Value	Remarks
Patient's Address	0010,1040	LO	No values	System automatically changes
Country of Residence	0010,2150	LO	No values	System automatically changes
region of Residence	0010,2152	LO	No values	System automatically changes
Station Name	0008,1010	SH	Empty	Value of zero length, ""
Instance Creator UID	0008,0014	UI	new UID	System automatically changes
SOP Instance UID	0008,0018	UI	new UID	System automatically changes
Accession Number	0008,0050	SH	Empty, Fixed value, As is, Free	Free editable
Institution Name	0008,0080	LO	Empty, Fixed value, As is, Free. Possible values:"Default Institution", "DICOM".	Free editable
Referring Physician's Name	0008,0090	PN	Empty, Fixed value, As is, Free	Free editable
Performing Physician's Name	0008,1050	PN	Empty, Fixed value, As is, Free	Free editable
Operators Name	0008,1070	PN	Empty	Value of zero length, ""
Referenced SOP Instance UID	0008,1155	UI	new UID	System automatically changes
Study ID	0020,0010	SH	Empty, Fixed value, As is, Free	Free editable
Frame of Reference UID	0020,0052	UI	new UID	System automatically changes
Study Instance UID	0020,000D	UI	new UID	System automatically changes
Series Instance UID	0020,000E	UI	new UID	System automatically changes

7.1.6.   Network Address Management Profiles

Not applicable

7.1.7.   Time Synchronization Profiles

Not applicable

7.1.8.   Application Configuration Management Profiles

Not applicable

7.1.9.   Audit Trail Profiles

Not applicable

7.2.   Association Level Security

Not applicable.

7.3.   Application Level Security

Not applicable.

8. Annexes of application "Cath Analysis Package (CAAS2000)"

8.1. IOD Contents

8.1.1. Created SOP Instance

This section specifies each IOD created by this application.

Notes:

SOP classes created by CAAS2000 for Xcelera are encoded with transfer syntax DICOM Implicit VR Little Endian (1.2.840.10008.1.2). No private tags are included in the derived objects so no loss of information.

Structured Reporting is supported by this version of CAAS2000 but this functionality is disabled for Xcelera.

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
ANAPCV	The attribute is present under specified condition – if present then its Value is Not Always Present (attribute sent zero length if condition applies and no value is present)
ANAPEV	The attribute is present under specified condition – if present then it will not have any 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 188: List of created SOP Classes

SOP Class Name	SOP Class UID
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7

8.1.1.2.   Secondary Capture Image Storage SOP Class

Table 189: 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	ALWAYS
Equipment	SC Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	VOI LUT Module	ALWAYS
Image	SOP Common Module	ALWAYS

Table 190: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-
Patient ID	0010,0020	LO		VNAP	COPY	-
Issuer of Patient ID	0010,0021	LO		ALWAYS	AUTO	If Issuer of Patient ID is not present in the imported object, then "Default Institution" will be put by Xcelera.
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Sex	0010,0040	CS	F, M, O	VNAP	COPY	-

Table 191: General Study Module

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

Table 192: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Performing Physician's Name	0008,1050	PN		VNAP	COPY	-
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-
Series Number	0020,0011	IS		VNAP	COPY	-

Table 193: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips Medical Systems	ALWAYS	AUTO	-

Table 194: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS	OT	ALWAYS	AUTO	-
Conversion Type	0008,0064	CS	WSD	ALWAYS	AUTO	-

<div align="center">**Table 195: General Image Module**</div>

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	Value 1: DERIVED, Value 2: SECONDARY	ALWAYS	AUTO	-
Instance Number	0020,0013	IS		ALWAYS	AUTO	-
Patient Orientation	0020,0020	CS		EMPTY	AUTO	EMPTY

<div align="center">**Table 196: Image Pixel Module**</div>

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Samples per Pixel	0028,0002	US	1	ALWAYS	AUTO	-
Photometric Interpretation	0028,0004	CS	MONOCHROME2	ALWAYS	AUTO	-
Rows	0028,0010	US		ALWAYS	AUTO	-
Columns	0028,0011	US		ALWAYS	AUTO	-
Pixel Aspect Ratio	0028,0034	IS		ALWAYS	AUTO	-
Bits Allocated	0028,0100	US	8	ALWAYS	AUTO	-
Bits Stored	0028,0101	US	8	ALWAYS	AUTO	-
High Bit	0028,0102	US	7	ALWAYS	AUTO	-
Pixel Representation	0028,0103	US	0	ALWAYS	AUTO	-
Pixel Data	7FE0,0010	OW/ OB		ALWAYS	AUTO	-

<div align="center">**Table 197: VOI LUT Module**</div>

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

<div align="center">**Table 198: SOP Common Module**</div>

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS	ISO_IR 100	ANAP	COPY	Required if expanded/replacement character set used
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.7	ALWAYS	AUTO	-
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-

8.1.2. Usage of Attributes from Received IOD

The following table lists the functionality supported by this application.

<div align="center">**Table 199: Functionalities**</div>

Functionality	Type1	Optional	Private
CAAS 2000	X		

8.1.2.1. Usage of the Functionality CAAS 2000

The following table lists the supported SOP Classes which can be used by this application.

Table 200: Supported SOP Classes for functionality CAAS 2000

SOP Class name	SOP Class UID
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2

Notes:

The SOP classes mentioned above are supported by CAAS2000 for Xcelera R3.2L1 with transfer syntaxes DICOM Implicit VR Little Endian (1.2.840.10008.1.2), DICOM Explicit VR Little Endian (1.2.840.10008.1.2.1) and DICOM Explicit JPEG Lossless Image Compression (1.2.840.10008.1.2.4.70).

Pixel Intensity Relationship (0028,1040) = "DRM" or "SQRT" (e.g. GE Innova) are supported by CAAS2000 for Xcelera R3.2L1 additionally to the values "LIN", "LOG" and "DISP".

Matrix size Rows (0028,0010) and Columns (0028,0011) with a minimum of 8 pixels and a maximum of 2048 pixels are supported by CAAS2000 for Xcelera R3.2L1.

8.1.3.　Attribute Mapping

Not applicable.

8.1.4.　Coerced/Modified fields

Not applicable.

8.2.　Data Dictionary of Private Attributes

Not applicable.

8.3.　Coded Terminology and Templates

Not applicable.

8.3.1.　Context Groups

Not applicable.

8.3.2.　Template Specifications

Not applicable.

8.3.3.　Private code definitions

Not applicable.

8.4.　Grayscale Image consistency

Not applicable.

8.5.　Standard Extended/Specialized/Private SOPs

Not applicable.

8.6. Private Transfer Syntaxes

Not applicable.

9. Annexes of application "Cath Viewer"

9.1.   IOD Contents

9.1.1.   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
ANAPCV	The attribute is present under specified condition – if present then its Value is Not Always Present (attribute sent zero length if condition applies and no value is present)
ANAPEV	The attribute is present under specified condition – if present then it will not have any 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

9.1.1.1.   List of created SOP Classes

Table 201: List of created SOP Classes

SOP Class Name	SOP Class UID
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7

9.1.1.2.   Secondary Capture Image Storage SOP Class

Table 202: 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	ALWAYS
Equipment	SC Equipment Module	ALWAYS

Image		General Image Module	ALWAYS
Image		Image Pixel Module	ALWAYS
Image		VOI LUT Module	ALWAYS
Image		SOP Common Module	ALWAYS

Table 203: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-
Patient ID	0010,0020	LO		VNAP	COPY	-
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Birth Time	0010,0032	TM		VNAP	COPY	-
Patient's Sex	0010,0040	CS	F, M, O	VNAP	COPY	-
Issuer of Patient ID	0010,0021	LO		VNAP	COPY	If Issuer of Patient ID is not present in the imported object, then "Default Institution" will be put by Xcelera.

Table 204: General Study Module

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

Table 205: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Performing Physician's Name	0008,1050	PN		VNAP	COPY	-
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-
Series Number	0020,0011	IS		ALWAYS	COPY	-

Table 206: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips Medical Systems	ALWAYS	AUTO	-

Table 207: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS	COPY	-
Conversion Type	0008,0064	CS	WSD	ALWAYS	AUTO	-

Table 208: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	Value 1: DERIVED, Value 2: SECONDARY	ALWAYS	AUTO	-
Instance Number	0020,0013	IS		ALWAYS	AUTO	-
Patient Orientation	0020,0020	CS		VNAP	COPY	-

Table 209: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Samples per Pixel	0028,0002	US	0x0001=1, 1	ALWAYS	AUTO	-
Photometric Interpretation	0028,0004	CS	MONOCHROME2	ALWAYS	AUTO	-
Rows	0028,0010	US		ALWAYS	AUTO	-
Columns	0028,0011	US		ALWAYS	AUTO	-
Pixel Aspect Ratio	0028,0034	IS		ALWAYS	AUTO	-
Bits Allocated	0028,0100	US	8	ALWAYS	AUTO	-
Bits Stored	0028,0101	US	8	ALWAYS	AUTO	-
High Bit	0028,0102	US	7	ALWAYS	AUTO	-
Pixel Representation	0028,0103	US	0	ALWAYS	AUTO	-
Pixel Data	7FE0,0010	OW/OB		ALWAYS	AUTO	-

Table 210: VOI LUT Module

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

Table 211: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAP	COPY	Required if expanded/replacement character set used
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.7	ALWAYS	AUTO	-
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-

9.1.2. Usage of Attributes from Received IOD

The following table lists the functionality supported by this application.

Table 212: Functionalities

Functionality	Type1	Optional	Private
Cath Viewer	X		

9.1.2.1. Usage of the Functionality Cath Viewer

Next table shos the SOP classes supported by the Cath. Viewer.

Table 213: Supported SOP Classes for functionality Cath Viewer

SOP Class name	SOP Class UID
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4

Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1
X-Ray Angiographic Bi-Plane Image Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.12.3
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2

9.1.3.   Attribute Mapping

Not applicable.

9.1.4.   Coerced/Modified fields

Not applicable.

9.2.   Data Dictionary of Private Attributes

Not applicable.

9.3.   Coded Terminology and Templates

Not applicable.

9.3.1.   Context Groups

Not applicable.

9.3.2.   Template Specifications

Not applicable.

9.3.3.   Private code definitions

Not applicable.

9.4.   Grayscale Image consistency

Not applicable.

9.5.   Standard Extended/Specialized/Private SOPs

Not applicable.

9.6.   Private Transfer Syntaxes

Not applicable.

10. Annexes of application "EPMED"

10.1. IOD Contents

10.1.1. Created SOP Instance

Not applicable.

10.1.2. Usage of Attributes from Received IOD

Not applicable.

10.1.3. Attribute Mapping

Not applicable.

10.1.4. Coerced/Modified fields

Not applicable.

10.2. Data Dictionary of Private Attributes

Not applicable.

10.3. Coded Terminology and Templates

Not applicable.

10.3.1. Context Groups

Not applicable.

10.3.2. Template Specifications

Not applicable.

10.3.3. Private code definitions

Not applicable.

10.4. Grayscale Image consistency

Not applicable.

10.5. Standard Extended/Specialized/Private SOPs

Not applicable.

10.6. Private Transfer Syntaxes

Not applicable.

11. Annexes of application "Nuclear Medicine Viewer"

11.1. IOD Contents

11.1.1. Created SOP Instance

This section specifies each IOD created by this application.

Note:

The SOP classes created by AutoQuant for Xcelera R3.2L1 are encoded with transfer syntax DICOM Explicit VR Little Endian (1.2.840.10008.1.2.1) only. Transfer syntax DICOM RLE Lossless (1.2.840.10008.1.2.5) is offered for creation but non-functional in this build.

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
ANAPCV	The attribute is present under specified condition – if present then its Value is Not Always Present
	(attribute sent zero length if condition applies and no value is present)
ANAPEV	The attribute is present under specified condition – if present then it will not have any 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

11.1.1.1. List of created SOP Classes

Table 214: List of created SOP Classes

SOP Class Name	SOP Class UID
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7

11.1.1.2. Secondary Capture Image Storage SOP Class

Table 215: 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
Study	Patient Study Module	CONDITIONAL
Series	General Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Equipment	SC Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	SC Image Module	ALWAYS
Image	SOP Common Module	ALWAYS
	Extended Dicom and Private attributes	

Table 216: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-
Patient ID	0010,0020	LO		VNAP	COPY	-
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Sex	0010,0040	CS	F, M, O	VNAP	COPY	-

Table 217: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Date	0008,0020	DA		ALWAYS	COPY	-
Study Time	0008,0030	TM		ALWAYS	COPY	-
Accession Number	0008,0050	SH		VNAP	AUTO	-
Referring Physician's Name	0008,0090	PN		VNAP	COPY	-
Study Description	0008,1030	LO		VNAP	COPY	-
Study Instance UID	0020,000D	UI		ALWAYS	COPY	-
Study ID	0020,0010	SH		EMPTY	AUTO	-

Table 218: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Size	0010,1020	DS		ALWAYS	COPY	-
Patient's Weight	0010,1030	DS		ALWAYS	COPY	-

Table 219: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Date	0008,0021	DA		ALWAYS	AUTO	-
Series Time	0008,0031	TM		ALWAYS	AUTO	-
Series Description	0008,103E	LO	AQ Raw_SS	ALWAYS	AUTO	-
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-
Series Number	0020,0011	IS		ALWAYS	AUTO	-

Table 220: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	PHILIPS Nuclear Medicine	ALWAYS	COPY	-
Institution Name	0008,0080	LO		ALWAYS	COPY	-
Station Name	0008,1010	SH		ALWAYS	COPY	-
Manufacturer's Model Name	0008,1090	LO		ALWAYS	COPY	-
Software Version(s)	0018,1020	LO	Value 1: AIM_DICOM_200	ALWAYS	AUTO	-

Table 221: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS	NM	ALWAYS	AUTO	-
Conversion Type	0008,0064	CS	WSD	ALWAYS	AUTO	-
Secondary Capture Device Manufacturer	0018,1016	LO		ALWAYS	AUTO	-
Secondary Capture Device Manufacturer's Model Name	0018,1018	LO	Automatic Quantitative Perfusion and Function SPECT	ALWAYS	AUTO	-
Secondary Capture Device Software Version(s)	0018,1019	LO		ALWAYS	AUTO	-
Digital Image Format Acquired	0018,1023	LO	Screen capture	ALWAYS	AUTO	-

Table 222: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	Value 1: DERIVED, ORIGINAL	ALWAYS	AUTO	-
Acquisition Date	0008,0022	DA		ALWAYS	AUTO	-
Content Date	0008,0023	DA		ALWAYS	AUTO	-
Acquisition Time	0008,0032	TM		ALWAYS	AUTO	-
Content Time	0008,0033	TM		ALWAYS	AUTO	-
Derivation Description	0008,2111	ST		ALWAYS	AUTO	-
Acquisition Number	0020,0012	IS		ALWAYS	COPY	-
Instance Number	0020,0013	IS		ALWAYS	AUTO	-
Patient Orientation	0020,0020	CS		VNAP	AUTO	-

Table 223: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Samples per Pixel	0028,0002	US	3	ALWAYS	AUTO	-
Photometric Interpretation	0028,0004	CS	RGB	ALWAYS	AUTO	-
Planar Configuration	0028,0006	US	0x0000	ALWAYS	AUTO	-
Rows	0028,0010	US		ALWAYS	AUTO	-
Columns	0028,0011	US		ALWAYS	AUTO	-
Bits Allocated	0028,0100	US	8	ALWAYS	AUTO	-
Bits Stored	0028,0101	US	8	ALWAYS	AUTO	-
High Bit	0028,0102	US	7	ALWAYS	AUTO	-
Pixel Representation	0028,0103	US	0x0000	ALWAYS	AUTO	-

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Pixel Data	7FE0,0010	OW/OB		ALWAYS	AUTO	-

Table 224: SC Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Date of Secondary Capture	0018,1012	DA		ALWAYS	AUTO	-
Time of Secondary Capture	0018,1014	TM		ALWAYS	AUTO	-

Table 225: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAP	COPY	Required if expanded/replacement character set used
Instance Creation Date	0008,0012	DA		ALWAYS	AUTO	-
Instance Creation Time	0008,0013	TM		ALWAYS	AUTO	-
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.7	ALWAYS	AUTO	-
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-

11.1.2. Usage of Attributes from Received IOD

The following table lists the functionality supported by this application.

Table 226: Functionalities

Functionality	Type1	Optional	Private
AutoQuant	X		X

11.1.2.1.   Usage of the Functionality AutoQuant

The following table lists the supported SOP Classes which can be used by this application.

Table 227: Supported SOP Classes for functionality AutoQuant

SOP Class name	SOP Class UID
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7

11.1.3. Attribute Mapping

Not applicable.

11.1.4. Coerced/Modified fields

Not applicable.

11.2. Data Dictionary of Private Attributes

Not applicable.

11.3. Coded Terminology and Templates

Not applicable.

11.3.1. Context Groups

Not applicable.

11.3.2. Template Specifications

Not applicable.

11.3.3. Private code definitions

Not applicable.

11.4. Grayscale Image consistency

Not applicable.

11.5. Standard Extended/Specialized/Private SOPs

Not applicable.

Table 228: List of created SOP Classes

SOP Class Name	SOP Class UID
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7

11.5.1. Standard Extended/Specialized/Private SOP Instance

11.5.1.1. Secondary Capture Image Storage SOP Class

Table 229: Extended DICOM and private attributes for Secondary Capture Image Storage SOP Class Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Referenced Series Sequence	0008,1115	SQ		ALWAYS	AUTO	-
>Referenced Instance Sequence	0008,114A	SQ		ALWAYS	AUTO	-
>>Referenced SOP Class UID	0008,1150	UI		VNAP	AUTO	-
>>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	-
>Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-

11.6. Private Transfer Syntaxes

Not applicable.

12. Annexes of application "Ultrasound Analysis Package (QLAB)"

12.1. IOD Contents

12.1.1. Created SOP Instance

This section specifies each IOD created by this application.

Note that the Creation of Philips Private SONOS 7500 Live 3D Cartesian Storage (1.2.840.113543.6.6.1.3.1002) data requires a separate license.

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
ANAPCV   The attribute is present under specified condition – if present then its Value is Not Always Present
                (attribute sent zero length if condition applies and no value is present)
ANAPEV   The attribute is present under specified condition – if present then it will not have any 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

12.1.1.1. List of created SOP Classes

Table 230: List of created SOP Classes

SOP Class Name	SOP Class UID
Comprehensive SR SOP Class	1.2.840.10008.5.1.4.1.1.88.33
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1
Philips Private SONOS 7500 Live 3D Cartesian Storage	1.2.840.113543.6.6.1.3.1002

12.1.1.2. Comprehensive SR SOP Class

Table 231: IOD of Created Comprehensive SR SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Series	SR Document Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Document	SR Document General Module	ALWAYS
	SR Document Content Module	ALWAYS
Document	SOP Common Module	ALWAYS
	Extended Dicom and Private attributes	ALWAYS

Table 232: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-
Patient ID	0010,0020	LO		VNAP	COPY	-
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Sex	0010,0040	CS	F, M, O	VNAP	COPY	-

Table 233: General Study Module

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

Table 234: SR Document Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS	SR	ALWAYS	AUTO	-
Referenced Performed Procedure Step Sequence	0008,1111	SQ		EMPTY	AUTO	EMPTY
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-
Series Number	0020,0011	IS		ALWAYS	AUTO	-

Table 235: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips Medical System	ALWAYS	COPY	-
Manufacturer's Model Name	0008,1090	LO	QLAB	ALWAYS	AUTO	-
Software Version(s)	0018,1020	LO		ALWAYS	AUTO	-

Table 236: SR Document General Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Content Date	0008,0023	DA		ALWAYS	AUTO	-
Content Time	0008,0033	TM		ALWAYS	AUTO	-

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		ALWAYS	COPY	-
Performed Procedure Code Sequence	0040,A372	SQ		EMPTY	AUTO	-
Completion Flag	0040,A491	CS	PARTIAL	ALWAYS	AUTO	-
Verification Flag	0040,A493	CS	UNVERIFIED	ALWAYS	AUTO	-

Table 237: SR Document Content Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Value Type	0040,A040	CS	CONTAINER	ALWAYS	AUTO	-
Concept Name Code Sequence	0040,A043	SQ		ALWAYS	AUTO	-
>Code Value	0008,0100	SH		ALWAYS	AUTO	-
>Coding Scheme Designator	0008,0102	SH		ALWAYS	AUTO	-
>Code Meaning	0008,0104	LO		ALWAYS	AUTO	-
Concept Code Sequence	0040,A168	SQ		ALWAYS	AUTO	-
>Code Value	0008,0100	SH		ALWAYS	AUTO	-
>Coding Scheme Designator	0008,0102	SH		ALWAYS	AUTO	-
>Code Meaning	0008,0104	LO		ALWAYS	AUTO	-
Continuity Of Content	0040,A050	CS		ALWAYS	AUTO	-
Content Template Sequence	0040,A504	SQ		ANAP	AUTO	-
>Mapping Resource	0008,0105	CS		ALWAYS	AUTO	
>Template Identifier	0040,DB00	CS		ALWAYS	AUTO	-
Content Sequence	0040,A730	SQ		ANAP	AUTO	-
>Relationship Type	0040,A010	CS	CONTAINS	ALWAYS	AUTO	-
>Value Type	0040,A040	CS		ALWAYS	AUTO	-
>Concept Name Code Sequence	0040,A043	SQ		ALWAYS	AUTO	-
>Continuity Of Content	0040,A050	CS	SEPARATE	ALWAYS	AUTO	-
>Value Type	0040,A040	CS		ALWAYS	AUTO	-

Table 238: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAPCV	AUTO	Required if expanded/replacement character set used
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.88.33	ALWAYS	AUTO	-
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-

12.1.1.3. Ultrasound Image Storage SOP Class

Table 239: IOD of Created Ultrasound 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	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	US Image Module	ALWAYS
Image	VOI LUT Module	ALWAYS

| Image | | | | SOP Common Module | ALWAYS |
| | | | | Extended Dicom and Private attributes | ALWAYS |

Table 240: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-
Patient ID	0010,0020	LO		VNAP	COPY	-
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Sex	0010,0040	CS	F, M, O	VNAP	COPY	-

Table 241: General Study Module

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

Table 242: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Date	0008,0021	DA		ALWAYS	AUTO	-
Series Time	0008,0031	TM		ALWAYS	AUTO	-
Modality	0008,0060	CS	US	ALWAYS	COPY	-
Series Description	0008,103E	LO		VNAP	AUTO	-
Protocol Name	0018,1030	LO		VNAP	AUTO	-
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-
Series Number	0020,0011	IS		ALWAYS	AUTO	-

Table 243: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips Medical Systems	ALWAYS	AUTO	-
Manufacturer's Model Name	0008,1090	LO	QLAB	ALWAYS	AUTO	-
Software Version(s)	0018,1020	LO		ALWAYS	AUTO	-

Table 244: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Content Date	0008,0023	DA		ALWAYS	AUTO	-
Content Time	0008,0033	TM		ALWAYS	AUTO	-
Derivation Description	0008,2111	ST		ALWAYS	AUTO	-
Source Image Sequence	0008,2112	SQ		ALWAYS	AUTO	-
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	-
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	-
Instance Number	0020,0013	IS		VNAP	AUTO	-
Patient Orientation	0020,0020	CS		VNAP	AUTO	-
Burned In Annotation	0028,0301	CS	NO	ALWAYS	AUTO	-

| Lossy Image Compression Ratio | 0028,2112 | DS | | ALWAYS | AUTO | - |

Table 245: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rows	0028,0010	US		ALWAYS	AUTO	-
Columns	0028,0011	US		ALWAYS	AUTO	-
Pixel Data	7FE0,0010	OW/ OB		ALWAYS	AUTO	-

Table 246: US Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	Value 1: DERIVED, Value 2: SECONDARY	ALWAYS	AUTO	-
Samples per Pixel	0028,0002	US	3	ALWAYS	AUTO	-
Photometric Interpretation	0028,0004	CS	YBR_FULL_422	ALWAYS	AUTO	-
Planar Configuration	0028,0006	US	0x0000	ALWAYS	AUTO	-
Bits Allocated	0028,0100	US	8	ALWAYS	AUTO	-
Bits Stored	0028,0101	US	8	ALWAYS	AUTO	-
High Bit	0028,0102	US	7	ALWAYS	AUTO	-
Pixel Representation	0028,0103	US	0	ALWAYS	AUTO	-
Lossy Image Compression	0028,2110	CS	01	ANAP	AUTO	Required if Lossy Compression has been performed on the image.

Table 247: VOI LUT Module

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

Table 248: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS	ISO_IR 100	ANAP	AUTO	Required if expanded/replacement character set used
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.6.1	ALWAYS	AUTO	-
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-

12.1.1.4.   Ultrasound Multi-frame Image Storage SOP Class

Table 249: IOD of Created Ultrasound Multi-frame 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	ALWAYS
Image	General Image Module	CONDITIONAL
Image	Image Pixel Module	CONDITIONAL
Image	Cine Module	CONDITIONAL

Image		Multi-Frame Module	CONDITIONAL
Image		US Image Module	CONDITIONAL
Image		VOI LUT Module	CONDITIONAL
Image		SOP Common Module	ALWAYS
		Extended Dicom and Private attributes	CONDITIONAL

Table 250: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	USER	-
Patient ID	0010,0020	LO		VNAP	USER	-
Patient's Birth Date	0010,0030	DA		VNAP	USER	-
Patient's Sex	0010,0040	CS	F, M, O	VNAP	USER	-

Table 251: General Study Module

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

Table 252: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Date	0008,0021	DA		ANAPCV	AUTO	-
Series Time	0008,0031	TM		ANAPCV	AUTO	-
Modality	0008,0060	CS	US	ALWAYS	AUTO	-
Series Description	0008,103E	LO		ANAPCV	AUTO	-
Protocol Name	0018,1030	LO		ANAPCV	AUTO	-
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-
Series Number	0020,0011	IS		ALWAYS	AUTO	-

Table 253: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips Medical Systems	ALWAYS	AUTO	-
Manufacturer's Model Name	0008,1090	LO	QLAB	ALWAYS	AUTO	-
Software Version(s)	0018,1020	LO		ALWAYS	AUTO	-

Table 254: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Content Date	0008,0023	DA		ALWAYS	AUTO	-
Content Time	0008,0033	TM		ALWAYS	AUTO	-
Derivation Description	0008,2111	ST	QLAB Clip	ALWAYS	AUTO	-
Source Image Sequence	0008,2112	SQ		ALWAYS	AUTO	-
>Referenced SOP Class UID	0008,1150	UI	1.2.840.10008.5.1.4.1.1.3.1	ALWAYS	AUTO	-
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	-

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		VNAP	AUTO	-
Patient Orientation	0020,0020	CS		VNAP	AUTO	-
Burned In Annotation	0028,0301	CS	NO	ALWAYS	AUTO	-
Lossy Image Compression Ratio	0028,2112	DS		ALWAYS	AUTO	-

Table 255: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rows	0028,0010	US		ALWAYS	AUTO	-
Columns	0028,0011	US		ALWAYS	AUTO	-
Pixel Data	7FE0,0010	OW/OB		ALWAYS	AUTO	-

Table 256: Cine Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Frame Time Vector	0018,1065	DS		ALWAYS	AUTO	-

Table 257: Multi-Frame Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Frames	0028,0008	IS		ALWAYS	AUTO	-
Frame Increment Pointer	0028,0009	AT	Value 1: 00181065	ALWAYS	AUTO	-

Table 258: US Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	Value 1: DERIVED, Value 2: SECONDARY	ALWAYS	AUTO	-
Samples per Pixel	0028,0002	US		ALWAYS	AUTO	-
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	-
Planar Configuration	0028,0006	US		ALWAYS	AUTO	-
Frame Increment Pointer	0028,0009	AT	0x00181065	ALWAYS	AUTO	-
Bits Allocated	0028,0100	US	8	ALWAYS	AUTO	-
Bits Stored	0028,0101	US	8	ALWAYS	AUTO	-
High Bit	0028,0102	US	7	ALWAYS	AUTO	-
Pixel Representation	0028,0103	US	0x0000	ALWAYS	AUTO	-
Lossy Image Compression	0028,2110	CS	01	ALWAYS	AUTO	-

Table 259: VOI LUT Module

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

Table 260: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS	ISO_IR 100	ALWAYS	AUTO	Required if expanded/replacement character set used
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.3.1	ALWAYS	AUTO	-

SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-

12.1.2. Usage of Attributes from Received IOD

The following table lists the functionality supported by this application.

Table 261: Functionalities

Functionality	Type1	Optional	Private
QLab	X		

12.1.2.1. Usage of the Functionality QLab

The following table lists the supported SOP Classes which can be used by this application.

Table 262: Supported SOP Classes for functionality QLab

SOP Class name	SOP Class UID
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1
Philips Private iE33 3D NEO Presentation State Subpage Storage	1.3.46.670589.2.5.1.1
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3
Philips Private SONOS 7500 Live 3D Frustrum Storage	1.2.840.113543.6.6.1.3.1001
Philips Private SONOS 7500 Live 3D Cartesian Storage	1.2.840.113543.6.6.1.3.1002

12.1.3. Attribute Mapping

Not applicable.

12.1.4. Coerced/Modified fields

Not applicable.

12.2. Data Dictionary of Private Attributes

Not applicable.

12.3. Coded Terminology and Templates

Adult Echocardiography Structured Report is based on the Template ID 5200.

12.3.1. Context Groups

Not applicable.

12.3.2. Template Specifications

Not applicable.

12.3.3. Private code definitions

Not applicable.

12.4. Grayscale Image consistency

Not applicable.

12.5. Standard Extended/Specialized/Private SOPs

Not applicable.

Table 263: List of created SOP Classes

SOP Class Name	SOP Class UID
Comprehensive SR SOP Class	1.2.840.10008.5.1.4.1.1.88.33
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1
Philips Private SONOS 7500 Live 3D Cartesian Storage	1.2.840.113543.6.6.1.3.1002

12.5.1. Standard Extended/Specialized/Private SOP Instance

12.5.1.1. Comprehensive SR SOP Class

Table 264: Extended DICOM and private attributes for Comprehensive SR SOP Class Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Date	0008,0021	DA		ALWAYS	AUTO	-
Series Time	0008,0031	TM		ALWAYS	AUTO	-
Study Description	0008,1030	LO		ANAP	AUTO	-
Series Description	0008,103E	LO		EMPTY	AUTO	-
Protocol Name	0018,1030	LO		EMPTY	AUTO	-

12.5.1.2. Ultrasound Image Storage SOP Class

Table 265: Extended DICOM and private attributes for Ultrasound Image Storage SOP Class Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Conversion Type	0008,0064	CS	SYN	ALWAYS	AUTO	Synthetic Image.

12.5.1.3. Ultrasound Multi-frame Image Storage SOP Class

Table 266: Extended DICOM and private attributes for Ultrasound Multi-frame Image Storage SOP Class Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Conversion Type	0008,0064	CS	SYN	ALWAYS	AUTO	-

12.6. Private Transfer Syntaxes

Not applicable.

13. Annexes of application "Ultrasound Viewer"

13.1. IOD Contents

13.1.1. Created SOP Instance

This section specifies each IOD created by this application.

13.1.2. Usage of Attributes from Received IOD

The following table lists the functionality supported by this application.

Table 267: Functionalities

Functionality	Type1	Optional	Private
Ultrasound Viewer	X	X	

13.1.2.1. Usage of the Functionality Ultrasound Viewer

The following table lists the supported SOP Classes which can be used by this application.

Table 268: Supported SOP Classes for functionality Ultrasound Viewer

SOP Class name	SOP Class UID
Philips Private iE33 3D NEO Presentation State Subpage Storage	1.3.46.670589.2.5.1.1
Basic Text SR SOP Class	1.2.840.10008.5.1.4.1.1.88.11
Comprehensive SR SOP Class	1.2.840.10008.5.1.4.1.1.88.33
Enhanced SR SOP Class	1.2.840.10008.5.1.4.1.1.88.22
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1

13.1.3. Attribute Mapping

Not applicable.

13.1.4. Coerced/Modified fields

Not applicable.

13.2. Data Dictionary of Private Attributes

Not applicable.

13.3. Coded Terminology and Templates

Not applicable.

13.3.1. Context Groups

Not applicable.

13.3.2. Template Specifications

Not applicable.

13.3.3. Private code definitions

Not applicable.

13.4. Grayscale Image consistency

Not applicable.

13.5. Standard Extended/Specialized/Private SOPs

Not applicable.

13.6. Private Transfer Syntaxes

Not applicable.

14.   Annexes of application "ViewForum"

14.1. IOD Contents

14.1.1.   Created SOP Instance

The created DICOM SOP classes will be described in the next sections.

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
ANAPCV   The attribute is present under specified condition – if present then its Value is Not Always Present
                    (attribute sent zero length if condition applies and no value is present)
ANAPEV   The attribute is present under specified condition – if present then it will not have any 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

14.1.1.1.   List of created SOP Classes

Table 269: List of created SOP Classes

SOP Class Name	SOP Class UID
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4
Philips Private ViewForum 3D Volume Object New Storage	1.3.46.670589.5.0.2.1
Philips Private ViewForum 3D Volume New Storage	1.3.46.670589.5.0.1.1

14.1.1.2.   Computed Radiography Image Storage SOP Class

Table 270: IOD of Created Computed Radiography Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	ALWAYS
Series	General Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	CR Image Module	ALWAYS
Image	SOP Common Module	ALWAYS
	Extended Dicom and Private attributes	ALWAYS

Table 271: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-
Patient ID	0010,0020	LO		VNAP	COPY	-
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Birth Time	0010,0032	TM		ALWAYS	AUTO	-
Patient's Sex	0010,0040	CS		VNAP	COPY	-

Table 272: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Date	0008,0020	DA		ALWAYS	COPY	-
Study Time	0008,0030	TM		ALWAYS	COPY	-
Accession Number	0008,0050	SH		ALWAYS	COPY	-
Referring Physician's Name	0008,0090	PN		VNAP	COPY	-
Study Description	0008,1030	LO		ANAPCV	COPY	-
Name of Physician(s) Reading Study	0008,1060	PN		VNAP	COPY	-
Study Instance UID	0020,000D	UI		ALWAYS	COPY	-
Study ID	0020,0010	SH		ALWAYS	COPY	-

Table 273: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Weight	0010,1030	DS		VNAP	COPY	-

Table 274: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Date	0008,0021	DA		ALWAYS	AUTO	-
Series Time	0008,0031	TM		ALWAYS	AUTO	-
Modality	0008,0060	CS		ALWAYS	COPY	-
Series Description	0008,103E	LO		VNAP	AUTO	-
Protocol Name	0018,1030	LO	Original	ALWAYS	CONFIG	-
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-
Series Number	0020,0011	IS		VNAP	AUTO	-

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Performed Procedure Step Start Date	0040,0244	DA		ALWAYS	AUTO	-
Performed Procedure Step Start Time	0040,0245	TM		ALWAYS	AUTO	-
Performed Procedure Step ID	0040,0253	SH		ALWAYS	AUTO	-
Performed Procedure Step Description	0040,0254	LO		ALWAYS	COPY	Copied from Study Description

Table 275: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips Medical Systems	ALWAYS	COPY	-
Institution Name	0008,0080	LO		ALWAYS	AUTO	-
Manufacturer's Model Name	0008,1090	LO	ViewForum	ALWAYS	AUTO	-
Software Version(s)	0018,1020	LO	Value 1: ViewForum 6.1", "PMS5.2 MIMIT EVIIMDictionary	ALWAYS	AUTO	-

Table 276: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	Value 1: ORIGINAL, Value 2: SECONDARY	ALWAYS	AUTO	-
Content Date	0008,0023	DA		ALWAYS	COPY	-
Content Time	0008,0033	TM		ALWAYS	COPY	-
Instance Number	0020,0013	IS		ALWAYS	AUTO	-

Table 277: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Samples per Pixel	0028,0002	US	1	ALWAYS	AUTO	-
Rows	0028,0010	US		ALWAYS	COPY	-
Columns	0028,0011	US		ALWAYS	COPY	-
Bits Allocated	0028,0100	US		ALWAYS	COPY	-
Bits Stored	0028,0101	US		ALWAYS	COPY	-
High Bit	0028,0102	US		ALWAYS	COPY	-
Pixel Representation	0028,0103	US		ALWAYS	COPY	-
Pixel Data	7FE0,0010	OW/OB		ALWAYS	AUTO	-

Table 278: CR Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Distance Source to Detector	0018,1110	DS		ANAPCV	COPY	-
Photometric Interpretation	0028,0004	CS	MONOCHROME1, MONOCHROME2	ALWAYS	COPY	-
Pixel Spacing	0028,0030	DS		ALWAYS	COPY	-

Table 279: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAP	AUTO	Required if expanded/replacement character set used

SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.1	ALWAYS	AUTO	-
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-

14.1.1.3. CT Image Storage SOP Class

Table 280: IOD of Created CT Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	ALWAYS
Series	General Series Module	ALWAYS
Frame of Reference	Frame of Reference Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Plane Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	CT Image Module	ALWAYS
Image	SOP Common Module	ALWAYS
	Extended Dicom and Private attributes	ALWAYS

Table 281: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-
Patient ID	0010,0020	LO		VNAP	COPY	-
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Birth Time	0010,0032	TM		ALWAYS	AUTO	-
Patient's Sex	0010,0040	CS		VNAP	COPY	-

Table 282: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Date	0008,0020	DA		VNAP	COPY	-
Study Time	0008,0030	TM		VNAP	COPY	-
Accession Number	0008,0050	SH		VNAP	COPY	-
Referring Physician's Name	0008,0090	PN		VNAP	COPY	-
Study Description	0008,1030	LO		VNAP	COPY	-
Name of Physician(s) Reading Study	0008,1060	PN		VNAP	COPY	-
Study Instance UID	0020,000D	UI		ALWAYS	COPY	-
Study ID	0020,0010	SH		ALWAYS	COPY	-

Table 283: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Weight	0010,1030	DS		VNAP	COPY	-

Table 284: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Date	0008,0021	DA		ANAPCV	AUTO	-

Series Time	0008,0031	TM		ANAPCV	AUTO	-
Modality	0008,0060	CS		ALWAYS	COPY	-
Series Description	0008,103E	LO	original	ALWAYS	COPY	-
Protocol Name	0018,1030	LO		ANAPCV	COPY	-
Patient Position	0018,5100	CS		ALWAYS	COPY	-
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-
Series Number	0020,0011	IS		ALWAYS	AUTO	-
Performed Procedure Step Start Date	0040,0244	DA		ALWAYS	AUTO	-
Performed Procedure Step Start Time	0040,0245	TM		ALWAYS	AUTO	-
Performed Procedure Step ID	0040,0253	SH		VNAP	AUTO	-
Performed Procedure Step Description	0040,0254	LO		VNAP	COPY	-

Table 285: Frame of Reference Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Frame of Reference UID	0020,0052	UI		ALWAYS	AUTO	-
Position Reference Indicator	0020,1040	LO		VNAP	AUTO	-

Table 286: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips Medical Systems	ALWAYS	AUTO	-
Institution Name	0008,0080	LO		ALWAYS	AUTO	-
Manufacturer's Model Name	0008,1090	LO	ViewForum	ALWAYS	AUTO	-
Software Version(s)	0018,1020	LO	Value 1: ViewForum 6.1", "PMS5.2 MIMIT EVIIMDictionary	ALWAYS	AUTO	-

Table 287: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Date	0008,0022	DA		ALWAYS	COPY	-
Content Date	0008,0023	DA		ALWAYS	COPY	-
Acquisition Time	0008,0032	TM		ALWAYS	COPY	-
Content Time	0008,0033	TM		ALWAYS	COPY	-
Instance Number	0020,0013	IS		ALWAYS	AUTO	-

Table 288: Image Plane Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Slice Thickness	0018,0050	DS		VNAP	AUTO	-
Image Position (Patient)	0020,0032	DS		ALWAYS	AUTO	-
Image Orientation (Patient)	0020,0037	DS		ALWAYS	AUTO	-
Pixel Spacing	0028,0030	DS		ALWAYS	AUTO	-

Table 289: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rows	0028,0010	US		ALWAYS	AUTO	-
Columns	0028,0011	US		ALWAYS	AUTO	-

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Pixel Representation	0028,0103	US	0x0000	ALWAYS	AUTO	-
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	-

Table 290: CT Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	Value 1: ORIGINAL, Value 2: PRIMARY, Value 3: LOCALIZER	ALWAYS	AUTO	-
KVP	0018,0060	DS		VNAP	AUTO	-
Acquisition Number	0020,0012	IS		VNAP	AUTO	-
Samples per Pixel	0028,0002	US	1	ALWAYS	AUTO	-
Photometric Interpretation	0028,0004	CS	MONOCHROME1, MONOCHROME2	ALWAYS	AUTO	-
Bits Allocated	0028,0100	US	16	ALWAYS	AUTO	-
Bits Stored	0028,0101	US	16	ALWAYS	AUTO	-
High Bit	0028,0102	US	15	ALWAYS	AUTO	-
Rescale Intercept	0028,1052	DS		ALWAYS		-
Rescale Slope	0028,1053	DS		ALWAYS		-

Table 291: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAP	AUTO	Required if expanded/replacement character set used
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.2, 1.2.840.10008.5.1.4.1.1.2	ALWAYS	AUTO	-
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-

14.1.1.4. Grayscale Softcopy Presentation State Storage SOP Class

Table 292: IOD of Created Grayscale Softcopy Presentation State Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	ALWAYS
Series	General Series Module	ALWAYS
Series	Presentation Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Presentation State	Presentation State Identification Module	ALWAYS
Presentation State	Presentation State Relationship Module	ALWAYS
Presentation State	Presentation State Shutter Module	CONDITIONAL
Presentation State	Displayed Area Module	CONDITIONAL
Presentation State	Graphic Annotation Module	CONDITIONAL
Presentation State	Graphic Layer Module	CONDITIONAL
Presentation State	Modality LUT Module	ALWAYS
Presentation State	Softcopy VOI LUT Module	ALWAYS
Presentation State	Softcopy Presentation LUT Module	ALWAYS

				Presentation State		SOP Common Module	ALWAYS
						Extended Dicom and Private attributes	ALWAYS

Table 293: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-
Patient ID	0010,0020	LO		VNAP	COPY	-
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Birth Time	0010,0032	TM		ALWAYS	AUTO	-
Patient's Sex	0010,0040	CS	F, M, O	VNAP	COPY	-

Table 294: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Date	0008,0020	DA		ALWAYS	COPY	-
Study Time	0008,0030	TM		ALWAYS	COPY	-
Accession Number	0008,0050	SH		VNAP	COPY	-
Referring Physician's Name	0008,0090	PN		VNAP	COPY	-
Study Description	0008,1030	LO		VNAP	COPY	-
Procedure Code Sequence	0008,1032	SQ		ANAPCV	AUTO	-
Name of Physician(s) Reading Study	0008,1060	PN		VNAP	COPY	-
Study Instance UID	0020,000D	UI		ALWAYS	COPY	-
Study ID	0020,0010	SH		VNAP	COPY	-

Table 295: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Age	0010,1010	AS		ANAPCV	COPY	-
Patient's Weight	0010,1030	DS		VNAP	COPY	-

Table 296: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Date	0008,0021	DA		ALWAYS	AUTO	-
Series Time	0008,0031	TM		ALWAYS	AUTO	-
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-
Series Number	0020,0011	IS		ALWAYS	AUTO	-
Request Attributes Sequence	0040,0275	SQ		ANAPCV	AUTO	-
Performed Procedure Step Start Date	0040,0244	DA		ALWAYS	COPY	-
Performed Procedure Step Start Time	0040,0245	TM		ALWAYS	COPY	-
Performed Procedure Step ID	0040,0253	SH		ALWAYS	COPY	-
Performed Procedure Step Description	0040,0254	LO		VNAP	COPY	-

Table 297: Presentation Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS	PR	ALWAYS	AUTO	-

Table 298: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips Medical Systems	ALWAYS	AUTO	-
Institution Name	0008,0080	LO		ALWAYS	AUTO	-
Manufacturer's Model Name	0008,1090	LO	ViewForum	ALWAYS	AUTO	-
Software Version(s)	0018,1020	LO	Value 1: ViewForum 6.1", "PMS5.2 MIMIT EVIIMDictionary	ALWAYS	AUTO	-

Table 299: Presentation State Identification Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Presentation Creation Date	0070,0082	DA		ALWAYS	AUTO	-
Presentation Creation Time	0070,0083	TM		ALWAYS	AUTO	-
Instance Number	0020,0013	IS		ALWAYS	AUTO	-
Content Label	0070,0080	CS	NONE	ALWAYS	AUTO	-
Content Description	0070,0081	LO		VNAP	AUTO	-
Content Creator's Name	0070,0084	PN		VNAP	AUTO	-

Table 300: Presentation State Relationship Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Referenced Series Sequence	0008,1115	SQ		ALWAYS	AUTO	-
>Referenced Image Sequence	0008,1140	SQ		ALWAYS	AUTO	-
>>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	-
>>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	-
>Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-

Table 301: Presentation State Shutter Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Shutter Presentation Value	0018,1622	US	0	ANAP	AUTO	Required if display shutter module or bitmap display shutter module is present.

Table 302: Displayed Area Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Displayed Area Selection Sequence	0070,005A	SQ		ALWAYS	AUTO	-
>Displayed Area Top Left Hand Corner	0070,0052	SL		ALWAYS	AUTO	-
>Displayed Area Bottom Right Hand Corner	0070,0053	SL		ALWAYS	AUTO	-
>Presentation Size Mode	0070,0100	CS	SCALE TO FIT	ALWAYS	AUTO	-

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
>Presentation Pixel Spacing	0070,0101	DS		ANAP	AUTO	Required if Presentation Size Mode (0070,0100) is TRUE SIZE, in which case the values will correspond to the physical distance between the center of each pixel on the display device. May be present if Presentation Size Mode (0070,0100) is SCALE TO FIT or MAGNIFY, in which case the values are used to compute the aspect ratio of the image pixels.
>Presentation Pixel Aspect Ratio	0070,0102	IS		ANAP	AUTO	Required if Presentation Pixel Spacing (0070,0101) is not present.

Table 303: Graphic Annotation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Graphic Annotation Sequence	0070,0001	SQ		ANAP	AUTO	-
>Referenced Image Sequence	0008,1140	SQ		ANAP	AUTO	-
>>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	-
>>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	-
>Graphic Layer	0070,0002	CS		ALWAYS	AUTO	-
>Text Object Sequence	0070,0008	SQ		ANAP	AUTO	-
>>Anchor Point Annotation Units	0070,0004	CS		ANAP	AUTO	-
>>Unformatted Text Value	0070,0006	ST		ALWAYS	AUTO	-
>>Anchor Point Visibility	0070,0015	CS		ANAP	AUTO	-
>Graphic Object Sequence	0070,0009	SQ		ANAP	AUTO	-
>>Graphic Data	0070,0022	FL		ALWAYS	AUTO	-

Table 304: Graphic Layer Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Graphic Layer Sequence	0070,0060	SQ		ANAP	AUTO	-
>Graphic Layer	0070,0002	CS		ALWAYS	AUTO	-
>Graphic Layer Order	0070,0062	IS		ALWAYS	AUTO	-
>Graphic Layer Description	0070,0068	LO		ANAPCV	AUTO	-

Table 305: Modality LUT Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rescale Intercept	0028,1052	DS		ANAP	AUTO	-
Rescale Slope	0028,1053	DS		ANAP	AUTO	-
Rescale Type	0028,1054	LO		ANAP	AUTO	-

Table 306: Softcopy VOI LUT Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Softcopy VOI LUT Sequence	0028,3110	SQ		ALWAYS	AUTO	-
>Referenced Image Sequence	0008,1140	SQ		ANAP	AUTO	Required if the VOI LUT transformation in this Item does not apply to all the images and frames listed in the Presentation State Relationship Module.
>>Referenced Frame Number	0008,1160	IS		ALWAYS	AUTO	-

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
>>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	-
>>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	-
>Window Center	0028,1050	DS		ANAP	AUTO	-
>Window Width	0028,1051	DS		ANAP	AUTO	-

Table 307: Softcopy Presentation LUT Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Presentation LUT Shape	2050,0020	CS	IDENTITY	ANAP	AUTO	-

Table 308: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAP	AUTO	Required if expanded/replacement character set used
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.11.1	ALWAYS	AUTO	-
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-

14.1.1.5.　Secondary Capture Image Storage SOP Class

Table 309: 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
Study	Patient Study Module	ALWAYS
Series	General Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Equipment	SC Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	SOP Common Module	ALWAYS
	Extended Dicom and Private attributes	ALWAYS

Table 310: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-
Patient ID	0010,0020	LO		VNAP	COPY	-
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Birth Time	0010,0032	TM		ALWAYS	AUTO	-
Patient's Sex	0010,0040	CS	F, M, O	VNAP	COPY	-

Table 311: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Date	0008,0020	DA		VNAP	COPY	-
Study Time	0008,0030	TM		VNAP	COPY	-
Accession Number	0008,0050	SH		VNAP	COPY	-
Referring Physician's Name	0008,0090	PN		VNAP	COPY	-
Study Description	0008,1030	LO		VNAP	COPY	-

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Name of Physician(s) Reading Study	0008,1060	PN		VNAP	COPY	-
Study Instance UID	0020,000D	UI		ALWAYS	COPY	-
Study ID	0020,0010	SH		VNAP	COPY	-

Table 312: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Weight	0010,1030	DS		VNAP	COPY	-

Table 313: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Date	0008,0021	DA		ALWAYS	AUTO	-
Series Time	0008,0031	TM		ALWAYS	AUTO	-
Series Description	0008,103E	LO	original, photo	ALWAYS	AUTO	-
Protocol Name	0018,1030	LO		ANAPCV	COPY	-
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-
Series Number	0020,0011	IS		ALWAYS	AUTO	-
Performed Procedure Step Start Date	0040,0244	DA		ANAPCV	COPY	-
Performed Procedure Step Start Time	0040,0245	TM		ANAPCV	COPY	-
Performed Procedure Step ID	0040,0253	SH		ALWAYS	COPY	-
Performed Procedure Step Description	0040,0254	LO		VNAP	COPY	-

Table 314: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips Medical Systems	ALWAYS	AUTO	-
Institution Name	0008,0080	LO		ALWAYS	AUTO	-
Manufacturer's Model Name	0008,1090	LO	ViewForum	ALWAYS	AUTO	-
Software Version(s)	0018,1020	LO	Value 1: ViewForum 6.1", "PMS5.2 MIMIT EVIIMDictionary	ALWAYS	AUTO	-

Table 315: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS	OT	ALWAYS	COPY	-
Conversion Type	0008,0064	CS	WSD	ALWAYS	AUTO	-

Table 316: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	Value 1: DERIVED, Value 2: SECONDARY	ALWAYS	AUTO	-
Acquisition Date	0008,0022	DA		ANAPCV	COPY	-
Content Date	0008,0023	DA		ANAPCV	COPY	-
Acquisition Time	0008,0032	TM		ANAPCV	AUTO	-
Content Time	0008,0033	TM		ANAPCV	COPY	-
Instance Number	0020,0013	IS		ALWAYS	AUTO	-
Patient Orientation	0020,0020	CS		VNAP	COPY	-

Table 317: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Samples per Pixel	0028,0002	US	3	ALWAYS	AUTO	-
Photometric Interpretation	0028,0004	CS	RGB	ALWAYS	AUTO	-
Planar Configuration	0028,0006	US	0x0000	ALWAYS	AUTO	-
Rows	0028,0010	US		ALWAYS	AUTO	-
Columns	0028,0011	US		ALWAYS	AUTO	-
Bits Allocated	0028,0100	US	8	ALWAYS	AUTO	-
Bits Stored	0028,0101	US	8	ALWAYS	AUTO	-
High Bit	0028,0102	US	7	ALWAYS	AUTO	-
Pixel Representation	0028,0103	US	0x0000	ALWAYS	AUTO	-
Pixel Data	7FE0,0010	OW/OB		ALWAYS	AUTO	-

Table 318: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAP	COPY	Required if expanded/replacement character set used
SOP Class UID	0008,0016	UI		ALWAYS	AUTO	-
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-

14.1.1.6. X-Ray Angiographic Image Storage SOP Class

Table 319: IOD of Created X-Ray Angiographic Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	ALWAYS
Series	General Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	X-Ray Image Module	ALWAYS
Image	X-Ray Acquisition Module	ALWAYS
Image	SOP Common Module	ALWAYS
	Extended Dicom and Private attributes	ALWAYS

Table 320: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-
Patient ID	0010,0020	LO		VNAP	COPY	-
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Birth Time	0010,0032	TM		ALWAYS	AUTO	-
Patient's Sex	0010,0040	CS	F, M, O	VNAP	COPY	-

Table 321: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Date	0008,0020	DA		ALWAYS	COPY	-
Study Time	0008,0030	TM		VNAP	COPY	-
Accession Number	0008,0050	SH		VNAP	COPY	-
Referring Physician's Name	0008,0090	PN		VNAP	COPY	-
Study Description	0008,1030	LO		VNAP	COPY	-
Study Instance UID	0020,000D	UI		ALWAYS	COPY	-
Study ID	0020,0010	SH		ALWAYS	COPY	-

Table 322: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Weight	0010,1030	DS		VNAP	COPY	-

Table 323: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Date	0008,0021	DA		ALWAYS	AUTO	-
Series Time	0008,0031	TM		ALWAYS	AUTO	-
Modality	0008,0060	CS		ALWAYS	COPY	-
Series Description	0008,103E	LO	original	ALWAYS	AUTO	-
Protocol Name	0018,1030	LO		ALWAYS	AUTO	-
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-
Series Number	0020,0011	IS		ALWAYS	AUTO	-
Performed Procedure Step Start Date	0040,0244	DA		ALWAYS	AUTO	-
Performed Procedure Step Start Time	0040,0245	TM		ALWAYS	AUTO	-
Performed Procedure Step ID	0040,0253	SH		ALWAYS	AUTO	-
Performed Procedure Step Description	0040,0254	LO		VNAP	AUTO	-

Table 324: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips Medical Systems	ALWAYS	AUTO	-
Institution Name	0008,0080	LO		ALWAYS	AUTO	-
Manufacturer's Model Name	0008,1090	LO	ViewForum	ALWAYS	AUTO	-
Software Version(s)	0018,1020	LO	Value 1: ViewForum 6.1", "PMS5.2 MIMIT EVIIMDictionary	ALWAYS	AUTO	-

Table 325: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Date	0008,0022	DA		ALWAYS	COPY	-
Content Date	0008,0023	DA		ALWAYS	COPY	-
Acquisition Time	0008,0032	TM		ALWAYS	AUTO	-
Content Time	0008,0033	TM		ALWAYS	COPY	-
Instance Number	0020,0013	IS		ALWAYS	AUTO	-

Table 326: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rows	0028,0010	US		ALWAYS	AUTO	-
Columns	0028,0011	US		ALWAYS	AUTO	-
Pixel Data	7FE0,0010	OW/OB		ALWAYS	AUTO	-

Table 327: X-Ray Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	Value 1: DERIVED, SINGLE A, STORE MONITOR, Value 2: SECONDARY, Value 3: SINGLE PLANE	ALWAYS	AUTO	-
Samples per Pixel	0028,0002	US		ALWAYS	AUTO	-
Photometric Interpretation	0028,0004	CS	MONOCHROME1, MONOCHROME2	ALWAYS	AUTO	-
Bits Allocated	0028,0100	US	8	ALWAYS	AUTO	-
Bits Stored	0028,0101	US	8	ALWAYS	AUTO	-
High Bit	0028,0102	US	7	ALWAYS	AUTO	-
Pixel Representation	0028,0103	US		ALWAYS	AUTO	-
Pixel Intensity Relationship	0028,1040	CS	DISP	ALWAYS	AUTO	-

Table 328: X-Ray Acquisition Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
KVP	0018,0060	DS		VNAP	AUTO	-
Exposure Time	0018,1150	IS		ANAPCV	AUTO	-
X-ray Tube Current	0018,1151	IS		ANAPCV	AUTO	-
Exposure	0018,1152	IS		ANAPCV	AUTO	-
Radiation Setting	0018,1155	CS	GR	ALWAYS	AUTO	-

Table 329: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAP	AUTO	Required if expanded/replacement character set used
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.12.1	ALWAYS	AUTO	-
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-

14.1.1.7. X-Ray Radiofluoroscopic Image Storage SOP Class

Table 330: IOD of Created X-Ray Radiofluoroscopic Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	ALWAYS
Series	General Series Module	ALWAYS

Equipment			General Equipment Module		ALWAYS	
Image			General Image Module		ALWAYS	
Image			Image Pixel Module		ALWAYS	
Image			X-Ray Image Module		ALWAYS	
Image			X-Ray Acquisition Module		ALWAYS	
Image			SOP Common Module		ALWAYS	
			Extended Dicom and Private attributes		ALWAYS	

Table 331: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-
Patient ID	0010,0020	LO		VNAP	COPY	-
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Birth Time	0010,0032	TM		ALWAYS	AUTO	-
Patient's Sex	0010,0040	CS	F, M, O	VNAP	COPY	-

Table 332: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Date	0008,0020	DA		ALWAYS	COPY	-
Study Time	0008,0030	TM		ALWAYS	COPY	-
Accession Number	0008,0050	SH		VNAP	COPY	-
Referring Physician's Name	0008,0090	PN		VNAP	COPY	-
Study Description	0008,1030	LO		VNAP	COPY	-
Name of Physician(s) Reading Study	0008,1060	PN		VNAP	COPY	-
Study Instance UID	0020,000D	UI		ALWAYS	COPY	-
Study ID	0020,0010	SH		VNAP	COPY	-

Table 333: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Weight	0010,1030	DS		VNAP	COPY	-

Table 334: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Date	0008,0021	DA		ALWAYS	AUTO	-
Series Time	0008,0031	TM		ALWAYS	AUTO	-
Modality	0008,0060	CS		ALWAYS	COPY	-
Series Description	0008,103E	LO	original	ALWAYS	AUTO	-
Protocol Name	0018,1030	LO		ALWAYS	AUTO	-
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-
Series Number	0020,0011	IS		VNAP	AUTO	-
Performed Procedure Step Start Date	0040,0244	DA		ANAPEV	AUTO	-
Performed Procedure Step Start Time	0040,0245	TM		ANAPCV	AUTO	-
Performed Procedure Step ID	0040,0253	SH		ANAPCV	COPY	-
Performed Procedure Step Description	0040,0254	LO		VNAP	AUTO	-

Table 335: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips Medical Systems	VNAP	AUTO	-
Institution Name	0008,0080	LO		ALWAYS	AUTO	-
Manufacturer's Model Name	0008,1090	LO	ViewForum	ALWAYS	AUTO	-
Software Version(s)	0018,1020	LO	Value 1: ViewForum 6.1", "PMS5.2 MIMIT EVIIMDictionary	ALWAYS	AUTO	-

Table 336: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Date	0008,0022	DA		ALWAYS	COPY	-
Content Date	0008,0023	DA		ALWAYS	COPY	-
Acquisition Time	0008,0032	TM		ALWAYS	AUTO	-
Content Time	0008,0033	TM		ALWAYS	AUTO	-
Instance Number	0020,0013	IS		ALWAYS	AUTO	-

Table 337: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rows	0028,0010	US		ALWAYS	AUTO	-
Columns	0028,0011	US		ALWAYS	AUTO	-
Pixel Data	7FE0,0010	OW/ OB		ALWAYS	AUTO	-

Table 338: X-Ray Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	Value 1: ORIGINAL, Value 2: PRIMARY, Value 3: SINGLE PLANE	ALWAYS	AUTO	-
Samples per Pixel	0028,0002	US	1	ALWAYS	AUTO	-
Photometric Interpretation	0028,0004	CS	MONOCHROME2	ALWAYS	AUTO	-
Bits Allocated	0028,0100	US	16	ALWAYS	AUTO	-
Bits Stored	0028,0101	US	12	ALWAYS	AUTO	-
High Bit	0028,0102	US	11	ALWAYS	AUTO	-
Pixel Representation	0028,0103	US	0	ALWAYS	AUTO	-
Pixel Intensity Relationship	0028,1040	CS	DISP	ALWAYS	AUTO	-

Table 339: X-Ray Acquisition Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
KVP	0018,0060	DS		VNAP	AUTO	-
Exposure Time	0018,1150	IS		ANAPCV	AUTO	-
X-ray Tube Current	0018,1151	IS		ANAPCV	AUTO	-
Exposure	0018,1152	IS		ANAPCV	AUTO	-
Radiation Setting	0018,1155	CS	GR	ALWAYS	AUTO	-

Table 340: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAP	AUTO	Required if expanded/replacement character set used
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.12.2	ALWAYS	AUTO	-
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-

14.1.1.8.   MR Image Storage SOP Class

Table 341: IOD of Created MR Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	ALWAYS
Series	General Series Module	ALWAYS
Frame of Reference	Frame of Reference Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Plane Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	MR Image Module	ALWAYS
Image	VOI LUT Module	ALWAYS
Image	SOP Common Module	ALWAYS
	Extended Dicom and Private attributes	ALWAYS

Table 342: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-
Patient ID	0010,0020	LO		VNAP	COPY	-
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Birth Time	0010,0032	TM		ALWAYS	AUTO	-
Patient's Sex	0010,0040	CS	F, M, O	VNAP	COPY	-

Table 343: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Date	0008,0020	DA		VNAP	COPY	-
Study Time	0008,0030	TM		VNAP	COPY	-
Accession Number	0008,0050	SH		VNAP	COPY	-
Referring Physician's Name	0008,0090	PN		VNAP	COPY	-
Study Description	0008,1030	LO		ANAPCV	COPY	-
Name of Physician(s) Reading Study	0008,1060	PN		VNAP	COPY	-
Study Instance UID	0020,000D	UI		ALWAYS	AUTO	-
Study ID	0020,0010	SH		ALWAYS	AUTO	-

Table 344: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Weight	0010,1030	DS		VNAP	COPY	-

Table 345: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Date	0008,0021	DA		ALWAYS	AUTO	-
Series Time	0008,0031	TM		ALWAYS	AUTO	-
Modality	0008,0060	CS		ALWAYS	COPY	-
Series Description	0008,103E	LO	original	ALWAYS	AUTO	-
Protocol Name	0018,1030	LO		ALWAYS	AUTO	-
Patient Position	0018,5100	CS		VNAP	COPY	-
Series Instance UID	0020,000E	UI		ALWAYS	COPY	-
Series Number	0020,0011	IS		ALWAYS	AUTO	-
Performed Procedure Step Start Date	0040,0244	DA		ALWAYS	COPY	-
Performed Procedure Step Start Time	0040,0245	TM		ALWAYS	COPY	-
Performed Procedure Step ID	0040,0253	SH		ALWAYS	COPY	-
Performed Procedure Step Description	0040,0254	LO		ALWAYS	COPY	-

Table 346: Frame of Reference Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Frame of Reference UID	0020,0052	UI		ALWAYS	AUTO	-
Position Reference Indicator	0020,1040	LO		VNAP	AUTO	-

Table 347: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips Medical Systems	ALWAYS	AUTO	-
Institution Name	0008,0080	LO		ALWAYS	AUTO	-
Manufacturer's Model Name	0008,1090	LO		ALWAYS	AUTO	-
Software Version(s)	0018,1020	LO	Value 1: ViewForum 6.1", "PMS5.2 MIMIT EVIIMDictionary	ALWAYS	AUTO	-

Table 348: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Content Date	0008,0023	DA		ALWAYS	COPY	-
Content Time	0008,0033	TM		ALWAYS	COPY	-
Instance Number	0020,0013	IS		ALWAYS	AUTO	-

Table 349: Image Plane Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Slice Thickness	0018,0050	DS		VNAP	AUTO	-
Image Position (Patient)	0020,0032	DS		ALWAYS	AUTO	-
Image Orientation (Patient)	0020,0037	DS		ALWAYS	AUTO	-

| Pixel Spacing | 0028,0030 | DS | | ALWAYS | AUTO | - |

Table 350: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rows	0028,0010	US		ALWAYS	AUTO	-
Columns	0028,0011	US		ALWAYS	AUTO	-
Bits Stored	0028,0101	US	8	ALWAYS	AUTO	-
High Bit	0028,0102	US	7	ALWAYS	AUTO	-
Pixel Representation	0028,0103	US	0x0000	ALWAYS	AUTO	-
Pixel Data	7FE0,0010	OW/ OB		ALWAYS	AUTO	-

Table 351: MR Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	Value 1: ORIGINAL, Value 2: PRIMARY	ALWAYS	AUTO	-
Scanning Sequence	0018,0020	CS	GR	ALWAYS	AUTO	-
Sequence Variant	0018,0021	CS		ALWAYS	AUTO	-
Scan Options	0018,0022	CS		VNAP	AUTO	-
MR Acquisition Type	0018,0023	CS		VNAP	AUTO	-
Repetition Time	0018,0080	DS		ANAPCV	AUTO	-
Echo Time	0018,0081	DS		VNAP	AUTO	-
Echo Train Length	0018,0091	IS		VNAP	AUTO	-
Samples per Pixel	0028,0002	US		ALWAYS	AUTO	-
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	-
Bits Allocated	0028,0100	US		ALWAYS	AUTO	-

Table 352: VOI LUT Module

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

Table 353: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAP	AUTO	Required if expanded/replacement character set used
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.4	ALWAYS	AUTO	-
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-

14.1.2. Usage of Attributes from Received IOD

The following table lists the functionality supported by this application.

<div align="center">**Table 354: Functionalities**</div>

Functionality	Type1	Optional	Private
IVE	X	X	

14.1.2.1.   Usage of the Functionality IVE

The following table lists the supported SOP Classes which can be used by this application.

<div align="center">**Table 355: Supported SOP Classes for functionality IVE**</div>

SOP Class name	SOP Class UID
Philips Private ViewForum 3D Volume Object New Storage	1.3.46.670589.5.0.2.1
Philips Private ViewForum 3D Volume New Storage	1.3.46.670589.5.0.1.1
Philips Private ViewForum MR Cardio New Storage	1.3.46.670589.5.0.8.1
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2
Philips Private ViewForum CT Synthetic Image Storage	1.3.46.670589.5.0.9
Philips Private ViewForum CX Synthetic Image Storage	1.3.46.670589.5.0.12
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2
Philips Private ViewForum MR Cardio Analysis New Storage	1.3.46.670589.5.0.11.1
Philips Private EasyVision MR Cardio Storage	1.3.46.670589.5.0.8
Philips Private ViewForum MR Synthetic Image Storage	1.3.46.670589.5.0.10
Philips Private ViewForum Perfusion Storage	1.3.46.670589.5.0.13
Philips Private ViewForum Perfusion Analysis Storage	1.3.46.670589.5.0.14
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1
Philips Private ViewForum Surface New Storage	1.3.46.670589.5.0.3.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2
Philips Private Reconstructed X-ray Storage	1.3.46.670589.2.4.1.1

14.1.3. Attribute Mapping

Not applicable

14.1.4. Coerced/Modified fields

If not available at import then ViewForum will create the additional attributes as listed in the table below.

<div align="center">**Table 356: Additional Attributes for Image Import.**</div>

Attribute	Tag	VR	General Value
Performed Procedure Step Start Date	0040,0244	DA	Copied from (0008, 0020) Study Date.
Performed Procedure Step Start Time	0040,0245	TM	Copied from (0008, 0030) Study Time.
Performed Procedure Step ID	0040,0253	SH	Copied from (0020, 0010) Study ID.
Performed Procedure Step Description	0040,0254	LO	Copied from (0008, 1030) Study Description.

14.2. Data Dictionary of Private Attributes

Not applicable.

14.3. Coded Terminology and Templates

Not applicable.

14.3.1. Context Groups

Not applicable.

14.3.2. Template Specifications

Not applicable.

14.3.3. Private code definitions

Not applicable.

14.4. Grayscale Image consistency

Not applicable.

14.5. Standard Extended/Specialized/Private SOPs

Not applicable.

Table 357: List of created SOP Classes

SOP Class Name	SOP Class UID
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4
Philips Private ViewForum 3D Volume Object New Storage	1.3.46.670589.5.0.2.1
Philips Private ViewForum 3D Volume New Storage	1.3.46.670589.5.0.1.1

14.5.1. Standard Extended/Specialized/Private SOP Instance

14.5.1.1. Computed Radiography Image Storage SOP Class
Table 358: Extended DICOM and private attributes for Computed Radiography Image Storage SOP Class Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Radiation Setting	0018,1155	CS	GR	ALWAYS	AUTO	-
Image and Fluoroscopy Area Dose Product	0018,115E	DS		ALWAYS	COPY	-
Number of Frames	0028,0008	IS		ALWAYS	AUTO	-
Frame Increment Pointer	0028,0009	AT	Value 1: 1063	ALWAYS	AUTO	-
Pixel Intensity Relationship	0028,1040	CS	DISP	ALWAYS	AUTO	-
Performed Station Name	0040,0242	SH		EMPTY	AUTO	-

| Performed Procedure Type Description | 0040,0255 | LO | | EMPTY | AUTO | - |

14.5.1.2. CT Image Storage SOP Class

Table 359: Extended DICOM and private attributes for CT Image Storage SOP Class Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Performed Station Name	0040,0242	SH		VNAP	COPY	-
Performed Procedure Type Description	0040,0255	LO		VNAP	COPY	-

14.5.1.3. Grayscale Softcopy Presentation State Storage SOP Class

Table 360: Extended DICOM and private attributes for Grayscale Softcopy Presentation State Storage SOP Class Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Distance Source to Detector	0018,1110	DS		ANAP	AUTO	-
Image and Fluoroscopy Area Dose Product	0018,115E	DS		ANAP	AUTO	-
Performed Station Name	0040,0242	SH		VNAP	COPY	-
Performed Procedure Type Description	0040,0255	LO		VNAP	COPY	-
Entrance Dose	0040,0302	US		ANAP	AUTO	-
Comments on Radiation Dose	0040,0310	ST		ANAP	AUTO	-

14.5.1.4. Secondary Capture Image Storage SOP Class

Table 361: Extended DICOM and private attributes for Secondary Capture Image Storage SOP Class Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Distance Source to Detector	0018,1110	DS		ALWAYS	AUTO	-
Performed Station Name	0040,0242	SH		VNAP	COPY	-
Performed Procedure Type Description	0040,0255	LO		VNAP	COPY	-

14.5.1.5. X-Ray Angiographic Image Storage SOP Class

Table 362: Extended DICOM and private attributes for X-Ray Angiographic Image Storage SOP Class Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Performed Station Name	0040,0242	SH		VNAP	AUTO	-
Performed Procedure Type Description	0040,0255	LO		VNAP	AUTO	-

14.5.1.6. X-Ray Radiofluoroscopic Image Storage SOP Class

Table 363: Extended DICOM and private attributes for X-Ray Radiofluoroscopic Image Storage SOP Class Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Performed Station Name	0040,0242	SH		ALWAYS	AUTO	-

| Performed Procedure Type Description | 0040,0255 | LO | | ALWAYS | AUTO | - |

14.5.1.7.   MR Image Storage SOP Class

Table 364: Extended DICOM and private attributes for MR Image Storage SOP Class Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rescale Intercept	0028,1052	DS		ALWAYS	AUTO	-
Rescale Slope	0028,1053	DS		ALWAYS	AUTO	-
Rescale Type	0028,1054	LO		ALWAYS	AUTO	-
Performed Station Name	0040,0242	SH		VNAP	COPY	-
Performed Procedure Type Description	0040,0255	LO		VNAP	COPY	-

14.6. Private Transfer Syntaxes

Not applicable.