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DICOM Conformance Statement

Philips IntelliSpace Portal V12

Issued by:

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1. DICOM Conformance Statement Overview

This Conformance Statement refers to the Philips IntelliSpace Portal V12, which is a Philips user environment for multi-modality visualization for CT, MR, NM, Digital and Angiographic X-Ray and Ultrasound. This version of the DICOM Conformance Statement applies to Philips IntelliSpace Portal version V12.

The Philips IntelliSpace Portal provides the following DICOM data exchange features:
- It receives images sent from remote systems (e.g. workstations or imaging modalities) and stores them in a database.
- It allows the operator to copy images from the database to remote databases and vice versa. For this purpose the operator is able to query remote databases.
- It allows the operator to print images (Grayscale and Color) stored in the database on a DICOM printer.
- It is able to read and write DICOM media CD, CD-RW disks.
- It is able to read and write DICOM media DVD+/-R, DVD+/-RW disks.
- It is able to read and write DICOM media from USB.
- Supports WADO-RS.
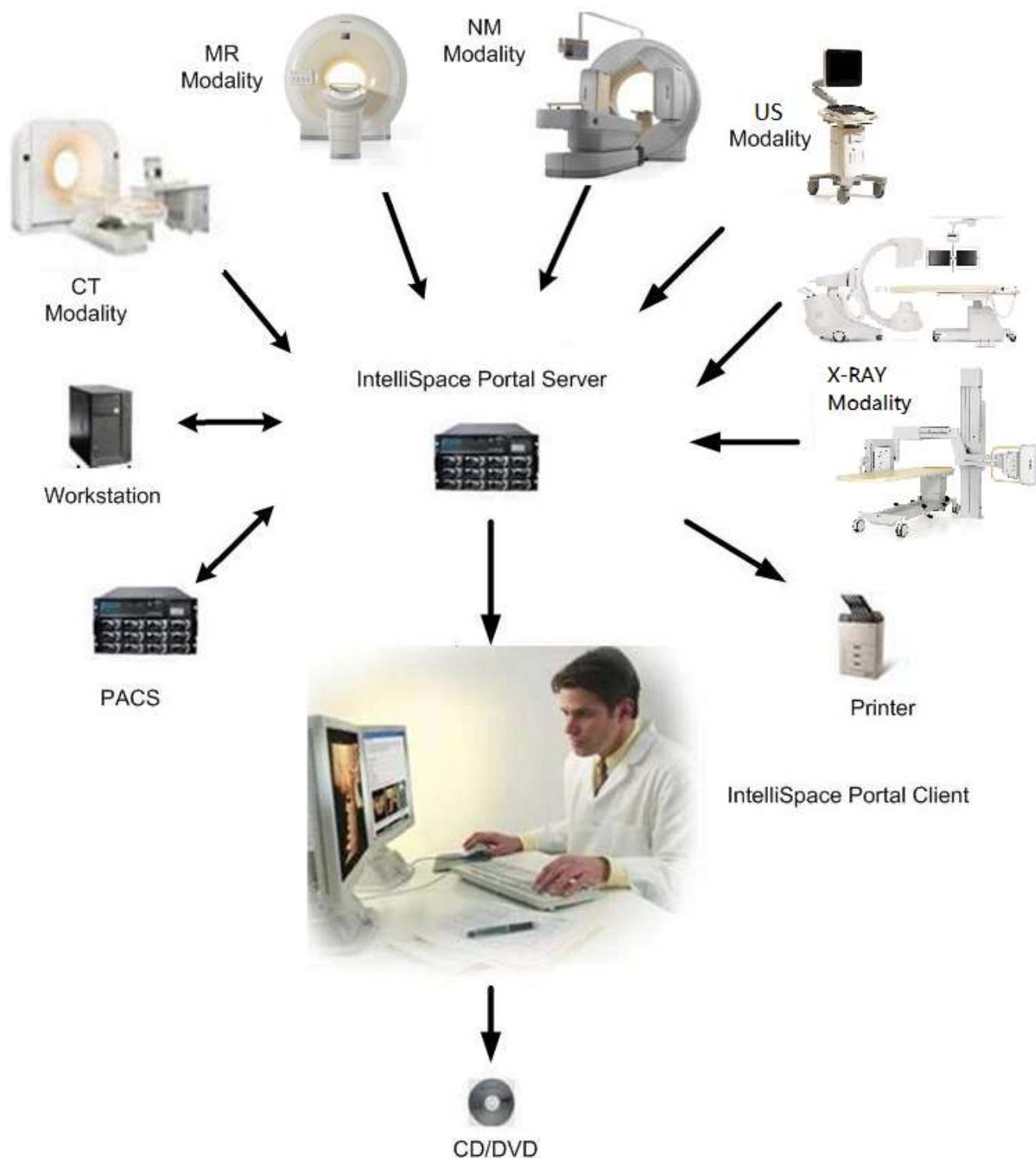- It also supports the fetching of Priors (MWL query for Priors).

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Figure 1: Philips IntelliSpace Portal in a DICOM Network.

The table below presents an overview of all network services and the applicable SOP Classes as provided by the Philips IntelliSpace Portal, where the first column specifies the used SOP Classes as named in PS 3.6 (Ref PS 3.6 Annex A) of the current DICOM Standard.

Table 1: Network Services

SOP Class		User of Service (SCU)	Provider of Service (SCP)	Display
Name	**UID**			
Verification SOP Class	1.2.840.10008.1.1	Yes	Yes	No
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Yes	No	No
>Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1	Yes	No	No
>Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Yes	No	No
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Yes	No	No
>Printer SOP Class	1.2.840.10008.5.1.1.16	Yes	No	No
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Yes	No	No
>Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Yes	No	No
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Yes	No	No
>Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	Yes	No	No
>Printer SOP Class	1.2.840.10008.5.1.1.16	Yes	No	No
Study Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	Yes	Yes	No
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Yes	Yes	No
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	Yes	Yes	Yes
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	Yes	Yes	Yes
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	Yes	No
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	Yes	Yes	Yes
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	Yes	No
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	Yes	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	No
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes	Yes
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes	Yes
Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.2	Yes	Yes	No
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	Yes	Yes	No
Blending Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.4	Yes	Yes	No
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	Yes	Yes	Yes
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes	Yes
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	Yes	Yes	Yes
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	Yes	Yes	Yes
Enhanced CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2.1	No	Yes	Yes
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	Yes	Yes	Yes
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Yes	Yes	Yes
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	Yes	Yes	Yes
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Yes	Yes	Yes
Enhanced MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.1	Yes	Yes	Yes
MR Spectroscopy Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.2	Yes	Yes	Yes
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	Yes	Yes	Yes
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	Yes	Yes	No
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	Yes	Yes	Yes
RT Plan Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.5	Yes	Yes	Yes
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Yes	Yes	Yes
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	Yes	Yes	Yes

SOP Class		User of Service (SCU)	Provider of Service (SCP)	Display
Name	**UID**			
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	Yes	Yes	No
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Yes	Yes	No
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	Yes	Yes	No
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Yes	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	Yes
Multi-frame Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2	Yes	Yes	Yes
Multi-frame Grayscale Word SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.3	Yes	Yes	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	Yes	Yes
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	Yes	Yes	No
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	Yes	Yes	No
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	Yes	Yes	No
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Yes	Yes	Yes
X-Ray Radiation Dose SR SOP Class	1.2.840.10008.5.1.4.1.1.88.67	Yes	Yes	No
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	Yes	Yes
Philips Private ViewForum 3D Volume New Storage	1.3.46.670589.5.0.1.1	Yes	Yes	Yes
Philips Private ViewForum 3D Volume Object New Storage	1.3.46.670589.5.0.2.1	Yes	No	No
Modality Worklist Information Model - FIND SOP Class	1.2.840.10008.5.1.4.31	Yes	No	No
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Yes	No	No
Philips Private MR Spectrum Storage	1.3.46.670589.11.0.0.12.1	Yes	No	No
Philips Private MR Series Data Storage	1.3.46.670589.11.0.0.12.2	Yes	No	No

Table 2: Web Services

WADO Service	User of Service (Client)	Provider of Service (Server)
WADO - RS - Retrieve Study	Yes	No
WADO - RS - Retrieve Series	Yes	No
WADO - RS - Retrieve Instance	Yes	No

Notes:

- The system (which SCU) requests only supported DICOM objects. All the SOP Classes support the ILE transfer syntax by default. All transfer Syntaxes are configurable in LAN Config.
- JPEG transfer syntax is not supported for SOP classes that do not have pixel data.
  For media the Philips IntelliSpace Portal supports:
  - FSC service for USB, CD-R, CD-RW, DVD + R, DVD - R, DVD + RW, DVD – RW, DVD-RAM media
  - FSR service for USB, CD-R, CD-RW, DVD + R, DVD - R, DVD + RW, DVD – RW, DVD-RAM media

- Enhanced CT Images (1.2.840.10008.5.1.4.1.1.2.1) will be converted to Classic CT images (1.2.840.10008.5.1.4.1.1.2) upon arrival in Portal. Filters need to be set to enable exporting converted CT images of Enhanced CT to DICOM Nodes/CD/DVD/USB. All the generated Presentation States and Book Marks will not be exported and will be retained in Portal itself.

- Enhanced MR Images (1.2.840.10008.5.1.4.1.1.4.1) will be converted to Classic MR Image (1.2.840.10008.5.1.4.1.1.4) upon arrival in Portal for internal diagnostic/viewing purposes. While exporting the same studies to DICOM Nodes/CD/DVD/USB, only the original Enhanced MR data as it arrived into Portal will be exported along with the Portal generated Secondary Captures, derived images (as Classic MR objects) and Book Marks.
  This enhanced MR to classic conversion will be done only for Philips models. For other vendor models this conversion will not happen and this data cannot be used inside ISP.

- Philips IntelliSpace Portal V12 does not support CT Images having different x and y values for the DICOM Pixel spacing (0028,0030).

- Philips IntelliSpace Portal V12 will not export US images to SCP in JPEG/RLE format if the image is stored in ELE/ILE format.

- ISP only supports certificate based peer authentication, The actual secure WADO may not work if it is a different security profile. (like using username/password based in header.)

All the supported Media Services by Philips IntelliSpace Portal are shown in the next table.

Table 3: Media Services

Media Storage Application Profile	File-set Creator (FSC)	File-set Updater (FSU)	File-set Reader (FSR)
Compact Disk-Recordable			
CT/MR Studies on CD-R	Yes	No	Yes
General Purpose CD-R Interchange	Yes	No	Yes
DVD			
CT/MR Studies on DVD Media	Yes	No	Yes
General Purpose DVD Interchange with JPEG	Yes	No	Yes
USB			
General Purpose USB media	Yes	Yes	Yes

After data is written to DVD, the DVD is finalized; the finalized DVD can be read on mostly every DVD reader.

2. Table of Contents

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3. Introduction

3.1. Revision History

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

Table 4: Revision History

Document Version	Date of Issue	Description
1.0	11-Nov-2020	Approved version
2.0	16-Jun-2021	Updated version with a section of confidentiality profile

3.2. Audience

This Conformance Statement is intended for:

- (Potential) customers
- System integrators of medical equipment
- Marketing staff interested in system functionality
- Software designers implementing DICOM interfaces

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

3.3. Remarks

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

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

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

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

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

3.4. Definitions, Terms and Abbreviations

Table 5: Definitions, Terms and Abbreviations

Abbreviation/Term	Explanation
AE	Application Entity
AP	Application Profile
CD	Compact Disc
CD-R	CD-Recordable
CR	Computed Radiography
CT	Computed Tomography
DICOM	Digital Imaging and Communications in Medicine
DIMSE	DICOM Message Service Element
DIMSE-C	DIMSE-Composite
DIMSE-N	DIMSE-Normalized
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
HIS	Hospital Information System
HL7	Health Level Seven
ILE	DICOM Implicit VR Little Endian
IOD	Information Object Definition
MPPS	Modality Performed Procedure Step
MR	Magnetic Resonance
NEMA	National Electrical Manufacturers Association
NM	Nuclear Medicine
PDU	Protocol Data Unit
P-ELE	Private Explicit VR Little Endian
RF	X-Ray Radiofluoroscopic
RIS	Radiology Information System
RT	Radiotherapy
RWA	Real-World Activity
SC	Secondary Capture
SCP	Service Class Provider
SCU	Service Class User
SOP	Service Object Pair
TCP/IP	Transmission Control Protocol/Internet Protocol
UID	Unique Identifier
US	Ultrasound
WLM	Worklist Management

3.5. References

[DICOM] Digital Imaging and Communications in Medicine, Parts 1 - 22(NEMA PS 3.1- PS 3.22), National Electrical Manufacturers Association (NEMA)

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Internet: https://www.dicomstandard.org/

4. Networking

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

The Philips IntelliSpace Portal system consists of the following two Application Entities. The Philips IntelliSpace Portal system implements and provides DICOM services using these Application Entities.

- DICOM-Manager
- Print-Manager
- WADO AE

The following figure shows the Networking application data flow as a functional overview of the Philips IntelliSpace Portal.
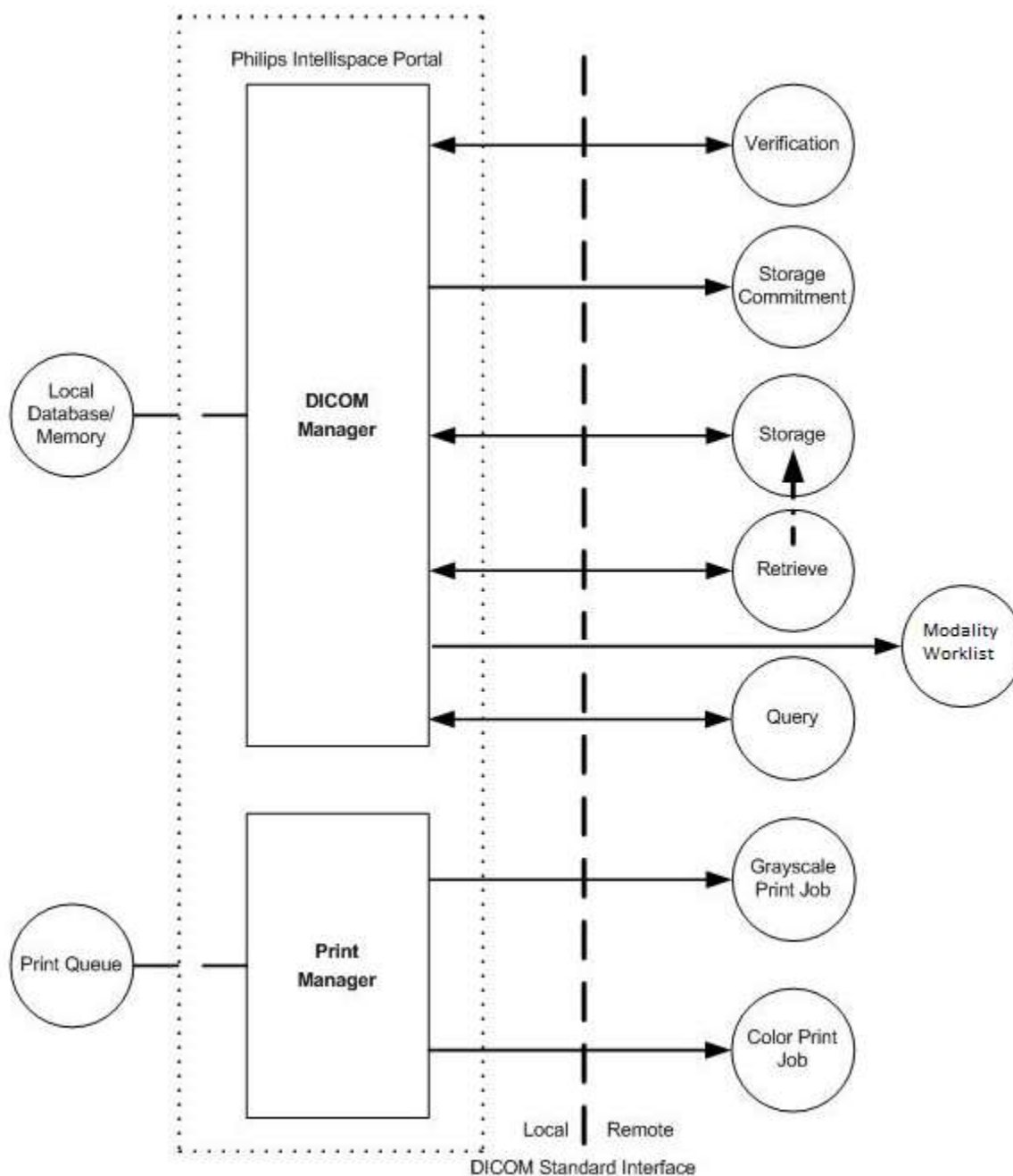
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Figure 2: Network Application Data Flow Diagram.

As depicted in the above figure, the Philips IntelliSpace Portal incorporates the following functionality.

- The Philips IntelliSpace Portal as SCU uses standard Verification Service Class functionality to the SCP.
- After RWA Request Verification, the Philips IntelliSpace Portal as SCP provides standard Verification Service Class functionality to the requesting SCU.
- After RWA Import Images, the Philips IntelliSpace Portal as SCP provides standard Storage Service Class functionality to the requesting SCU.

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- After RWA Query Local Images/Retrieve Local Images, the Philips IntelliSpace Portal as SCP provides standard Query/Retrieve Service Class functionality to the requesting SCU.
- After RWA Export Images (triggered by either the operator or RWA Retrieve Local Images), the Philips IntelliSpace Portal as SCU uses the Remote SCP Storage Service Class functionality to store Local Images on a Remote Database.
- After operator RWA Find Remote Images, the Philips IntelliSpace Portal as SCU uses the remote SCP Query/Retrieve Service Class functionality to query remote images.
- After operator RWA Move Remote Images, the IntelliSpace Portal as SCU uses the remote SCP Query/Retrieve Service Class functionality to retrieve remote images.
- After operator RWA Request Storage Commitment, the Philips IntelliSpace Portal as SCU uses the remote SCP Storage Commitment Service Class functionality to commit remote images.
- After operator RWA Print Images, the Philips IntelliSpace Portal as SCU uses the remote Print Management Service Class to print local images.
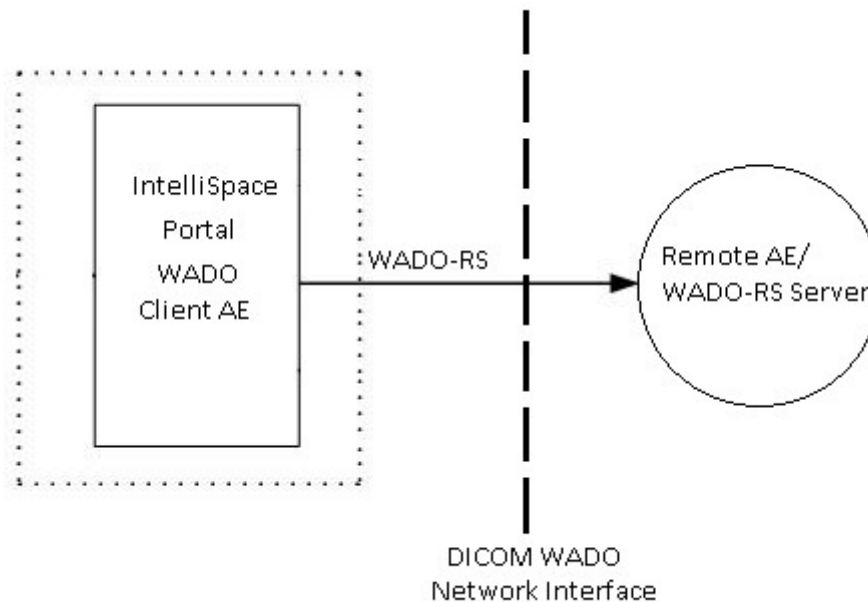
Figure 3 Application WADO Data Flow Diagram

The WADO Service Application sends WADO requests to a remote WADO Server. These requests are in the RS interfaces. It is associated with the local real-world activity "Retrieve Images". It receives matching SOP Instances.

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 DICOM Manager

The DICOM Manager as SCU and SCP includes the following service classes:

Storage Service:
When performing a Storage Service Class (SCP), the DICOM Manager will receive images and store them into the system's local database. The same AE may be used (with a configurable different AE title) to access the additional local devices.
Imported data object received from an external system will be inserted into the local data base with all the original attributes (including private), except those that jeopardize database integrity or further processing by applications.

When performing a Storage Service Class (SCU), the DICOM Manager will export images and related object data to a remote system using the relevant image storage or Grayscale Softcopy Presentation State SOP class.

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Storage Commitment Service:

The DICOM Manager is responsible to issue and support the storage commitment service as SCU.

The DICOM Manager establishes association with the specified AE title and sends storage commitment (N-ACTION) request using the push model. After that, it may accept storage commitment (N-EVENT-REPORT) requests on the same association or by establishing another association.

Query-Retrieve Service:

The DICOM Manager AE as Query/Retrieve SCU implements the RWA Query Images to find Examinations on a remote system (e.g. PACS).

The DICOM Manager waits for another application to connect at the presentation address configured for its AE title. The DICOM Manager will accept associations with Presentation Contexts for Service Object Pair (SOP) classes for

- Storage Service Classes (C-STORE)
- Query-Retrieve Service Class (C-MOVE and C-FIND only)
- Verification Service Classes.

When performing Query-Retrieve Service Class (C-FIND SCP), the DICOM Manager will query its local database according to the request's parameters, and will send the results to the issuer.

When performing Query-Retrieve Service Class (C-MOVE SCP), the DICOM Manager will issue a C-STORE (SCU) to the target AE for every image found according to the request.

The following figure provides an illustration of DICOM Manager Activities:
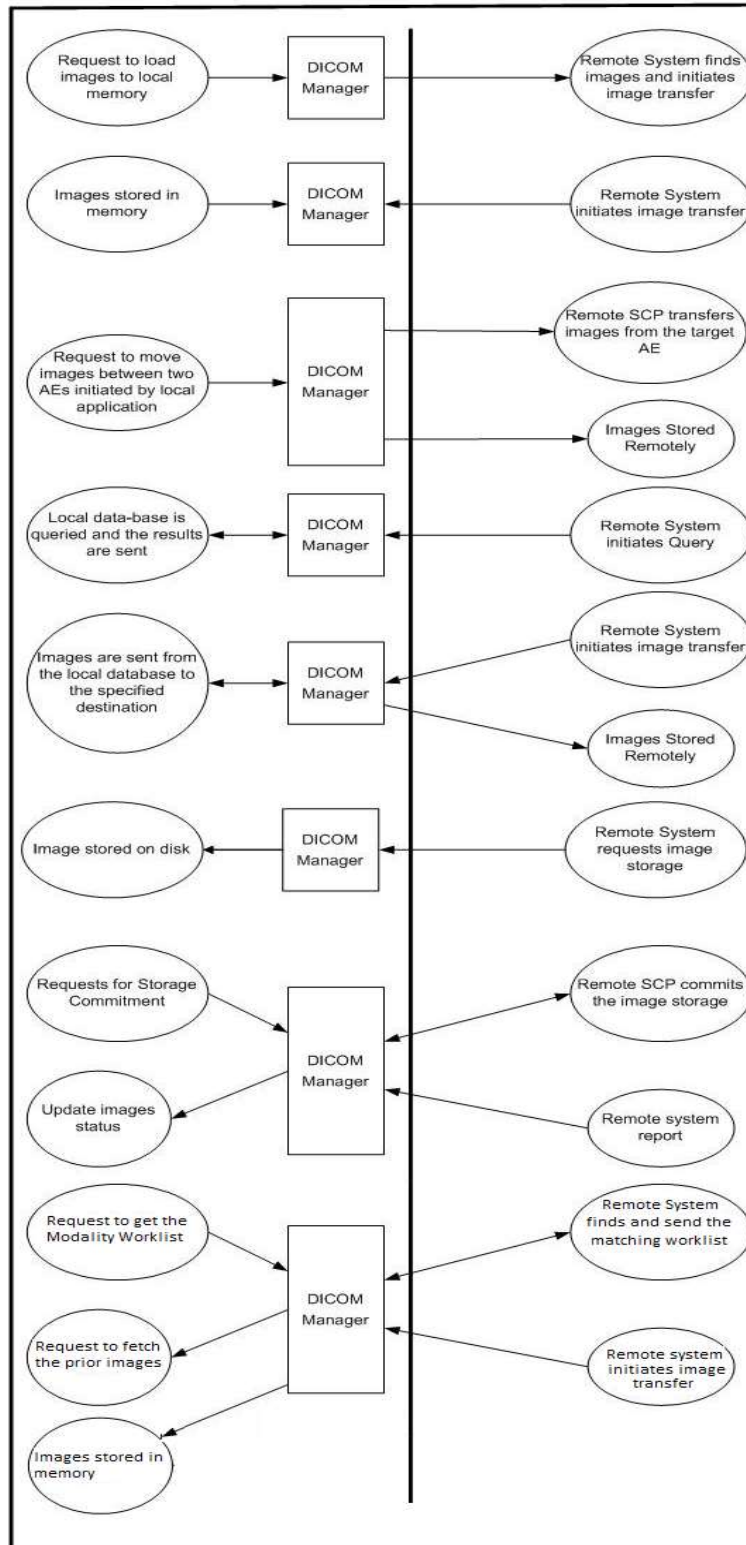
Figure 4: Illustration of DICOM Manager.

4.1.2.2.   Functional Definition of Print Manager

The Print-Manager is a Graphical User Interface (GUI) based application. It enables the user to print selected images using the DICOM protocol. The user can specify as a printing destination one of several configured printers. The user can also modify some of the printing parameters such as the film size and format.

The following figure provides an illustration of Print-Manager activities:
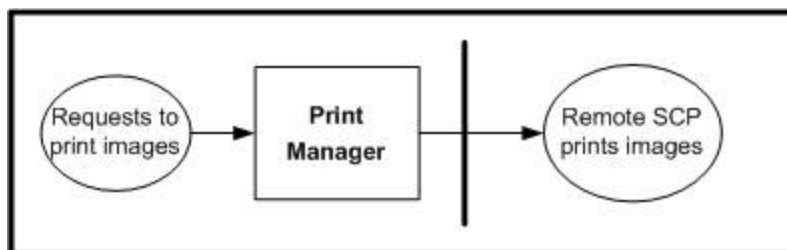
Figure 5: Illustration of Print Manager.

4.1.2.3.   Functional Definition of WADO Service Application

The IntelliSpace Portal sends WADO-RS requests to a remote WADO Server. The system performs a DICOM query to a remote destination and composes a WADO-RS request message triggering a retrieve action. The action can be performed on Study, Series and Image levels.

The following figure provides an illustration of WADO Service Application:
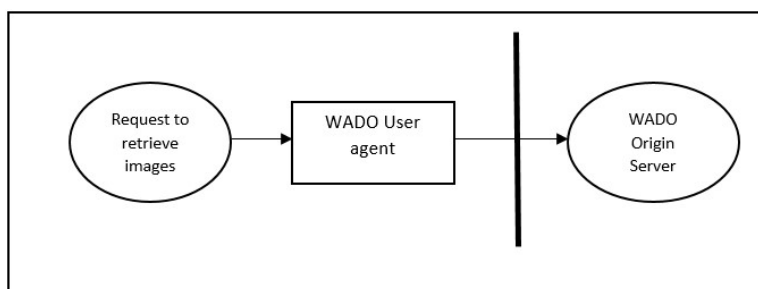
Figure 6: Illustration of WADO User agent.

4.1.3. Sequencing of Real World Activities

This section contains description of specific sequencing as well as potential constraints of Real-World Activities, including any applicable user interactions, as performed by the DICOM Manager.
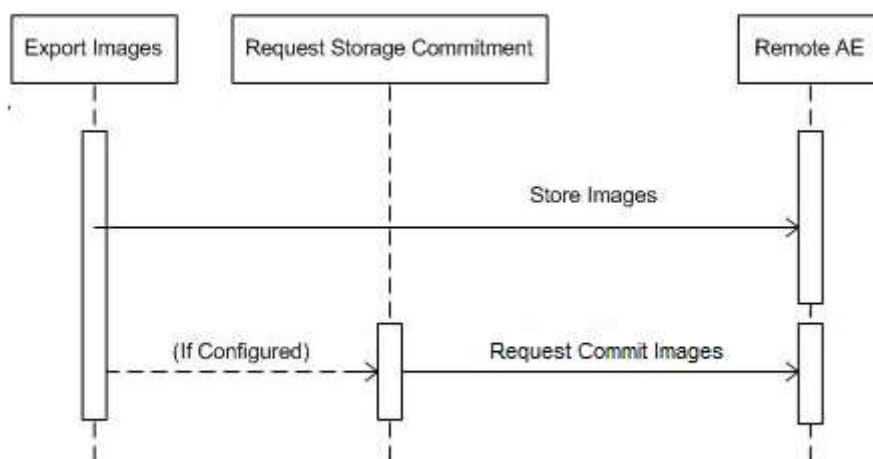
Figure 7: RWA Sequencing for Export & Store Commit Images.

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. DICOM Manager

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

4.2.1.1. SOP Classes

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

Table 6: SOP Classes for DICOM Manager

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	Yes	Yes
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Yes	No
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
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes
Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.2	Yes	Yes
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	Yes	Yes
Blending Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.4	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
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	Yes	Yes
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	Yes	Yes
Enhanced CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2.1	No	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
Enhanced MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.1	Yes	Yes
MR Spectroscopy Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.2	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
Key Object Selection Document*	1.2.840.10008.5.1.4.1.1.88.59	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
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Yes	Yes
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	Yes	Yes
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Yes	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	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
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	Yes	Yes
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	Yes	Yes
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	Yes	Yes
X-Ray Radiation Dose SR SOP Class	1.2.840.10008.5.1.4.1.1.88.67	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 - FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	Yes	Yes
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Yes	Yes
Modality Worklist Information Model - FIND SOP Class	1.2.840.10008.5.1.4.31	Yes	No
Philips Private ViewForum 3D Volume New Storage	1.3.46.670589.5.0.1.1	Yes	Yes
Philips Private ViewForum 3D Volume Object New Storage	1.3.46.670589.5.0.2.1	Yes	No

* Key Object Selection document can be viewed together with referenced images in Quick view on Philips IntelliSpace Portal.

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

The next IODs (as configured by FSE) can be blocked with the Blocking Filter in Philips IntelliSpace Portal.

Table 7: The IODS can be blocked with the blocking filter in Philips IntelliSpace Portal

SOP Class Name	SOP Class UID	SCU	SCP
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	Yes
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	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
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	Yes	Yes
Enhanced MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.1	Yes	Yes
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	Yes	Yes
Blending Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.4	Yes	Yes
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Yes	Yes
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	Yes	Yes
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Yes	Yes
Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.2	Yes	Yes
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes
MR Spectroscopy Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.2	Yes	Yes
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	Yes	Yes

4.2.1.2. Association Policies

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

With incoming association requests the system allows acceptance of a range of defined IP addresses which are configurable.

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4.2.1.2.1. General

The DICOM standard application context is specified below.

Table 8: DICOM Application Context

Description	Value
Application Context Name	1.2.840.10008.3.1.1.1

4.2.1.2.2. Number of Associations

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

Table 9: Number of associations as an Association Initiator for this AE

Description	Value
Maximum number of simultaneous associations	50

Table 10: Number of associations as an Association Acceptor for this AE

Description	Value
Maximum number of simultaneous associations	50

4.2.1.2.3. Asynchronous Nature

The only service that supports asynchronous is the storage commit SCU.

Table 11: Asynchronous nature as an Association Initiator for this AE

Description	Value
Maximum number of outstanding asynchronous transactions	1

4.2.1.2.4. Implementation Identifying Information

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

Table 12: DICOM Implementation Class and Version for DICOM Manager

Implementation Class UID	1.3.46.670589.50.1.12.0
Implementation Version Name	PORTAL_12.0

NOTE: If the data is created from a 3rd party Application, the values are not as mention above. These values are listed in the Annex documents of the respective Applications.

4.2.1.2.5. Communication Failure Handling

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

Table 13: Communication Failure Behavior

Exception	Behavior	Comment
ARTIM Timeout	The system stops the ARTIM timer and closes the transport connection.	Configurable, minimum value=1 second

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Exception	Behavior	Comment
Association Timeout	A release request is sent in order to close the association.	Configurable, minimum value=1 second

4.2.1.3. Association Initiation Policy

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

Table 14: Association Rejection response

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

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

Table 15: Association Abort Handling

Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user (initiated abort)	0 - reason-not-specified	The connection is closed.
2 - DICOM UL service-provider (initiated abort)	0 - reason-not-specified	The connection is closed.
	1 - unrecognized-PDU	The connection is closed.
	2 - unexpected-PDU	The connection is closed.
	4 - unrecognized-PDU-parameter	The connection is closed.
	5 - unexpected-PDU-parameter	The connection is closed.
	6 - invalid-PDU-parameter-value	The connection is closed.

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

Table 16: DICOM Association Abort Policies.

Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user	0 - reason-not-specified	When the system tries to disconnect before receiving an association accept but after sending association request; When receiving association accept with no presentation context item; When receiving association accept where all items in the presentation context item list are not accepted by remote system; When an association timeout (configurable per remote device) expired (timeout which determines how long to keep an idle association); When receiving a PDU whose size is bigger than the agreed max PDU size.
2 - DICOM UL service-provider	1- unrecognized-PDU	Whenever the system receives unexpected or unrecognized PDU (according to the DICOM UPPER LAYER PROTOCOL STATE TRANSITION TABLE in chapter 8 of the DICOM standard).
Other	Other	Not applicable.

ISP logs a message on the Log Viewer on receiving an A-P-ABORT with
Source: 2 (DICOM UL service-provider (initiated abort)) and Reason: 0 (reason-not-specified - unrecognized-PDU).
Source: 2 (DICOM UL service-provider (initiated abort)) and Reason: 2 (unexpected-PDU).
Source: 2 (DICOM UL service-provider (initiated abort)) and Reason: 4 (unrecognized-PDU parameter).
Source: 2 (DICOM UL service-provider (initiated abort)) and Reason: 5 (unexpected-PDU parameter).
Source: 2 (DICOM UL service-provider (initiated abort)) and Reason: 6 (invalid-PDU-parameter value

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

4.2.1.3.1.1. Description and Sequencing of Activities
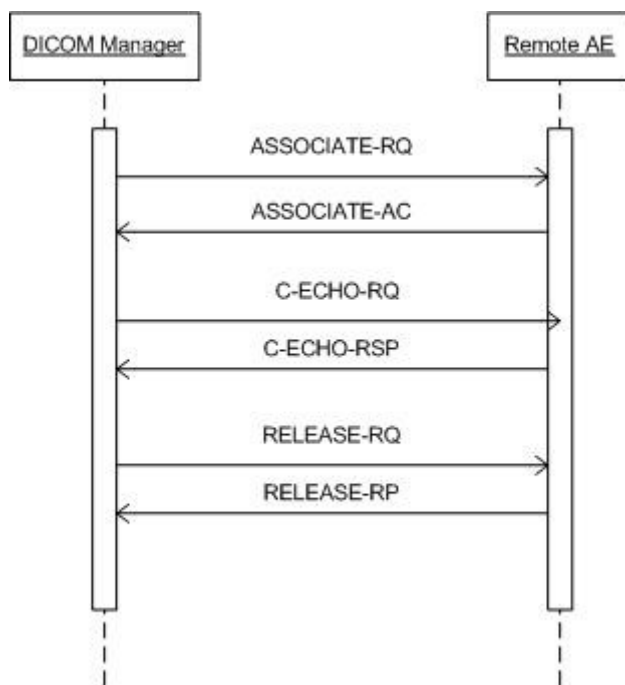
Figure 8: (Real World) Activity - Verification as SCU.

DICOM Manager initiates an association when the user points to one of the icons in the devices tool-bar in Philips IntelliSpace Portal UI, clicks the right mouse button and selects "Verify Connection" operation.

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4.2.1.3.1.2. 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 17: 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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		

Note: The default supported Transfer Syntax is ILE. ELE has preference over ILE.

4.2.1.3.1.3. SOP Specific Conformance for Verification SOP Class

DICOM Manager provides standard conformance to the DICOM V3.0.

4.2.1.3.1.3.1. Dataset Specific Conformance for Verification C-ECHO SCU

Not applicable

4.2.1.3.2. (Real-World) Activity – Modality Worklist as SCU

4.2.1.3.2.1. Description and Sequencing of Activities

DICOM - Manager initiates an association to the MWL SCP. The DICOM-Manager sends a C-FIND-RQ to the MWL SCP and the applicable patient list is returned.
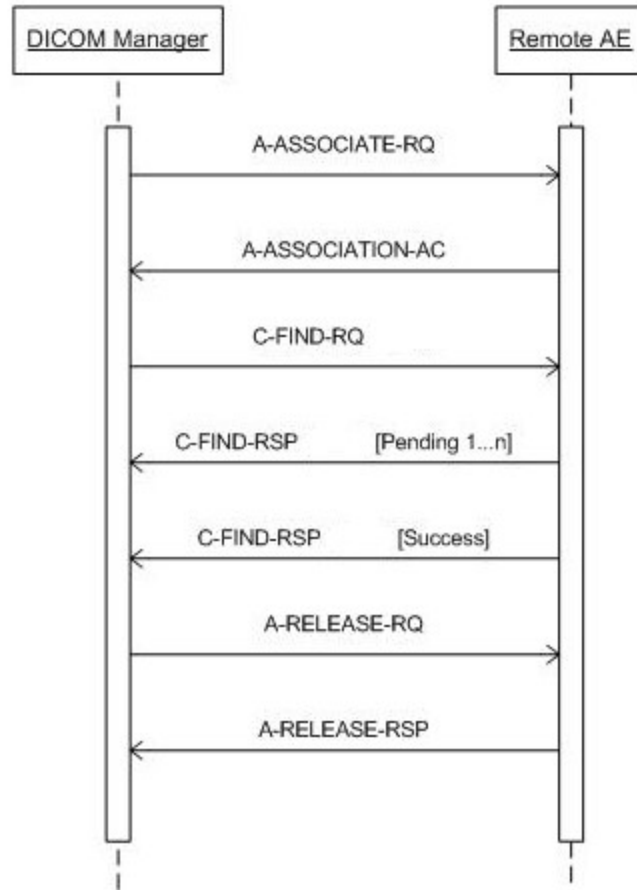
Figure 9: Data Flow Diagram – Modality Worklist as SCU.

4.2.1.3.2.2. Proposed Presentation Contexts

The presentation contexts are defined in the next table.

Table 18: Proposed Presentation Contexts for (Real-World) Activity – Modality worklist as SCU

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

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

4.2.1.3.2.3.1. Dataset Specific Conformance for Modality Worklist Information Model - FIND SOP Class C-FIND-SCU

The table below should be read as follows:

Attribute Name: Attributes supported to build a Modality Worklist Request Identifier.
Tag: DICOM tag for this attribute.
VR: DICOM VR for this attribute.

M: Matching Keys for (automatic) Worklist Update.
R: Return Keys. An "X" will indicate that this attribute as matching key can be used.
Q: Interactive Query Key. An "X" will indicate that this attribute is used as Query key.
D: Displayed Keys. An "X" indicates that this Worklist attribute is displayed o the user during a patient registration dialog.
IOD: An "X" indicates that this Worklist attribute is included into all object Instances created during performance of the related Procedure Step.
Type of matching: The following types of matching exists:
                            Single Value Matching
                            List of UID Matching
                            Wild Card Matching
                            Range Matching
                            Sequence Matching
                            Universal Matching

Table 19: Worklist Request Identifier

Attribute Name	Tag	VR	M	R	Q	D	IOD	Type of Matching	Comment
Patient Identification Module									
Patient's Name	0010,0010	PN	X					Universal	
Patient ID	0010,0020	LO	X					Universal	
Scheduled Procedure Step Module									
Scheduled Procedure Step Sequence	0040,0100	SQ	X						
>Modality	0008,0060	CS	X					Single Value	Value used for modality matching is configurable in the Preferences in IntelliSpace Portal
>Scheduled Procedure Step Start Date	0040,0002	DA	X					Range, Single Value	Value used for Scheduled Procedure Step Start Date matching is configurable in the Preferences in IntelliSpace Portal

Note: IntelliSpace Portal gets the scheduled worklist for the day and fetch priors for some of these orders before execution, so when new exams arrive on Portal, priors are already available (no need for manual Query/Retrieve from PACS).

Table 20: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Matching is complete	Successfully returned all matching information
Other than Success	<>0000	Matching is incomplete/failed	A message is logged.

4.2.1.3.3.   (Real-World) Activity – FIND as SCU

4.2.1.3.3.1.   Description and Sequencing of Activities

DICOM-Manager initiates an association when the user clicks on one of the icons in the devices tool-bar. The DICOM-Manager searches (C-FIND) by Study Level following by Series level and, optionally (configurable), by Image Level.

Figure 10: (Real World) Activity - Find as SCU.

4.2.1.3.3.2. Proposed Presentation Contexts

Each time an association is initiated, the association initiator proposes a number of presentation contexts to be used on that association. In this subsection, the presentation contexts proposed by Archive-Manager for (Real-World) Activity - Find as SCU are defined in the Table below.

Table 21: 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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		

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

The DICOM-Manager provides standard conformance to the DICOM V3.0.

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

Table 22: 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	Single Value	STUDY,SERIES,IMAGE
Specific Character Set	0008,0005	CS	Universal	
Q/R Study level				
Accession Number	0008,0050	SH	Universal, WildCard	User Input
Modalities in Study	0008,0061	CS	Universal	All, CT, ECG, MR, US, PET or CT, CR, PET, SPECT, RT, Nuclear Medicine, CT, DX or ECG, XR
Patient ID	0010,0020	LO	Universal, WildCard	User Input
Patient's Birth Date	0010,0030	DA	Universal	System
Patient's Birth Time	0010,0032	TM	Universal	System
Patient's Name	0010,0010	PN	WildCard	User Input.
Patient's Sex	0010,0040	CS	Universal, WildCard	Any, Male, Female, Other
Referring Physician's Name	0008,0090	PN	Universal, WildCard	User Input
Study Date	0008,0020	DA	Range, Single Value, Universal	User Input
Study Time	0008,0030	TM	Universal	System
Study Description	0008,1030	LO	Universal, WildCard	System/User Input
Study ID	0020,0010	SH	Universal, WildCard	User Input
Study Instance UID	0020,000D	UI	Universal	System
Number of study related series	0020,1206	IS	Universal	System
Number of study related instances	0020,1208	IS	Universal	System
Q/R Series level				
Body Part Examined	0018,0015	CS	Universal	System
Manufacturer	0008,0070	LO	Universal	System
Modality	0008,0060	CS	Universal	System
Spacing Between Slices	0018,0088	DS	Universal	System
Number of Series Related Instances	0020,1209	IS	Universal	System
Performed Procedure Step Start Date	0040,0244	DA	Universal	System
Performed Procedure Step Start Time	0040,0245	TM	Universal	System
Performed Procedure Step Description	0040,0254	LO	Universal	System
Protocol Name	0018,1030	LO	Universal	System
Series Date	0008,0021	DA	Universal	System
Series Description	0008,103E	LO	Universal	System
Series Instance UID	0020,000E	UI	Universal	System
Series Number	0020,0011	IS	Universal	System
Frame of Reference UID	0020,0052	UI	Universal	System
Series Time	0008,0031	TM	Universal	System
Study Instance UID	0020,000D	UI	Single Value	System
Request Attributes	0040,0275	SQ	Universal	System
Q/R Image level				
Instance Creation Date	0008,0012	DA	Universal	System

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Instance Creation Time	0008,0013	TM	Universal	System
Columns	0028,0011	US	Universal	System
Image Type	0008,0008	CS	Universal	System
Rows	0028,0010	US	Universal	System
Series Instance UID	0020,000E	UI	Single Value	System
SOP Class UID	0008,0016	UI	Universal	System
SOP Instance UID	0008,0018	UI	Universal	System
Study Instance UID	0020,000D	UI	Universal	System
Contrast/Bolus Agent	0018,0010	LO	Universal	System
KVP	0018,0060	DS	Universal	System
Instance Number	0020,0013	IS	Universal	System
Patient Orientation	0020,0020	CS	Universal	System
Image Orientation	0020,0035	DS	Universal	System
Slice Location	0020,1041	DS	Universal	System
Samples per Pixel	0028,0002	US	Universal	System
Photometric Interpretation	0028,0004	CS	Universal	System
Pixel Spacing	0028,0030	DS	Universal	System
Concept Name Code Sequence	0040,A043	SQ	Universal	System

Table 23: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	Matching is successful.
Failure	A700	Refused - Out of resources	Matching is not successful.
	A900	Failed - Doesn't match SOP class	Matching is not successful.
	C000	Failed – Unable to Process	Matching is not successful.
	C100	Failed – More than 1 match found	Matching is not successful.
	C200	Failed – Unable to support requested template	Matching is not successful.
Cancel	FE00	Sub-operations terminated due to Cancel indication	Matching is not successful.

On receiving a Query Response with Study Instance UID (0020, 000D) attribute not present in Study Level for Study Root, ISP does not display the study. On receiving a Query Response with Series Instance UID (0020, 000E) attribute not present in Series Level for Study Root, ISP displays the study and does not display the series. On receiving a Query Response with SOP Instance UID (0008, 0018) attribute not present in Image Level, ISP does not display the image and only shows the study and the series which it belongs to. If any of the Unique Keys are not present, then ISP logs the message on the Log Viewer.

On receiving a Query Response with a required attribute not present in Study Level, ISP displays Study, Series and Image level information with an empty value for that required attribute. On receiving a Query Response with a required attribute not present in Series Level, ISP displays Study, Series level information with value being empty for that required attribute in Series level. On receiving a Query Response with required attribute missing in Image Level, ISP displays Study, Series and Image level information with value being empty for the required attribute.

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

4.2.1.3.4.1. Description and Sequencing of Activities

The RWA Move Remote Images involves the retrieve of images on a remote system by moving (copying) the matching images from the remote database to another database.

The operator is able to copy the selected images in a patient folder from a remote database to another, local or remote, database by means of the copy tool in the DICOM Manager data handling facility. The DICOM Manager initiates for each copy request an

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association to the selected peer entity (Remote AE) and uses it to send the Retrieve (C-MOVE) request (and receive the associated responses). The association is released after the final Retrieve (C-MOVE) response for the related request has been received with the status success / failure.
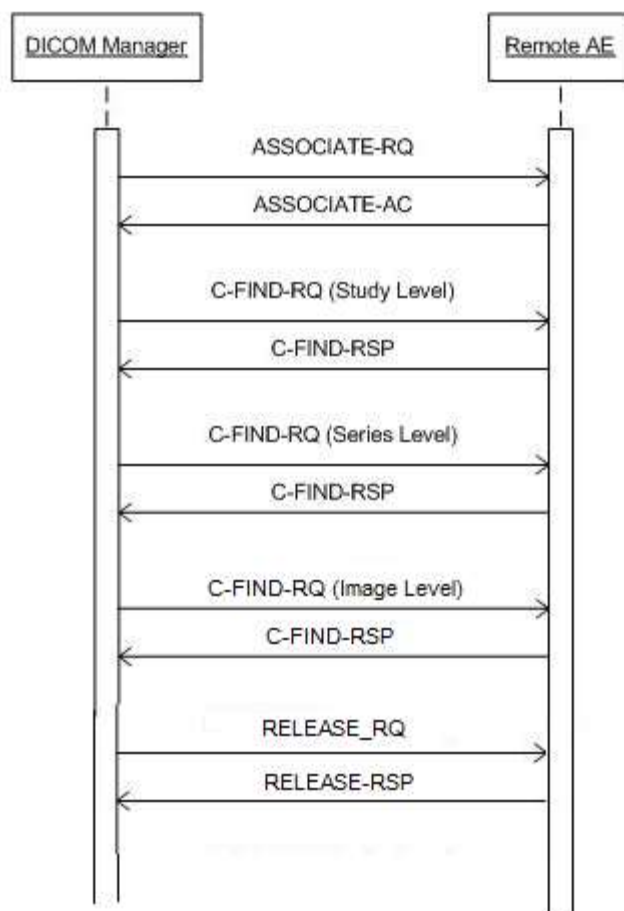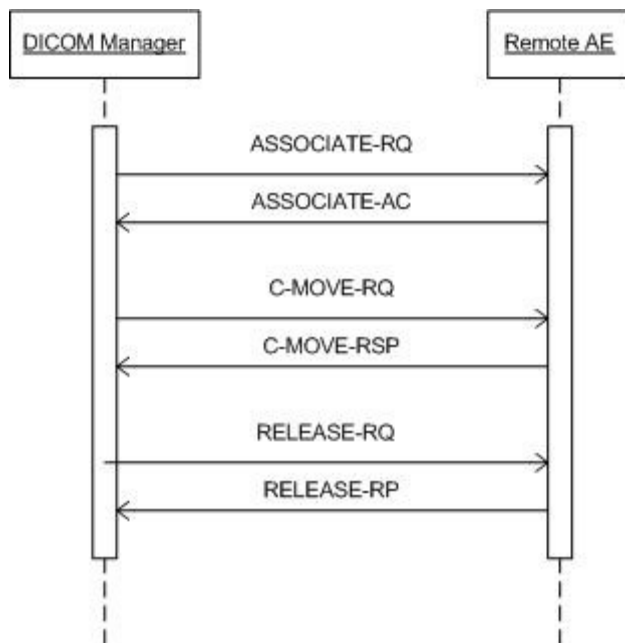

Figure 11: (Real World) Activity - Move as SCU.

4.2.1.3.4.2. Proposed Presentation Contexts

Each time an association is initiated, the association initiator proposes a number of presentation contexts to be used on that association.

In this subsection, the presentation contexts proposed by DICOM-Manager for (Real-World) Activity - Move as SCU are defined in the following table.

Table 24: 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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		

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

DICOM-Manager provides standard conformance to the DICOM V3.0 Query/Retrieve Service Class as an SCU for the SOP Class Study Root Query/Retrieve Information Model - Move.

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

Table 25: Identifiers for MOVE Study Root Information Model as SCU

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

Table 26: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	Storage successful.
Failure	A701	Refused - Out of Resources	Message by transfer result - Unable to calculate number of matches.
	A702	Refused - Out of Resources	Message by transfer result - Unable to perform sub operations
	A801	Refused - Move Destination Unknown	Message by transfer result - Move Destination Unknown.
	A900	Error - Identifier Does Not Match SOP Class	Message by transfer result - Identifier does not match SOP Class.
	Cxxx	Error - Unable to Process	Message by transfer result - Unable to process.
Warning	B000	Sub-operations complete - One or more failures	Message by transfer result - Sub operations complete one or more failures.
Cancel	FE00	Cancel	Move operation cancelled.

If ISP receives A-ABORT message while performing retrieve, the message is logged and can be shown in the log viewer.

4.2.1.3.5.   (Real-World) Activity – Image Export

4.2.1.3.5.1.   Description and Sequencing of Activities
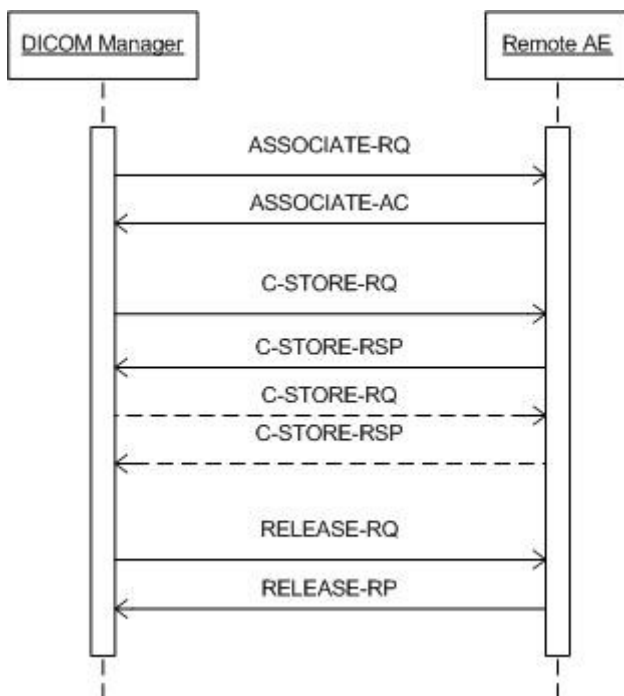
Figure 12: (Real World) Activity - Image Export.

The associated Real-World Activity is a request for retrieval of images from the disk or save operation from Philips IntelliSpace Portal applications and storage of the images to a remote system using a C-STORE command.

4.2.1.3.5.2. 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 system configuration (by FSE in the configuration) allows disabling individually each of the supported syntaxes per remote device when establishing and accepting associations. At least one of the syntaxes will be enabled.

When establishing association to a remote device, all the enabled (for that device) transfer syntaxes will be proposed in a single presentation context based on the SOP Class.

When a device is newly added in the configuration, by default the selected transfer syntaxes for the device are ELE, ILE and JPEG Lossy. If the device is a Philips device which is more recent than Philips IntelliSpace Portal then ELE, RLE and ILE Transfer syntaxes are selected by default. The user will have the option of changing the selected transfer syntax per device in the configuration. Philips IntelliSpace Portal supports Level2 DICOM transparency and hence will preserve all the source image data.

The presentation contexts proposed by the DICOM Manager for (Real-World) Activity (C-STORE SCU) are defined in the following table.

Table 27: 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		
	1.2.840.10008.5.1.4.1.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Computed Radiography Image Storage SOP Class		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		
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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		
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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		
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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		
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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		
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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		
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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		
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Blending Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.4	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		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		
		RLE Lossless	1.2.840.10008.1.2.5		
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		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		
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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		
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		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		
Enhanced MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
MR Spectroscopy Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		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		
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
	1.2.840.10008.5.1.4.1.1.6	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None

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Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Ultrasound Image Storage (Retired)		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		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		RLE Lossless	1.2.840.10008.1.2.5		
		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		
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		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	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
	1.2.840.10008.5.1.4.1.1.7.4	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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 True Color Secondary Capture Image Storage		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	Implicit VR Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	Implicit VR Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	Implicit VR Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
X-Ray Radiation Dose SR SOP Class	1.2.840.10008.5.1.4.1.1.88.67	Implicit VR Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		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		
Philips Private ViewForum 3D Volume Object New Storage	1.3.46.670589.5.0.2.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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		

Note: Philips IntelliSpace Portal proposes a separate presentation context for each Ultrasound SOP class and transfer syntax combination.

It will apply the following priorities to the choice of Transfer Syntax which can be configured in LAN Config Tool:

Table 28: Transfer Syntax Priorities.

Transfer Syntax	UID	Comment
1. JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	Configurable
2. DICOM JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70	Configurable, Transfer Syntax for Lossless JPEG Image Compression (JPEG).
3. DICOM Explicit VR Little Endian	1.2.840.10008.1.2.1	Configurable

Transfer Syntax	UID	Comment
4. DICOM Implicit VR Little Endian	1.2.840.10008.1.2	Configurable, default.
5. RLE Lossless	1.2.840.10008.1.2.5	

Note: No support of JPEG transfer syntaxes for all SOP classes without pixel data.

4.2.1.3.5.3. SOP Specific Conformance for Storage SOP Classes

DICOM Manager AE provides standard conformance to the DICOM V3.0 Storage Service Class as an SCU for SOP Classes mentioned in the previous section.

Any unsuccessful status (error or warning), returned in the C-STORE Response, results in termination of sending further C-STORE requests (if any in the queue) and reporting of the error to the system log file and UI (Queue Manager)

There are two timeouts for the association. One timeout, "Association Timeout" is used to close an idle association. For C-STORE the default is 120 sec and can be configured per remote DICOM node. The other timeout is "Service Timeout" which detects that no data is transmitted over the association and closes it. The default "Service Timeout" for C-STORE is 5 minutes.

4.2.1.3.5.3.1. Dataset Specific Conformance for C-STORE-RQ

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

Table 29: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	Storage successful.
Failure	0122	Refused - SOP Class not supported	Message by transfer result - Unknown reason.
	0210	Duplicate Invocation	Message by transfer result – Duplicate Invocation
	0117	Invalid Object Instance	Message by transfer result –Invalid Object Instance
	0212	Mistyped argument	Message by transfer result – Mistyped Argument
	A701	Refused - Out of Resources	Message by transfer result - Out of Resources.
	A901	Error - Data Set does not match SOP	Message by transfer result – Dataset does not match SOP Class.
	C000	Error - Cannot understand	Message by transfer result - Store failed.
Warning	B000	Coercion of Data Elements	Warning status is treated as success.
	B007	Data Set does not match SOP Class	Warning status is treated as success.
	B006	Elements Discarded	Warning status is treated as success.
	0107	Attribute List Error	Message by transfer result – Attribute List Error

On receiving A-ABORT while performing export, ISP logs the abort in the Log Viewer.

4.2.1.3.6.   (Real-World) Activity – Storage Commitment Push Model as SCU

4.2.1.3.6.1.   Description and Sequencing of Activities
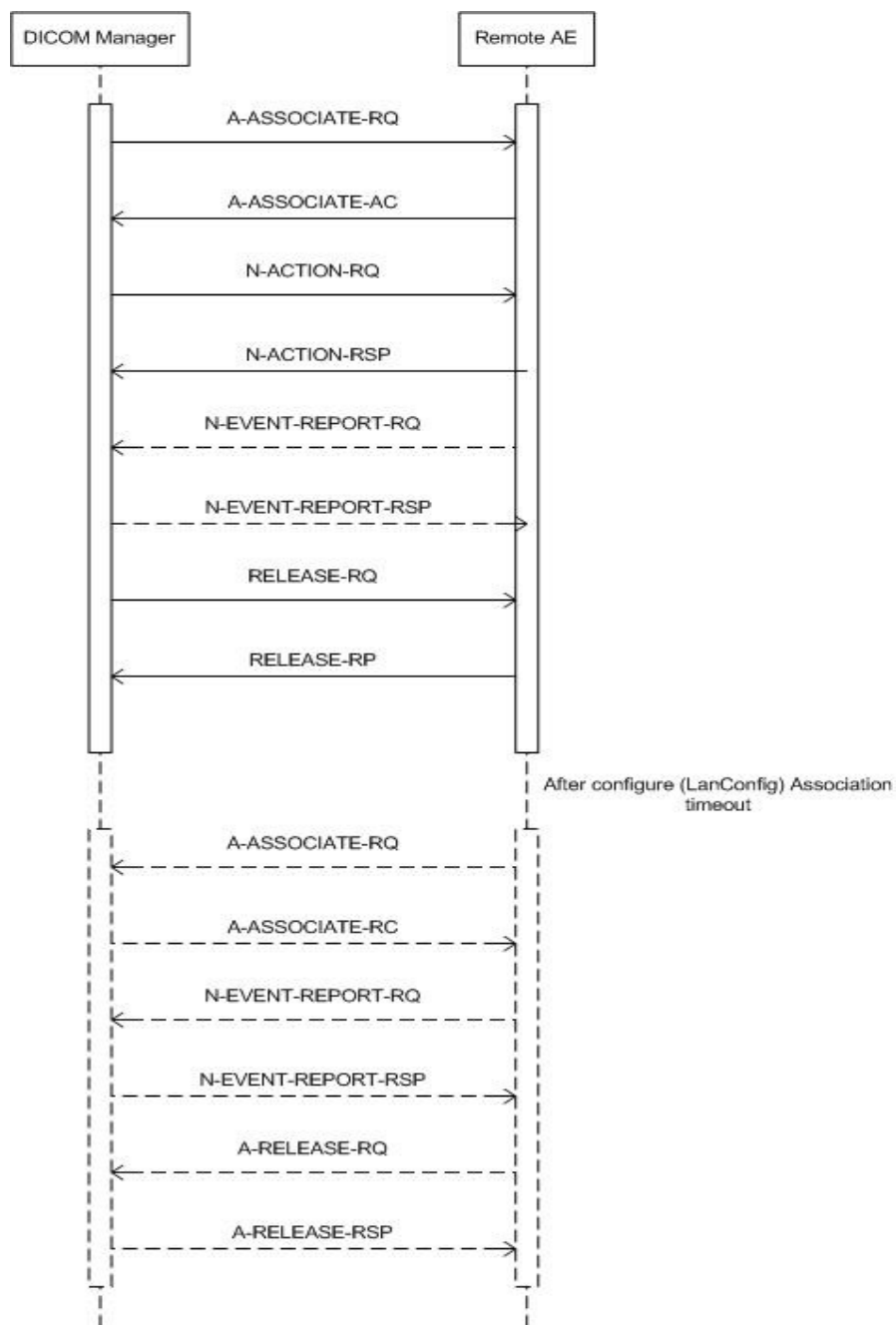
Figure 13: (Real World) Activity- DICOM Manager (Storage Commitment).

DICOM-Manager will attempt to initiate a new association when requested to commit the images that were stored on a remote device, which supports the storage Commitment Service.

The associated real world activity for the N-ACTION is a storage commitment request to the remote storage device.

The associated real world activity for the N-EVENT-REPORT operation is the completion of the storage commitment by the remote device.

This can be as Synchronous storage commitment as the N-EVENT-REPORT-RQ is received inside the configure timeout or as Asynchronous storage commitment after the Release-RQ by the timeout is already send to the remote system.

DICOM-Manager will issue a failure status if it is unable to properly handle the storage commitment report event.

4.2.1.3.6.2. 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 presentation contexts proposed by DICOM Manager for (Real-World) Activity - Storage Commitment as SCU are defined in the following table.

Table 30: 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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		

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

DICOM-Manager provides standard conformance to the DICOM V3.0 Storage Commitment Service Class using Push Model as an SCU.

Multiple N-ACTION-RQ can be performed over a single association. Multiple N-EVENT-REPORT-RQ can be accepted over a single association. After all N-ACTION-RQ that are waiting in the stack are issued, association will be closed with the timeout which is configurable.

A remote system reports about storage commitment completion using an N-EVENT-REPORT-RQ command. The system can also accept the N-EVENT-REPORT-RQ commands over a separate association initiated by the remote system, using reverse role negotiation.

Storage Commitment for individual images are grouped into large "chunks" and issued as a single Storage Commitment request.

Table 31: DICOM Command Communication Failure Behavior Storage Commitment.

Exception	Behavior
ARTIM Time-out	The reason in 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

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

Table 32: Storage Commitment N-EVENT-REPORT Behavior.

Event Type Name	Event Type	Behavior
Storage Commitment Request Successful	1	Awaiting Storage Commitment request will be moved to complete in Queue Manager.
Storage Commitment Request Complete - Failures Exist	2	Awaiting Storage Commitment request will be moved to fail in Queue Manager.

Table 33: Storage Commitment N-EVENT-REPORT Failure Handling Behavior

Service Status	Error Code	Further Meaning	Description
Success	0000	Success	The storage commitment result has been successfully received.

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

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 34: Status Response

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

4.2.1.4. Association Acceptance Policy

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

Table 35: Association Rejection Policies.

Result	Source	Reason/Diagnosis	Behavior
1 - rejected permanent	1 - DICOM UL service-user	2 - application-context-name-not-supported	When receiving association request and the application context name is not supported.
		7 - called-AE-title-not-recognized	When receiving association request and the called AE title is not supported.
		1 - no-reason-given	When receiving association request and all of the items in the presentation context item list are not supported by the system.
	2 - DICOM UL service provider (ACSE related function)	2 - protocol-version-not-supported	When receiving an association request and the protocol version received is not supported.

The behavior of the AE on DICOM receiving Association Abort Handling is summarized in table below:

Table 36: DICOM receiving Association Abort Handling.

Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user (initiated abort)	0 - reason-not-specified	The connection is closed.
2 - DICOM UL service-provider (initiated abort)	0 - reason-not-specified	The connection is closed.
	1 - unrecognized-PDU	The connection is closed.
	2 - unexpected-PDU	The connection is closed.
	4 - unrecognized-PDU parameter	The connection is closed.
	5 - unexpected-PDU parameter	The connection is closed.
	6 - invalid-PDU-parameter value	The connection is closed.

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

Table 37: Association Abort Policies.

Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user (initiated abort)	0 - reason-not-specified	When an association timeout (configurable per remote device) expired (timeout which determines how long to keep an idle association). When receiving a PDU whose size is bigger than the agreed max PDU size.
2 - DICOM UL service-provider (initiated abort)	1 - unrecognized-PDU	Whenever the system receives unexpected or unrecognized PDU (according to the DICOM UPPER LAYER PROTOCOL STATE TRANSITION TABLE in chapter 8 of the DICOM standard).

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

4.2.1.4.1.1. Description and Sequencing of Activities

A remote system requests verification from DICOM Manager using the C-ECHO command.

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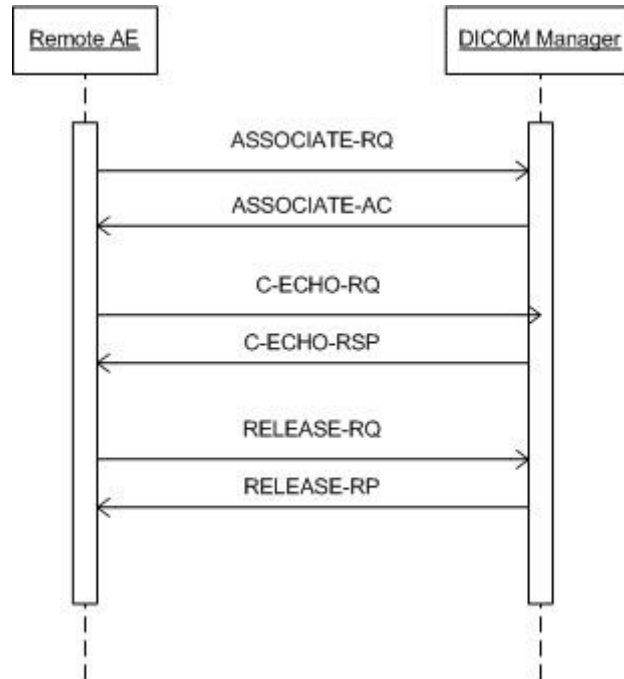
Figure 14: (Real World) Activity - Verification as SCP.

4.2.1.4.1.2.   Accepted Presentation Contexts

The presentation contexts are defined in next table.

Table 38: 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 Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		

4.2.1.4.1.3.   SOP Specific Conformance for Verification SOP Class

DICOM Manager (C-ECHO SCP) provides standard conformance to the DICOM V3.0 verification SOP Class.

4.2.1.4.1.3.1.   Dataset Specific Conformance for Verification C-ECHO SCP

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	C-ECHO command was successful received.

4.2.1.4.2.   (Real-World) Activity – FIND as SCP

4.2.1.4.2.1.   Description and Sequencing of Activities
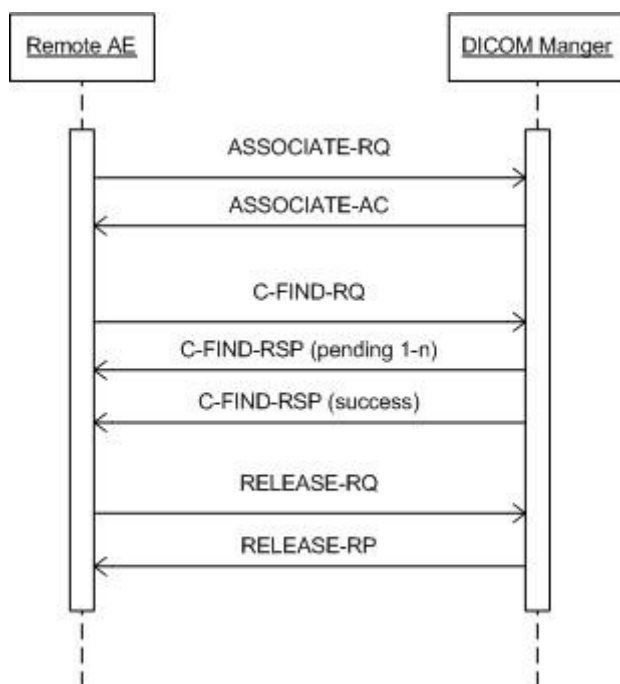
Figure 15: (Real World) Activity - Find as SCP.

The Real World activity associated with the C-FIND-SCP is querying of the local data base based on C-FIND-RQ from the remote DICOM node. DICOM Manager will issue a failure status if it is unable to process the query request.

4.2.1.4.2.2.   Accepted Presentation Contexts

The presentation contexts are defined in the next table.

Table 40: 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**		
Study Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		

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

DICOM Manager provides standard conformance to the DICOM 3.0 Query/Retrieve Service Class as an SCP for the following SOP Class: Study Root Query/Retrieve Information Model - FIND, UID=1.2.840.10008.5.1.4.1.2.2.1.

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

IntelliSpace Portal does not support Relational Search, a query that may contain any combination of keys at any level in the hierarchy. Starting at the top level in the Query/Retrieve Information Model, continuing until the Query/Retrieve level specified in the C-FIND request is reached.

All Required (R) and Unique (U) Study, Series and Image level keys for the Study Root Query/Retrieve Information Model are supported.

Unsupported fields will not be returned in the C-FIND response.

Table 41: 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	Single Value	
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	Universal, WildCard	
Patient's Birth Date	0010,0030	DA	Single Value, Universal, Range	
Patient's Birth Time	0010,0032	TM	Single Value, Universal, Range	
Patient's Name	0010,0010	PN	WildCard	
Patient's Sex	0010,0040	CS	Single Value, Universal	
Referring Physician's Name	0008,0090	PN	Universal, WildCard	
Study Date	0008,0020	DA	Range, Single Value, Universal	
Study Description	0008,1030	LO	Single Value, Universal, WildCard	
Study ID	0020,0010	SH	Single Value, Universal, WildCard	
Study Instance UID	0020,000D	UI	Single Value, Universal, List of UID	
Study Time	0008,0030	TM	Range, Single Value, Universal	
Number of Study Related Instances	0020,1208	IS	Universal	
Number of Study Related Series	0020,1206	IS	Universal	
Q/R Series level				
Body Part Examined	0018,0015	CS	Single Value, Universal, WildCard	
Manufacturer	0008,0070	LO	Universal	
Modality	0008,0060	CS	Single Value, Universal, WildCard	
Number of Series Related Instances	0020,1209	IS	Universal	
Performed Procedure Step Description	0040,0254	LO	Single Value, Universal	
Performed Procedure Step Start Date	0040,0244	DA	Universal	
Performed Procedure Step Start Time	0040,0245	TM	Single Value	
Protocol Name	0018,1030	LO	Universal	

Series Date	0008,0021	DA	Single Value, Universal	
Series Description	0008,103E	LO	Universal	
Series Instance UID	0020,000E	UI	Single Value, Universal	
Series Number	0020,0011	IS	Single Value, Universal	
Series Time	0008,0031	TM	Universal	
Study Instance UID	0020,000D	UI	Universal	
Request Attributes Sequence	0040,0275	SQ	Universal	
Q/R Image level				
Columns	0028,0011	US	Universal	
Contrast/Bolus Agent	0018,0010	LO	Universal	
Frame of Reference UID	0020,0052	UI	Single Value	
Image Orientation (Patient)	0020,0037	DS	Universal	
Image Type	0008,0008	CS	Single Value	
Instance Creation Date	0008,0012	DA	Single Value	
Instance Creation Time	0008,0013	TM	Single Value	
Instance Number	0020,0013	IS	Single Value, Universal	
KVP	0018,0060	DS	Universal	
Patient Orientation	0020,0020	CS	Universal	
Photometric Interpretation	0028,0004	CS	Single Value	
Pixel Spacing	0028,0030	DS	Universal	
Rows	0028,0010	US	Universal	
Samples per Pixel	0028,0002	US	Single Value	
Series Instance UID	0020,000E	UI	Universal	
Slice Location	0020,1041	DS	Universal	
Slice Thickness	0018,0050	DS	Universal	
SOP Class UID	0008,0016	UI	Single Value, Universal, List of UID	
SOP Instance UID	0008,0018	UI	Single Value, Universal, List of UID	
Study Instance UID	0020,000D	UI	Single Value	

C-FIND-CANCEL is supported. However, some C-FIND responses may be forwarded before the C-FIND-CANCEL takes effect.

Table 42: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Matching complete	Matching successful.
Failure	C000	General failure status	Whenever the find operation failed.
Cancel	FE00	Cancel	When receiving a cancel C-FIND request.
Pending	FF00	Pending	For every C-FIND response received.

4.2.1.4.3.   (Real-World) Activity – MOVE as SCP

4.2.1.4.3.1.   Description and Sequencing of Activities

The Real World activity associated with the C-MOVE command is retrieval of images from the disk and storage of the images to a remote system using a C-STORE command. DICOM Manager will issue a failure status if it is unable to process the transfer request.

Figure 16: (Real World) Activity - Move as SCP.

4.2.1.4.3.2. Accepted Presentation Contexts

The presentation contexts are defined in the next table.

Table 43: 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**		
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		

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

DICOM Manager provides standard conformance to the DICOM V3.0 Query/Retrieve Service Class as an SCP for the following SOP Class: Study Root Query/Retrieve Information Model - MOVE, UID=1.2.840.10008.5.1.4.1.2.2.2. Prioritization of C-MOVE requests is not supported.

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

DICOM Manager does not support relational C-MOVE requests. All images requested in the C-MOVE will be sent over a single association.

All details regarding the specific conformance, including response behavior of all status codes, both from an application level and communication errors are provided in the following table.

Table 44: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Matching complete	Whenever the move operation succeeded.
Failure	A801	Refused - Move Destination Unknown	Whenever the move destination is unknown to the system.
	C000	Error - Unable to Process	Whenever the move operation failed.
Warning	B000	Sub-operations Complete - One or more Failures	Whenever one of the store operations failed
Pending	FF00	Pending	For every store response received.
Cancel	FE00	Cancel	When receiving a cancel move request.

During Move operation, if ISP receives an A-ABORT message, the Move operation does not continue but the Store sub operations are successful.

4.2.1.4.4. (Real-World) Activity – Image Import

4.2.1.4.4.1. Description and Sequencing of Activities

The real world activity associated with the C-STORE operation is the storage of the image in the memory of the system upon which DICOM Manager is running in order to make it available for immediate processing by applications. DICOM Manager will issue a failure status if it is unable to store the image in the memory.
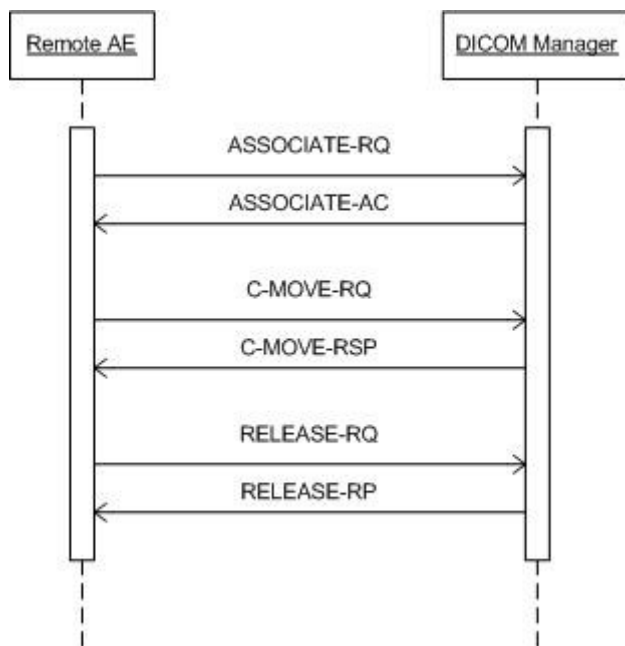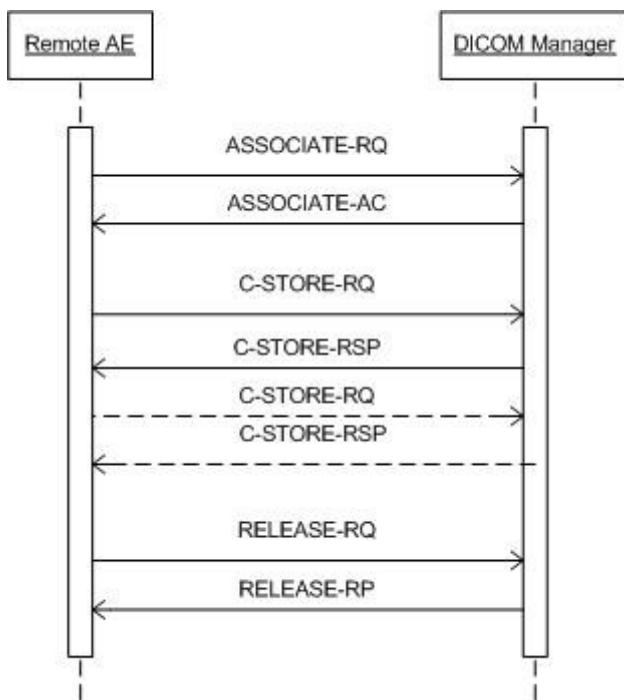

Figure 17: (Real World) Activity - Image Import.

4.2.1.4.4.2. Accepted Presentation Contexts

The presentation contexts are defined in the next table.

Table 45: Acceptable Presentation Contexts for (Real-World) Activity – Image Import

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	CT-private-ELE	1.3.46.670589.33.1.4.1	SCP	None
		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		
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	CT-private-ELE	1.3.46.670589.33.1.4.1	SCP	None
		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		
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	CT-private-ELE	1.3.46.670589.33.1.4.1	SCP	None
		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		
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	CT-private-ELE	1.3.46.670589.33.1.4.1	SCP	None
		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		
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	CT-private-ELE	1.3.46.670589.33.1.4.1	SCP	None
		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		
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	CT-private-ELE	1.3.46.670589.33.1.4.1	SCP	None
		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		
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	CT-private-ELE	1.3.46.670589.33.1.4.1	SCP	None
		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		
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
	1.2.840.10008.5.1.4.1.1.11.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Grayscale Softcopy Presentation State Storage SOP Class		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 Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Blending Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.4	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		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 Little Endian	1.2.840.10008.1.2.1	SCP	None
		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		
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		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	CT-private-ELE	1.3.46.670589.33.1.4.1	SCP	None
		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		
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	CT-private-ELE	1.3.46.670589.33.1.4.1	SCP	None
		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		
Enhanced CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		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		
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		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	CT-private-ELE	1.3.46.670589.33.1.4.1	SCP	None
		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		
Enhanced MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		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		
MR Spectroscopy Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1]): Default Transfer Syntax for Lossless JPEG Image Compression	1.2.840.10008.1.2.4.70		
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	CT-private-ELE	1.3.46.670589.33.1.4.1	SCP	None
		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		
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		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 Little Endian	1.2.840.10008.1.2.1	SCP	None
		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 Little Endian	1.2.840.10008.1.2.1	SCP	None
		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 Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	CT-private-ELE	1.3.46.670589.33.1.4.1	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 Little Endian	1.2.840.10008.1.2.1	SCP	None
		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		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		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		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		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 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		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		RLE Lossless	1.2.840.10008.1.2.5		
		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		
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		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	CT-private-ELE	1.3.46.670589.33.1.4.1	SCP	None
		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 Little Endian	1.2.840.10008.1.2.1	SCP	None
		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	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		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	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		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	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		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		
		RLE Lossless	1.2.840.10008.1.2.5		
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	Implicit VR Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	Implicit VR Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	Implicit VR Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2	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**		
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		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 Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
X-Ray Radiation Dose SR SOP Class	1.2.840.10008.5.1.4.1.1.88.67	Implicit VR Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2	SCP	None
Philips Private ViewForum 3D Volume New Storage	1.3.46.670589.5.0.1.1	CT-private-ELE	1.3.46.670589.33.1.4.1	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

Note: The default supported Transfer Syntax is ILE. All Transfer Syntaxes are configurable in LAN Config, in the order Private-ELE, JPEG, ELE, and ILE. CT-private-ELE has preference over ELE, ILE and JPEG.
For all SOP classes without pixel data the JPEG and RLE transfer syntaxes will not supported.

4.2.1.4.4.3. SOP Specific Conformance for Storage SOP Classes

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

DICOM Manager provides standard conformance to the DICOM V3.0 Storage Service Class as a SCP. DICOM Manager conforms to the SOPs of the Storage Service Class at Level 2 (Full). In case of a successful C-STORE, the stored image may be accessed by the processing applications.

4.2.1.4.4.3.1. Dataset Specific Conformance for C-STORE-RSP

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

Table 46: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Successful stored	Whenever the store operation succeeded.
Failure	Cxxx	Failed	Whenever the store operation failed. When a different SOP class is used in the C-Store-RQ command set than the one negotiated, during import, (The SOP Class of the dataset being the same as that negotiated. This information is logged on The Log Viewer.
	A700	Failed	Whenever the store operation failed. When an object not containing either the Study Instance UID, Series Instance UID or SOP Instance UID. This information is logged on The Log Viewer. An object encoded in a transfer syntax other than the one negotiated. This information is logged on the Log Viewer.

ISP displays the Patient Name and Patient ID as "UNKNOWN" on receiving a Store Request for patient data which contains empty values for Patient Name and Patient ID attributes
ISP records in the Log Viewer logs if there is a network reply timeout during import.
On receiving an A-ABORT message while performing import, ISP logs the occurrence of the abort in the log viewer.

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ISP is able to import objects that contain non-Philips private attributes.

ISP is able to import objects with retired date and time format.

It is possible for ISP to import object after the demographics information has undergone modification for that patient.

If an object containing a value for Modality, which is not supported by the Value Representation rules for CS, is imported into ISP, ISP corrects the value while displaying the object on the Patient Directory.

If an object containing a value for Modality, which is not any of the defined terms, is imported into ISP, ISP displays the value as is on the Patient Directory, for that object but records it in the Log Viewer.

ISP displays a message to the user if import operation is interrupted during data transfer.

4.2.2. Print Manager

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

4.2.2.1. SOP Classes

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

Table 47: SOP Classes for Print Manager

SOP Class Name	SOP Class UID	SCU	SCP
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Yes	No
>Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1	Yes	No
>Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Yes	No
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Yes	No
>Printer SOP Class	1.2.840.10008.5.1.1.16	Yes	No
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Yes	No
>Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Yes	No
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Yes	No
>Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	Yes	No
>Printer SOP Class	1.2.840.10008.5.1.1.16	Yes	No

Note: Any SOP specific behavior is documented later in the conformance statement in 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 maximum PDU Size that the Print-Manager will use is configurable, with a minimum of 2 Kbytes.

Table 48: 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 a Initiator or Acceptor is specified.

Print-Manager can have only one open connection at a given time.

Table 49: Number of associations as an Association Initiator for this AE

Description	Value
Maximum number of simultaneous associations	1

4.2.2.2.3. Asynchronous Nature

Print-Manager will only allow a single outstanding operation on an association.

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Table 50: Asynchronous nature as an Association Initiator for this AE

Description	Value
Maximum number of outstanding asynchronous transactions	1

4.2.2.2.4. Implementation Identifying Information

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

Table 51: DICOM Implementation Class and Version for Print Manager

Implementation Class UID	1.3.46.670589.50.1.12.0
Implementation Version Name	PORTAL_12.0

4.2.2.2.5. Communication Failure Handling

Not applicable.

4.2.2.3. Association Initiation Policy

4.2.2.3.1. (Real-World) Activity – Print Management as SCU

4.2.2.3.1.1. Description and Sequencing of Activities

After selecting the print destination (out of choice list of configured printers) and some print parameters (depending on the configuration and the selected printer; these values can be configured too), Print-Manager initiates an association when a print job is submitted to a DICOM printer (when the user clicks on the print button in the film view). The association is left open after the job is completed for a configurable time-out (so that if there are other jobs to the same printer, they will be done on the same association). Jobs to different printers are performed simultaneously.

Normally, when the job is completed and there are no other jobs to the same printer, the Print manager does close the association with an A-RELEASE request. If a TCP/IP connection timeout occurs, then the association is closed. In this case, a new association is set up when needed.
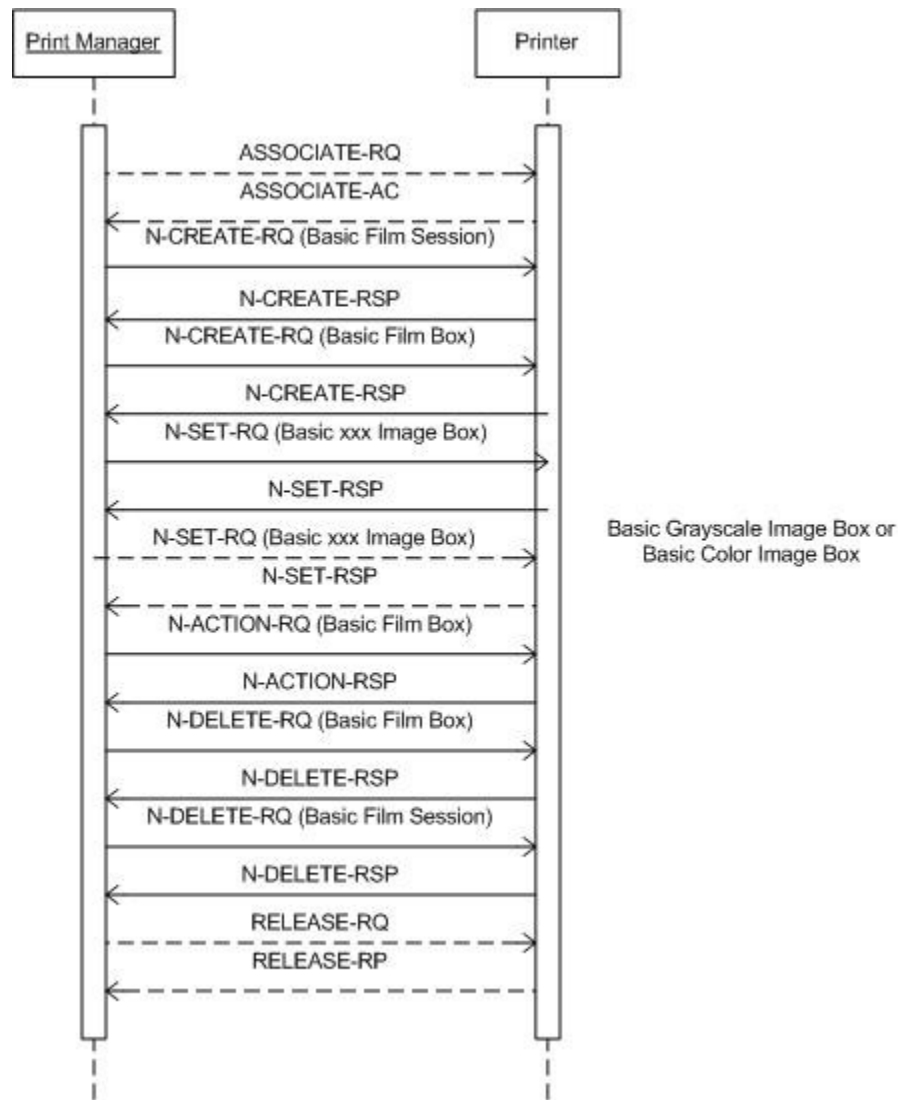
Figure 18: (Real World) Activity - Print Management as SCU

4.2.2.3.1.2. Proposed Presentation Contexts

The presentation contexts are defined in the next table.

Table 52: 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 Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18			SCU	None
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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

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Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18			SCU	None
>Printer SOP Class	1.2.840.10008.5.1.1.16	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18			SCU	None
>Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		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 Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18			SCU	None
>Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		

Note: The only supported defaults Transfer Syntaxes for printing are ELE and ILE.

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

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

4.2.2.3.1.3. SOP Specific Conformance for Basic Film Session SOP Class of the Basic Color Print Management Meta SOP Class

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

The Printer process conforms to the Basic Film Session SOP Class. The following DIMSE service elements are supported: N-CREATE, N-DELETE.

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

Table 53: Basic Film Session Presentation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Copies	2000,0010	IS		ALWAYS	CONFIG	Value between 1-100
Print Priority	2000,0020	CS	AUTO, HIGH, LOW, MED	ANAP	USER	
Medium Type	2000,0030	CS	BLUE FILM, CLEAR FILM, PAPER	ALWAYS	CONFIG, USER	
Film Destination	2000,0040	CS	MAGAZINE, PROCESSOR	ALWAYS	CONFIG	

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

Table 54: Status Response

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.

4.2.2.3.1.3.2. Dataset Specific Conformance for Basic Film Session SOP Class N-DELETE-SCU

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

Table 55: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film Session successfully created	The SCP has completed the operation successfully.
Other than Success	<>0000	Other status	On any other status then success, the job remains in the queue manager, with status failed.

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

The Printer process conforms to the Basic Film Session SOP Class. The following DIMSE service element is supported: N-CREATE, N-DELETE.

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

Table 56: Basic Film Session Presentation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Copies	2000,0010	IS		ALWAYS	CONFIG, USER	-
Print Priority	2000,0020	CS	AUTO, HIGH, LOW, MED	ALWAYS	CONFIG, USER	-
Medium Type	2000,0030	CS	BLUE FILM, CLEAR FILM, PAPER	ALWAYS	USER	-
Film Destination	2000,0040	CS	MAGAZINE, PROCESSOR	ANAP	USER	-

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

Table 57: Status Response

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.

4.2.2.3.1.4.2. Dataset Specific Conformance for Basic Film Session SOP Class N-DELETE-SCU

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

Table 58: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film Session successfully created	The SCP has completed the operation successfully.
Other than Success	<>0000	Other status	On any other status then success, the job remains in the queue manager, with status failed.

4.2.2.3.1.5. SOP Specific Conformance for Printer SOP Class of the Basic Color Print Management Meta SOP Class
Not Applicable, Printer SOP Class is not supported.

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

Not Applicable, Printer SOP Class is not supported.

4.2.2.3.1.6. SOP Specific Conformance for Printer SOP Class of the Basic Grayscale Print Management Meta SOP Class
Not Applicable, Printer SOP Class is not supported.

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

Not applicable, Printer SOP Class is not supported.

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

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

The Printer process conforms to the Basic Film Box Sop Class. The following DIMSE service elements are supported: N-CREATE, N-ACTION, N-DELETE.

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

Table 59: Basic Film Box Presentation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Display Format	2010,0010	ST	STANDARD\1,1	ALWAYS	CONFIG	-
Film Orientation	2010,0040	CS	LANDSCAPE, PORTRAIT	ALWAYS	CONFIG, USER	-
Film Size ID	2010,0050	CS		ALWAYS	CONFIG, USER	As in Printer Configuration file.
Trim	2010,0140	CS	NO, YES	ALWAYS	CONFIG, USER	-
Configuration Information	2010,0150	ST		ALWAYS	CONFIG	As in Printer Configuration file.

Table 60: 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	UID of Parent Film Session.
>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 61: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film Box successfully created	The SCP has completed the operation successfully.
Warning	B605	Requested Min Density or Max Density outside of Printer's operating Range	The print job continues and the warning is logged.
	0107	Attribute list error	The print job continues and the warning is logged.
	0116	Attribute out of range	The print job continues and the warning is logged.
	B000 - B007		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.

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

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

Table 62: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film accepted for printing	The print job continues.
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.
	0107	Attribute list error	The print job continues and the warning is logged.
	0116	Attribute out of range	The print job continues and the warning is logged.
	B000 - B007		The print job continues and the warning is logged.
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.

4.2.2.3.1.7.3. Dataset Specific Conformance for Basic Film Box SOP Class N-DELETE-SCU

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

Table 63: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film Session successfully created	The SCP has completed the operation successfully.
	0107	Attribute list error	The print job continues and the warning is logged.
	0116	Attribute out of range	The print job continues and the warning is logged.
	B000 - B007		The print job continues and the warning is logged.
Other than Success	<>0000	Other status	On any other status then success, the job remains in the queue manager, with status failed.

4.2.2.3.1.8. SOP Specific Conformance for Basic Film Box SOP Class of the Basic Color Print Management Meta SOP Class

This section and sub-section includes the manufacturer SOP and Dataset specific information as well the status codes and their corresponding behavior.
The Printer process conforms to the Basic Film Box Sop Class. The following DIMSE service elements are supported: N-CREATE, N-ACTION, N-DELETE.

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

Table 64: Basic Film Box Presentation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Display Format	2010,0010	ST	STANDARD\1,1	ALWAYS	CONFIG	-
Film Orientation	2010,0040	CS	LANDSCAPE, PORTRAIT	ALWAYS	CONFIG, USER	-
Film Size ID	2010,0050	CS		ALWAYS	CONFIG, USER	As in printer configuration file.
Trim	2010,0140	CS	NO, YES	ALWAYS	CONFIG, USER	-
Configuration Information	2010,0150	ST		ALWAYS	CONFIG	As in printer configuration file.

Table 65: 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	UID of Parent Film Session.
>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 66: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film Box successfully created	The SCP has completed the operation successfully.
Warning	0107	Attribute list error	The print job continues and the warning is logged.
	0116	Attributes out of range	The print job continues and the warning is logged.
	B000 - B007		The print job continues and the warning is logged.
	B605		The print job continues and the warning is logged.
Failure	C616		The print job is marked as failed and the reason is logged.

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

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

Table 67: DICOM Command Response Status Handling Behavior for Basic Film Box N-Action

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film accepted for printing	The print job continues.
Warning	0107	Attribute list error	The print job continues and the warning is logged.
	0116	Attribute out of range	The print job continues and the warning is logged.
	B000 - B007		The print job continues and the warning is logged.
	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.

Service Status	Error Code	Further Meaning	Behavior
	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.
Other than Success	<>0000	Any other status then success	The print job is marked as failed, the reason is logged and reported to the user.

4.2.2.3.1.8.3. Dataset Specific Conformance for Basic Film Box SOP Class N-DELETE-SCU

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

Table 68: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film Session successfully created	The SCP has completed the operation successfully
Warning	0107	Attribute list error	The print job continues and the warning is logged.
	0116	Attribute out of range	The print job continues and the warning is logged.
	B000 - B007		The print job continues and the warning is logged.
Other than Success	<>0000	Any other status then success	The job remains in the queue manager, with status failed

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

The Printer process conforms to the Basic Grayscale Image Box Sop Class. The following DIMSE service element is supported: N-SET.

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

Table 69: Image Box Pixel Presentation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Box Position	2020,0010	US	1	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	
>Rows	0028,0010	US		ALWAYS	AUTO	As in Printer configuration file.
>Columns	0028,0011	US		ALWAYS	AUTO	As in Printer configuration file.
>Pixel Aspect Ratio	0028,0034	IS		ALWAYS	AUTO	Must be present if not 1/1.
>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 70: DICOM Command Response Status Handling Behavior for Basic Grayscale Image Box N-SET.

Service Status	Error Code	Further Meaning	Behavior
Success	0000		The print job continues
Warning	0107		The print job is continues and the warning is logged.
	0116		The print job is continues and the warning is logged.
	B000 - B007		The print job is continues and the warning is logged.
	B604		The print job continues, the warning is logged and reported to the user.
	B605		The print job continues, the warning is logged and reported to the user.
	B609		The print job continues, the warning is logged and reported to the user.
	B60A		The print job continues, the warning is logged and reported to the user.

4.2.2.3.1.10. SOP Specific Conformance for Basic Color Image Box SOP Class of the Basic Color Print Management Meta SOP Class

The Printer process conforms to the Color Image Box Sop Class. The following DIMSE service element is supported: N-SET.

4.2.2.3.1.10.1. Dataset Specific Conformance for Basic Color Image Box SOP Class N-SET-SCU

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

Table 71: Image Box Pixel Presentation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Box Position	2020,0010	US	1	ALWAYS	AUTO	-
Basic Color Image Sequence	2020,0111	SQ		ALWAYS	AUTO	-
>Samples per Pixel	0028,0002	US		ALWAYS	AUTO	-
>Photometric Interpretation	0028,0004	CS	RGB	ALWAYS	AUTO	-
>Planar Configuration	0028,0006	US		ALWAYS	AUTO	-
>Rows	0028,0010	US		ALWAYS	AUTO	As in printer configuration file.
>Columns	0028,0011	US		ALWAYS	AUTO	As in printer configuration file.
>Pixel Aspect Ratio	0028,0034	IS		ALWAYS	AUTO	Must be present if not 1/1.
>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 Data	7FE0,0010	OW/OB		ALWAYS	AUTO	-

Table 72: DICOM Command Response Status Handling Behavior for Basic Color Image Box N-SET

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Image successfully stored in Image Box	The print job continues
Warning	0107	Attribute list error	The print job continues and the warning is logged.
	0116	Attribute out of range	The print job continues and the warning is logged.
	B000 - B007		The print job continues and the warning is logged.

Service Status	Error Code	Further Meaning	Behavior
	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	<xxxx>	All other errors than found in this list	The print job is marked as failed and the reason is logged and reported to the user.

4.2.2.4.   Association Acceptance Policy

Not applicable, Print Manager AE never accepts an association.

4.2.3. WADO AE Specifications

The IntelliSpace Portal sends WADO-RS requests to a remote WADO Server. The system performs a DICOM query to a remote destination and composes a WADO-RS request message on triggering a retrieve action. The action can be performed on Study, Series and Image levels for which a WADO study level, series level of Instance level request messages are sent to the WADO server.

Table 73: WADO-RS Retrieve Study

Options	Restrictions
Data Types Supported (Request Type)	-
Transfer Syntaxes Supported (transfer-syntax Request parameter)	1.2.840.10008.1.2.5 1.2.840.10008.1.2.4.50 1.3.46.670589.33.1.4.1 1.2.840.10008.1.2.4.70 1.2.840.10008.1.2.1 1.2.840.10008.1.2
SOP Class Restrictions	-
Size restrictions	-

Table 74: WADO-RS Retrieve Series

Options	Restrictions
Data Types Supported (Request Type)	-
Transfer Syntaxes Supported (transfer-syntax Request parameter)	1.2.840.10008.1.2.5 1.2.840.10008.1.2.4.50 1.3.46.670589.33.1.4.1 1.2.840.10008.1.2.4.70 1.2.840.10008.1.2.1 1.2.840.10008.1.2
SOP Class Restrictions	-
Size restrictions	-

Table 75: WADO-RS Retrieve Instance

Options	Restrictions
Data Types Supported (Request Type)	-
Transfer Syntaxes Supported (transfer-syntax Request parameter)	1.2.840.10008.1.2.5 1.2.840.10008.1.2.4.50 1.3.46.670589.33.1.4.1 1.2.840.10008.1.2.4.70 1.2.840.10008.1.2.1 1.2.840.10008.1.2
SOP Class Restrictions	-
Size restrictions	-

WADO RS has a Mime Type of Multipart where each part is the image and has the MIME Type of DICOM stream.

Below are the Sample URLs.
URI to retrieve a study with Study Instance UID as 1.3.46.670589.33.1.2004799337340812353.24768253643313436094:
http://[host]:[port]/wadors/studies/1.3.46.670589.33.1.2004799337340812353.24768253643313436094/

URI to retrieve a series 1.3.46.670589.33.1.29245765103547961162.25894610501499417982 belonging to a study
1.3.46.670589.33.1.2004799337340812353.24768253643313436094:

http://[host]:[port]/wadors/studies/1.3.46.670589.33.1.2004799337340812353.24768253643313436094/series/1.3.46.670589.33.1.29245765103547961162.25894610501499417982

4.2.3.1. Connection Policies

4.2.3.1.1. General

<div align="center">

Table 76: Number of connections

</div>

Description	Value
Maximum number of simultaneous RS requests supported.	Unlimited

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 DICOM standard.

Philips IntelliSpace Portal inherits its TCP/IP stack from Windows (i.e. the operating system platform).

Philips IntelliSpace Portal supports a single network interface Ethernet ISO 8802-3.
With standard 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).

4.3.2. Additional Protocols

Additional protocols such as used for network management are not applicable.

4.3.3. IPv4 and IPv6 Support

IntelliSpace Portal supports both IPv4 and IPv6 connections.

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

The Philips IntelliSpace Portal system is configured by means of a configuration program. This program is accessible at start-up of the Philips IntelliSpace Portal system. It is password protected and intended to be used by the administrator onsite or Philips Customer Support Engineers only.

Per configuration in Portal Management Tool (PMT), the system allows to accept associations from a range of IP addresses (not to check source IP or Calling AE Title). With incoming association requests the system allows acceptance of a range of defined IP addresses which is configurable in the PMT application. The system is not IP or AE title sensitive.

4.4.1.1. Local AE Titles

The local AE title mapping and configuration are specified as:

Table 77: AE Title configuration table

Application Entity	Default AE Title	Default TCP/IP Port
DICOM Manager	SCU: <system AE title>, SCP: <system AE title> or <local folder>	104 (configurable)
Print Manager	<system AE title>	104

4.4.1.2. Remote AE Title/Presentation Address Mapping

Remote AE Title, IP-Address, Port-number, supported DICOM Services and supported Transfer Syntaxes are freely configurable.

4.4.2. Parameters

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

Table 78: Configuration General Parameters Table

Parameter	Configurable	Default Value
Basic Parameters		
Network - Computer Name	Yes	<hostname> Set by installation
Network - IP	Yes	(0.0.0.0)
Network - Gateway	Yes	(0.0.0.0)
System Port	Yes	104
System - AE Title	Yes	DATABASE
Local - Auto Delete Enabled	Yes	Checked
Maximum PDU size as SCU	Yes	65536
Maximum PDU size as SCP	No	16352
Transfer Syntax support JPEG, P-ELE, ELE, ILE, There is a configuration option to turn off /on, P-ELE, JPEG, ELE, ILE	Yes	ELE, ILE, JPEG, JPEG Lossless, RLE (for latest versions of Philips devices i.e. 4.x)
Storage / Retrieve Timeout	Yes	300 seconds
ARTIM timeout	Yes	300 seconds
Max association number	No	50
Advanced Parameters		
Local - Auto Delete - Execute Only Once	Yes	UnChecked
Local - Auto Delete - Days to keep study	Yes	14
Local - AutoDelete - Mbytes to Reserve	Yes	11264
Auto Import - Enable	Yes	Unchecked
Auto Import - Input Folder Name	Yes	No Value
Auto Import - Failed Folder Name	Yes	No Value
Auto import - Import Type	Yes	DICOM
Auto Import - PollingIntervalInSeconds	Yes	60
Verify Service Timeout in Seconds	Yes	60
Query Service Timeout in Seconds	Yes	60
Store Service Timeout in Seconds	Yes	300
Storage Commitment Service Timeout in Seconds	Yes	300
Retrieve Service Timeout in Seconds	Yes	300
Print Service Timeout in Seconds	Yes	300

Table 79: Configuration Local Parameters table

Parameter	Configurable	Default Value
Advanced Parameter		
Local - Auto Delete - Execute Only Once	Yes	Unchecked
Local - Auto Delete - Days to keep study	Yes	1
Local - AutoDelete - Mbytes to Reserve	Yes	12207
Read Only Folder	Yes	Unchecked
Auto Import - Enable	Yes	Unchecked
Auto Import - Input Folder Name	Yes	No Value
Auto Import - Failed Folder Name	Yes	No Value
Auto Import - Import Type	Yes	DICOM
Auto Import - PollingIntervalInSeconds	Yes	60

Table 80: Configuration Remote Parameters Table

Parameter	Configurable	Default Value
Advanced Parameter - Query		
Association Timeout In Seconds	Yes	300
Lowest Support Level	Yes	Image
Query Response Size	Yes	100
Advanced Parameter - Store		
Association Timeout In Seconds	Yes	120
Advanced Parameter - Retrieve		
Association Timeout In Seconds	Yes	0
Advanced Parameter - Storage Commitment		
Association Timeout In Seconds	Yes	120

Table 81: Configuration General Print Parameters Table

Parameter	Configurable	Default Value
Advanced Parameter		
Association Timeout In Seconds	Yes	150

Printers are configurable by a selection of the default printer types. Every printer type has a fixed configuration, but can be extended with new ones. The default printer settings are defined in the printer configuration file.

4.4.3.   WADO-RS Interface

The WADO-RS service can be configured on the DICOM Node configuration page, by enabling the WADO functionality. The WADO-RS URL and the Port number can be configured.

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. The next Figure shows the media interchange application data flow as a functional overview of the Media AE for DICOM CD and DVD.
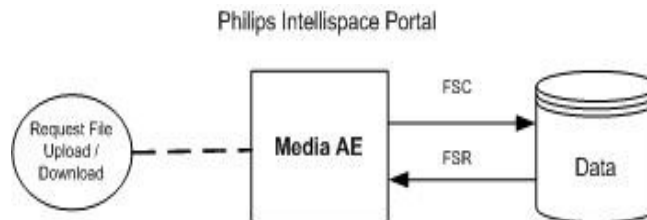
Figure 19: Media Interchange Application Data Flow Diagram.

The Media AE acts as a FSR, for CD-R and DVD, when reading the directory of the medium. The Media AE acts as a FSC for CD-R and DVD, when writing the selected images in a patient folder onto the medium.

5.1.2. Functional Definitions of AE's

The Philips IntelliSpace Portal can Create and Read CD/DVD and USB.

The Media AE in a Philips IntelliSpace Portal supports the following functions for CD, DVD and USB as FSR:

- 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 image from the medium and display it on the monitor of the workstation. 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, DVD and USB as FSC:

- 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).

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 Philips IntelliSpace Portal or for transport to another device for reading.
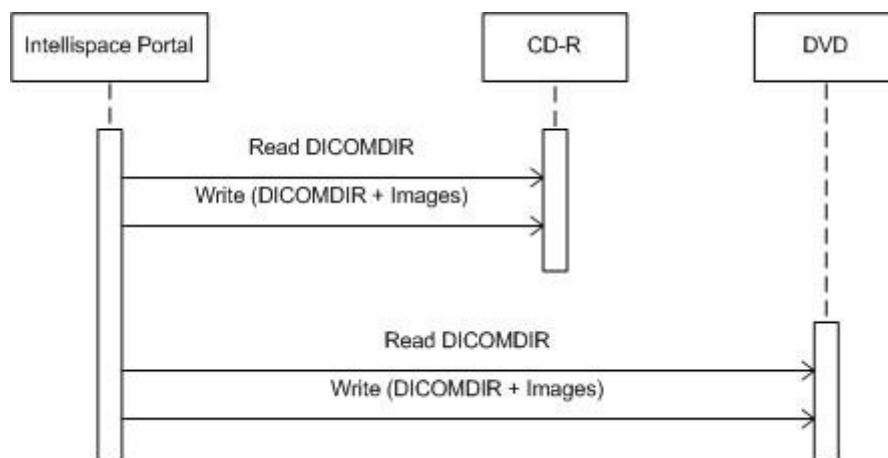
Figure 20: (Real World) Activity - Media.

After data is written to CD/DVD, the CD/DVD is finalized; the finalized CD/DVD can now be read on every CD/DVD reader.

If an object which is not supported by ISP is attempted to read on ISP, ISP does not show these images on the PD.

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

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

For reading and writing the media AE provides standard conformance to:
- DICOM media Storage Service and File Format ([DICOM] PS 3.10);
- Media Storage Application Profiles ([DICOM] PS 3.11); and
- Media Formats and Physical Media for Media Interchange ([DICOM] PS 3.12) for Reading (FSR) and Writing (FSC).

Philips IntelliSpace Portal does not support multi-session writes to CD/DVD's.

Supported media:
- CD: CD-R and CD-RW with the profile STD-GEN-CD.
- DVD: DVD-R, DVD+R, DVD-RW, DVD+RW and DVD-RAM with the profile: STD-GEN-DVD-JPEG as FSR.
- USB.

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

Table 82: AE Media AE related Application Profiles, RWA activities and roles

Supported Application Profile	Identifier	Real-World Activities	Roles
CT/MR Studies on CD-R	STD-CTMR-CD	Create File-set	FSC
		Read File-set	FSR
		Display Directory	DD
General Purpose CD-R Interchange	STD-GEN-CD	Create File-set	FSC
		Read File-set	FSR

Supported Application Profile	Identifier	Real-World Activities	Roles
		Display Directory	DD
CT/MR Studies on DVD Media	STD-CTMR-DVD	Create File-set	FSC
		Read File-set	FSR
		Display Directory	DD
General Purpose DVD Interchange with JPEG	STD-GEN-DVD-JPEG	Create File-set	FSC
		Read File-set	FSR
		Display Directory	DD

5.2.1.1. File Meta Information for the Media AE

This section contains the values of the file Meta Information that pertain to the Application Entity (see PS 3.10). These are:
- Source Application Entity Title,
- Private Information Creator UID,
- Private Information.

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

Table 83: File Meta Information for the Media AE

Implementation Class UID	1.3.46.670589.50.1.12.0
Implementation Version Name	PORTAL_12.0

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

When an image transfer from CD or DVD is initiated then the Media AE acts as an FSR using the interchange option to import SOP Instances from the CD or DVD medium.

5.2.1.2.1.1. Media Storage Application Profile

The media AE supports the RWA Read File-set for the STD-CT/MR studies on CD, the STD-GEN-CD, the General Purpose DVD Interchange with JPEG and CT/MR Studies on DVD Media application profiles.

5.2.1.2.1.1.1. Options

Not applicable.

5.2.1.2.2. RWA - Create File-set

When an image transfer to CD/DVD is initiated then the Media AE acts as an FSC using the interchange option to export SOP Instances from the local database to a CD/DVD medium.

5.2.1.2.2.1. Media Storage Application Profile

As depicted in the table in section 5.2.1, the Media AE supports the RWA Write Images for the STD-CTMR-CD, STD-GEN-CD and the STD-GEN-DVD-JPEG Application Profile.

The DICOMDIR file will be extended when new images are written. In case some attributes are not present in an image but are specified as mandatory in the DICOMDIR definition in DICOM Media, a generated value will be filled in.

Implementation remarks and restrictions:

When writing the DICOMDIR records, key values are generated when no value of the corresponding attribute is supplied, according to the following tables.

Table 84: Generated Keys.

Key	Tag	Generated Value
Study Keys		
Study Date	(0008,0020)	Date on which this Study was created.
Study Time	(0008,0030)	Time on which this Study was created.
Series Keys		
Series Number	(0020,0011)	1
Image Keys		
Instance Number	(0020,0013)	1 (if empty)

The data selected to write to the media must fit on the currently inserted media. If it does not fit, an error is generated and it is up to the operator to re-select a smaller amount of data to be written to the media. The system will not request additional media or write across multiple media.

Table 85: Supported attributes in the DICOMDIR.

DICOM Tag	Description
0002,0000	File Meta Information Group Length
0002,0001	File Meta Information Version
0002,0002	UI Media Storage Sop Class UID Media Storage SOP Class UID
0002,0003	UID Media Storage SOP Instance UID
0002,0010	UI Transfer Syntax UID
0002,0012	UI Implementation Class UID
0002,0013	Implementation Version Name
0002,0016	Source Application Entity Title
File Set and Directory Information	
0004,1130	File Set ID
0004,1200	Offset Of The First Directory Record Of The Root Directory Entity
0004,1202	Offset Of The Last Directory Record Of The Root Directory Entity
0004,1212	File Set Consistency Flag
0004,1220	Directory Record Sequence
Patient level	
0004,1400	Offset Of The Next Directory Record
0004,1410	Record In Use Flag
0004,1420	Offset of Referenced Lower-Level Directory Entity
0004,1430	Directory Record Type
0008,0005	Specific Character Set
0010,0010	Patient's Name
0010,0020	Patient ID
0008,0054	Retrieve AE Title
Study level	
0004,1400	Offset Of The Next Directory Record

DICOM Tag	Description
0004,1410	Record In Use Flag
0004,1420	Offset Of Referenced Lower-Level Directory Entity
0004,1430	Directory Record Type
0008,0005	Specific Character Set
0008,0020	Study Date
0008,0030	Study Time
0008,0050	Accession Number
0008,0054	Retrieve AE Title
0008,0061	Modalities in Study
0008,0080	Institution Name
0008,0090	Referring Physician's Name
0010,0010	Patient's Name
0010,0020	Patient ID
0010,0030	Patient's Birth Date
0010,0032	Patient's Birth Time
0010,0040	Patient's Sex
0008,1030	Study Description
0010,1020	Patient's Size
0010,1030	Patient's Weight
0008,1060	Name of Physician(s) Reading Study
0008,1070	Operator's Name
0020,000D	Study Instance UID
0020,0010	Study ID
0020,1206	Number Of Study Related Series
0020,1208	Number Of Study Related Instances
0040,0254	Performed Procedure Step Description
Series level	
0004,1400	Offset Of The Next Directory Record
0004,1410	Record In Use Flag
0004,1420	Offset of Referenced Lower-Level Directory Entity
0004,1430	Directory Record Type
0004,1500	Referenced File ID
0008,0005	Specific Character Set
0008,0016	SOP Class UID
0008,0021	Series Date
0008,0023	Content Date
0008,0031	Series Time
0008,0033	Content Time
0008,0060	Modality
0008,0070	Manufacturer
0008,1010	Station Name
0008,103E	Series Description
0018,0015	Body Part Examined
0018,1020	Software Version(s)
0018,1030	Protocol Name
0020,000E	Series Instance UID
0020,0011	Series Number

DICOM Tag	Description
0020,1209	Number of Series Related Instances
0028,0008	Number of Frames
0040,0244	Performed Procedure Step Start Date
0040,0245	Performed Procedure Step Start Time
Image Level	
0004,1400	Offset Of The Next Directory Record
0004,1410	Record In Use Flag
0004,1420	Offset Of Referenced Lower-Level Directory Entity
0004,1430	Directory Record Type
0004,1500	Referenced File ID
0004,1510	Referenced Sop Class UID In File
0004,1511	Ref Sop Instance UID In File
0004,1512	Referenced Transfer Syntax UID in File
0008,0005	Specific Character Set
0008,0008	Image Type
0018,0010	Contrast/Bolus Agent
0008,0016	SOP Class UID
0008,0018	SOP Instance UID
0008,0022	Acquisition Date
0008,0023	Content Date
0008,0032	Acquisition Time
0008,0033	Content Time
0018,0050	Slice Thickness
0018,0060	KVP
0018,1130	Table Height
0020,0013	Instance Number
0020,0032	Image Position (Patient)
0020,1041	Slice Location
0020,4000	Image Comments
0020,0037	Image Orientation (Patient)
0020,0052	Frame of Reference UID
0028,0002	Samples per Pixel
0028,0004	Photometric Interpretation
0028,0006	Planar Configuration
0028,0008	Number of Frames
0028,0010	Rows
0028,0011	Columns
0028,0030	Pixel Spacing
0028,0100	Bits Allocated
0028,0101	Bits Stored
0028,0102	High Bit
0028,0103	Pixel Representation
0028,1050	Window Center
0028,1051	Window Width
0028,0301	Burned In Annotation
0028,1052	Rescale Intercept
0028,1053	Rescale Slope

DICOM Tag	Description
0028,1054	Rescale Type

Note: Attributes at the image level specific to certain IODs shall also be present.

5.2.1.2.2.1.1.   Options

Not applicable.

5.2.1.2.3.   RWA - Display Directory

When a database open action is initiated on the CD/DVD then the Media AE acts as an FSR using the interchange option to read the DICOMDIR of the CD/DVD media.

This will result in an overview of the patients, studies, series and images on the Philips IntelliSpace Portal screen.

5.2.1.2.3.1.   Media Storage Application Profile

The media AE supports the RWA Display Directory for the STD-CT/MR studies on CD, the STD-GEN-CD, the General Purpose DVD Interchange with JPEG and CT/MR Studies on DVD Media application profiles.

5.2.1.2.3.1.1.   Options

The mandatory DICOMDIR keys are required for the correct display of directory information. The display is structured according the DICOM Composite Information Model: Patient, Study, Series, and Image.

The DICOM standard specifies certain attributes of the DICOMDIR as mandatory. However, these attributes may not be mandatory for the related SOP class IOD. For those attributes the default values apply.

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 86: 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
Latin alphabet No. 2	ISO 2022 IR 101	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/02	ISO-IR 101	G1	Supplementary set of ISO 8859
Latin alphabet No. 3	ISO 2022 IR 109	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/03	ISO-IR 109	G1	Supplementary set of ISO 8859
Latin alphabet No. 4	ISO 2022 IR 110	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/04	ISO-IR 110	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
Latin alphabet No. 5	ISO 2022 IR 148	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/13	ISO-IR 148	G1	Supplementary set of ISO 8859
Korean	ISO 2022 IR 149	-	ISO-IR 149	G1	KS X 1001: Hangul and Hanja
		-	-	-	-
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
Latin alphabet No. 2	ISO_IR 101	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 101	G1	Supplementary set of ISO 8859
Latin alphabet No. 3	ISO_IR 109	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 109	G1	Supplementary set of ISO 8859
Latin alphabet No. 4	ISO_IR 110	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 110	G1	Supplementary set of ISO 8859
Greek	ISO_IR 126	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 126	G1	Supplementary set of ISO 8859
Japanese	ISO_IR 13	-	ISO-IR 14	G0	JIS X 0201: Romaji
		-	ISO-IR 13	G1	JIS X 0201: Katakana
Cyrillic	ISO_IR 144	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 144	G1	Supplementary set of ISO 8859
Latin alphabet No. 5	ISO_IR 148	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 148	G1	Supplementary set of ISO 8859
Default repertoire	-	-	ISO-IR 6	G0	ISO 646
GB18030	GB18030	-	-	-	-
Arabic	ISO_IR 127	-	ISO-IR 127	G1	Supplementary set of ISO 8859
		-	ISO-IR 6	G0	ISO 646
Hebrew	ISO_IR 138	-	ISO-IR 138	G1	Supplementary set of ISO 8859
		-	ISO-IR 6	G0	ISO 646
Thai	ISO_IR 166	-	ISO-IR 166	G1	TIS 620-2533 (1990)

Character Set Description	Defined Term	ESC Sequence	ISO Registration Number	Code Element	Character Set
		-	ISO-IR 6	G0	ISO 646

Note: Philips IntelliSpace Portal V12 display the localized Japanese Names encoded in the DICOM data as per the following priority:
- If Ideographic name is present then it shall be displayed as first priority.
- If Ideographic name is not present then Phonetic name shall be displayed if present.
- If both Ideographic and Phonetic names are not present, then the Alphabetic name shall be displayed.

This format is applicable for Patient Directory, Filming, Reporting and all clinical applications. However, the derived data created will have all the name components as per the original data.

7. Security

Philips IntelliSpace Portal supports the following transport level security measures:
- TLS Client Certificates 1.1 & 1.2

7.1. Security Profiles

7.1.1. Security use Profiles

Not applicable

7.1.2. Security Transport Connection Profiles

Philips IntelliSpace Portal supports IHE profile ATNA. And ISP acts as a Secure Node for DICOM transfer.

7.1.3. Digital Signature Profiles

Not applicable

7.1.4. Media Storage Security Profiles

Not applicable

7.1.5. Attribute confidentiality profiles

This is applicable when de-identification is requested.
De-identification of personal data constitutes "processing" under the Philips Privacy Rules (and many country laws).
Personal and specifically, sensitive data may only be de-identified by Philips Healthcare under certain conditions. Processing of medical images (sensitive data) may require verifiable, documented authorization or consent. This important aspect of data processing is governed and mandated by Philips Privacy Rules, to which all Philips Employees must adhere.

The privacy rules ensure that the HIPAA de-identification standard is met by following the Safe Harbor Method as defined in section 164.514(b)(2) of the HIPPA Privacy Rule.
The standard for de-identification of DICOM objects is defined by the DICOM Standard PS 3.15-2011 Digital Imaging and Communications in Medicine (DICOM), Part 15: Security and System Management Profiles.

The table below lists the protected attributes during the de-identification of patient data.

The terms used to describe the replacement value can be read as below:
- **Remove**: The attribute will have a value of zero length, is cleared by Philips IntelliSpace Portal.
- **Keep**: Attribute has same value as original.
- **Hash**: Replace with hashed value, this is being done using a hash function that has some salt added to it. Hash with salt makes sure it is very difficult to impossible to decrypt the hash.

Table 87: Basic Confidentiality Profile De-Identification Attributes

Attribute Name	Tag	De-identification support
SPECIFIC_CHARACTER_SET	(0008,0005)	Keep
IMAGE_TYPE	(0008,0008)	Keep
INSTANCE_CREATION_DATE	(0008,0012)	Keep
INSTANCE_CREATION_TIME	(0008,0013)	Keep
INSTANCE_CREATOR_UID	(0008,0014)	Remove
SOP_CLASS_UID	(0008,0016)	Keep
SOP_INSTANCE_UID	(0008,0016)	Keep
STUDY_DATE	(0008,0020)	Keep
SERIES_DATE	(0008,0021)	Keep
ACQUISITION_DATE	(0008,0022)	Keep
CONTENT_DATE	(0008,0023)	Keep
ACQUISITION_DATETIME	(0008,002A)	Keep
STUDY_TIME	(0008,0030)	Round10min
SERIES_TIME	(0008,0031)	Round10min
ACQUISITION_TIME	(0008,0032)	Keep
CONTENT_TIME	(0008,0033)	Keep
ACCESSION_NUMBER	(0008,0050)	Hash
INSTITUTION_NAME	(0008,0080)	Hash
INSTITUTION_ADDRESS	(0008,0081)	Remove
INSTITUTION_CODE_SEQUENCE	(0008,0082)	Remove
REFERRING_PHYSICIANS_NAME	(0008,0090)	Hash
REFERRING_PHYSICIANS_ADDRESS	(0008,0090)	Remove
REFERRING_PHYSICIANS_TELEPHONE_NUMBERS	(0008,0094)	Remove
REFERRING_PHYSICIAN_IDENTIFICATION_SEQUENCE	(0008,1052)	Remove
CODE_MEANING	(0008,0104)	Remove
STATION_NAME	(0008,1010)	Hash
STUDY_DESCRIPTION	(0008,1030)	Keep
SERIES_DESCRIPTION	(0008,103e)	Keep
INSTITUTIONAL_DEPARTMENT_NAME	(0008,1040)	Hash
PHYSICIANS_OF_RECORD	(0008,1048)	Remove

PHYSICIANS_OF_RECORD_IDENTIFICATION_SEQUENCE	(0008,1049)	Remove
PERFORMING_PHYSICIANS_NAME	(0008,1050)	Hash
PERFORMING_PHYSICIAN_IDENTIFICATION_SEQUENCE	(0008,1052)	Remove
NAME_OF_PHYSICIANS_READING_STUDY	(0008,1060)	Hash
PHYSICIANS_READING_STUDY_IDENTIFICATION_SEQUENCE	(0008,1062)	Remove
OPERATORS_NAME	(0008,1070)	Hash
OPERATOR_IDENTIFICATION_SEQUENCE	(0008,1072)	Remove
ADMITTING_DIAGNOSES_DESCRIPTION	(0008,1080)	Remove
REFERENCED_STUDY_SEQUENCE	(0008,1110)	Keep
REFERENCED_PATIENT_SEQUENCE	(0008,1120)	Keep
REFERENCED_SOP_INSTANCE_UID	(0008,1155)	Keep
DERIVATION_DESCRIPTION	(0008,2111)	Remove
IDENTIFYING_COMMENTS	(0008,4000)	Remove
PATIENTS_NAME	(0010,0010)	Hash
PATIENT_ID	(0010,0020)	Hash
ISSUER_OF_PATIENT_ID	(0010,0021)	Remove
PATIENTS_BIRTH_DATE	(0010,0030)	89+yyyy0101
PATIENTS_BIRTH_TIME	(0010,0032)	Round10min
PATIENTS_SEX	(0010,0040)	Gender
PATIENTS_INSURANCE_PLAN_CODE_SEQUENCE	(0010,0050)	Keep
OTHER_PATIENT_IDS	(0010,1000)	Remove
OTHER_PATIENT_NAMES	(0010,1001)	Remove
OTHER_PATIENT_IDS_SEQUENCE	(0010,1002)	Remove
PATIENTS_BIRTH_NAME	(0010,1005)	Remove
PATIENTS_AGE	(0010,1010)	89+yyyy0101
PATIENTS_SIZE	(0010,1020)	round
PATIENTS_WEIGHT	(0010,1030)	round
PATIENTS_ADDRESS	(0010,1040)	Remove
PATIENTS_MOTHERS_BIRTH_NAME	(0010,1060)	Remove
MILITARY_RANK	(0010,1080)	Remove
BRANCH_OF_SERVICE	(0010,1081)	Remove

MEDICAL_RECORD_LOCATOR	(0010,1090)	Remove
MEDICAL_ALERTS	(0010,2000)	Keep
CONTRAST_ALLERGIES	(0010,2110)	Keep
COUNTRY_OF_RESIDENCE	(0010,2150)	Remove
REGION_OF_RESIDENCE	(0010,2152)	Remove
PATIENTS_TELEPHONE_NUMBERS	(0010,2154)	Remove
ETHNIC_GROUP	(0010,2160)	Remove
OCCUPATION	(0010,2180)	Remove
SMOKING_STATUS	(0010,21A0)	Keep
ADDITIONAL_PATIENTS_HISTORY	(0010,21b0)	Remove
PREGNANCY_STATUS	(0010,21C0)	Keep
LAST_MENSTRUAL_DATE	(0010,21D0)	Remove
PATIENTS_RELIGIOUS_PREFERENCE	(0010,21F0)	Remove
RESPONSIBLE_PERSON	(0010,2297)	Remove
RESPONSIBLE_PERSON_ROLE	(0010,2298)	empty
RESPONSIBLE_ORGANIZATION	(0010,2299)	Remove
PATIENT_COMMENTS	(0010,4000)	Keep
CLINICAL_TRIAL_SPONSOR_NAME	(0012,0010)	Remove
CLINICAL_TRIAL_PROTOCOL_ID	(0012,0020)	Remove
CLINICAL_TRIAL_PROTOCOL_NAME	(0012,0021)	Remove
CLINICAL_TRIAL_SITE_ID	(0012,0030)	Remove
CLINICAL_TRIAL_SITE_NAME	(0012,0031)	Remove
CLINICAL_TRIAL_SUBJECT_ID	(0012,0040)	Remove
CLINICAL_TRIAL_SUBJECT_READING_ID	(0012,0042)	Remove
CLINICAL_TRIAL_TIME_POINT_ID	(0012,0050)	Remove
CLINICAL_TRIAL_TIME_POINT_DESCRIPTION	(0012,0051)	Remove
CLINICAL_TRIAL_COORDINATING_CENTER_NAME	(0012,0060)	Remove
CLINICAL_TRIAL_SERIES_ID	(0012,0071)	Remove
CLINICAL_TRIAL_SERIES_DESCRIPTION	(0012,0072)	Remove
CONTRAST_BOLUS_AGENT	(0018,0010)	Keep
SCAN_OPTIONS	(0018,0022)	Keep

SLICE_THICKNESS	(0018,0050)	Keep
KVP	(0018,0060)	Keep
DEVICE_SERIAL_NUMBER	(0018,1000)	Remove
DATE_OF_SECONDARY_CAPTURE	(0018,1012)	Keep
PROTOCOL_NAME	(0018,1030)	Keep
CONTRAST_BOLUS_ROUTE	(0018,1040)	Keep
CONTRAST_BOLUS_START_TIME	(0018,1042)	Keep
RADIOPHARMACEUTICAL_START_DATE_TIME	(0018,1078)	Keep
RADIOPHARMACEUTICAL_STOP_DATE_TIME	(0018,1079)	Keep
RECONSTRUCTION_DIAMETER	(0018,1100)	Keep
GANTRY_DETECTOR_TILT	(0018,1120)	Keep
TABLE_HEIGHT	(0018,1130)	Keep
EXPOSURE_TIME	(0018,1150)	Keep
X_RAY_TUBE_CURRENT	(0018,1151)	Keep
EXPOSURE	(0018,1152)	Keep
FILTER_TYPE	(0018,1160)	Keep
GENERATOR_POWER	(0018,1170)	Keep
FOCAL_SPOTS	(0018,1190)	Keep
DATE_OF_LAST_CALIBRATION	(0018,1200)	Remove
CONVOLUTION_KERNEL	(0018,1210)	Keep
ACQUISITION_COMMENTS	(0018,4000)	Keep
DATE_OF_LAST_DETECTOR_CALIBRATION	(0018,700C)	Remove
FRAME_ACQUISITION_DATETIME	(0018,9074)	Keep
FRAME_REFERENCE_DATETIME	(0018,9151)	Keep
REVOLUTION_TIME	(0018,9305)	Keep
SINGLE_COLLIMATION_WIDTH	(0018,9306)	Keep
TOTAL_COLLIMATION_WIDTH	(0018,9307)	Keep
TABLE_SPEED	(0018,9309)	Keep
TABLE_FEED_PER_ROTATION	(0018,9310)	Keep
SPIRAL_PITCH_FACTOR	(0018,9311)	Keep
EXPOSURE_MODULATION_TYPE	(0018,9323)	Keep

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CTDIVOL	(0018,9345)	Keep
START_ACQUISITION_DATETIME	(0018,9516)	Keep
END_ACQUISITION_DATETIME	(0018,9517)	Keep
CONTRIBUTION_DATE_TIME	(0018,A002)	Keep
STUDY_INSTANCE_UID	(0020,000D)	Keep
SERIES_INSTANCE_UID	(0020,000E)	Keep
STUDY_ID	(0020,0010)	Keep
PATIENT_ORIENTATION	(0020,0020)	Keep
IMAGE_POSITION_PATIENT	(0020,0032)	Keep
IMAGE_ORIENTATION_PATIENT	(0020,0037)	Keep
FRAME_OF_REFERENCE_UID	(0020,0052)	Keep
SYNCHRONIZATION_FRAME_OF_REFERENCE_UID	(0020,0200)	Keep
SLICE_LOCATION	(0020,1041)	Keep
MODIFIED_IMAGE_DATE	(0020,3403)	Remove
IMAGE_COMMENTS	(0020,4000)	Keep
FRAME_COMMMENTS	(0020,9158)	Keep
PIXEL_SPACING	(0028,0030)	Keep
WINDOW_CENTER	(0028,1050)	Keep
WINDOW_WIDTH	(0028,1051)	Keep
IMAGE_PRESENTATION_COMMENTS	(0028,4000)	Remove
STUDY_VERIFIED_DATE	(0032,0032)	Remove
STUDY_READ_DATE	(0032,0034)	Remove
SCHEDULED_STUDY_START_DATE	(0032,1000)	Remove
SCHEDULED_STUDY_STOP_DATE	(0032,1010)	Remove
REQUESTING_PHYSICIAN_IDENTIFICATION_SEQUENCE	(0032,1031)	Remove
REQUESTING_PHYSICIAN	(0032,1032)	Hash
REQUESTING_SERVICE	(0032,1033)	Remove
REQUESTING_SERVICE_CODE_SEQUENCE	(0032,1034)	Remove
STUDY_ARRIVAL_DATE	(0032,1040)	Remove
STUDY_COMPLETION_DATE	(0032,1050)	Remove
REQUESTED_PROCEDURE_DESCRIPTION	(0032,1060)	Keep

REQUESTED_PROCEDURE_CODE_SEQUENCE	(0032,1064)	Remove
STUDY_COMMENTS	(0032,4000)	Keep
REFERENCED_PATIENT_ALIAS_SEQUENCE	(0038,0004)	Remove
VISIT_STATUS_ID	(0038,0008)	Remove
ADMISSION_ID	(0038,0010)	Remove
ISSUER_OF_ADMISSION_ID	(0038,0011)	Remove
ISSUER_OF_ADMISSION_ID_SEQUENCE	(0038,0014)	Remove
ROUTE_OF_ADMISSIONS	(0038,0016)	Remove
SCHEDULED_ADMISSION_DATE	(0038,001A)	89+yyyy0101
SCHEDULED_ADMISSION_TIME	(0038,001B)	Remove
SCHEDULED_DISCHARGE_DATE	(0038,001C)	89+yyyy0101
SCHEDULED_DISCHARGE_TIME	(0038,001D)	Remove
SCHEDULED_PATIENT_INSTITUTION_RESIDENCE	(0038,001E)	Remove
ADMITTING_DATE	(0038,0020)	Remove
ADMITTING_TIME	(0038,0021)	Remove
DISCHARGE_DATE	(0038,0030)	Remove
DISCHARGE_TIME	(0038,0032)	Remove
DISCHARGE_DIAGNOSIS_DESCRIPTION	(0038,0040)	Remove
DISCHARGE_DIAGNOSIS_CODE_SEQUENCE	(0038,0044)	Remove
SPECIAL_NEEDS	(0038,0050)	Remove
SERVICE_EPISODE_ID	(0038,0060)	Remove
SERVICE_EPISODE_DESCRIPTION	(0038,0062)	Remove
CURRENT_PATIENT_LOCATION	(0038,0300)	Remove
PATIENTS_INSTITUTION_RESIDENCE	(0038,0400)	Remove
PATIENT_STATE	(0038,0500)	Keep
PATIENT_CLINICAL_TRIAL_PARTICIPATION_SEQUENCE	(0038,0502)	Remove
VISIT_COMMENTS	(0038,4000)	Remove
SCHEDULED_PROCEDURE_STEP_START_DATE	(0040,0002)	Remove
SCHEDULED_PROCEDURE_STEP_END_DATE	(0040,0004)	Remove
SCHEDULED_PERFORMING_PHYSICIANS_NAME	(0040,0006)	Hash
SCHEDULED_PROCEDURE_STEP_DESCRIPTION	(0040,0007)	Keep

SCHEDULED_PERFORMING_PHYSICIAN_IDENTIFICATION_SEQUENCE	(0040,000B)	Remove
SCHEDULED_STATION_NAME	(0040,0010)	Empty
SCHEDULED_PROCEDURE_STEP_SEQUENCE	(0040,0100)	Remove
PERFORMED_STATION_AE_TITLE	(0040,0241)	Empty
PERFORMED_STATION_NAME	(0040,0242)	Empty
PERFORMED_LOCATION	(0040,0243)	Empty
PERFORMED_PROCEDURE_STEP_START_DATE	(0040,0244)	Remove
PERFORMED_PROCEDURE_STEP_START_TIME	(0040,0245)	Remove
PERFORMED_PROCEDURE_STEP_END_DATE	(0040,0250)	Remove
PERFORMED_PROCEDURE_STEP_END_TIME	(0040,0251)	Remove
PERFORMED_PROCEDURE_STEP_ID	(0040,0253)	Remove
PERFORMED_PROCEDURE_STEP_DESCRIPTION	(0040,0254)	Keep
REQUEST_ATTRIBUTES_SEQUENCE	(0040,0275)	Remove
COMMENTS_ON_THE_PERFORMED_PROCEDURE_STEPS	(0040,0280)	Keep
COMMENTS_ON_RADIATION_DOSE	(0040,0310)	Keep
COMMENTS_ON_THE_SCHEDULED_PROCEDURE_STEP	(0040,0400)	Keep
REQUESTED_PROCEDURE_ID	(0040,1001)	Keep
NAMES_OF_INTENDED_RECIPIENTS_OF_RESULTS	(0040,1010)	Hash
INTENDED_RECIPIENTS_OF_RESULTS_IDENTIFICATION_SEQUENCE	(0040,1011)	Remove
PERSON_IDENTIFICATION_CODE_SEQUENCE	(0040,1101)	Remove
PERSONS_ADDRESS	(0040,1102)	Empty
PERSONS_TELEPHONE_NUMBERS	(0040,1103)	Empty
REQUESTED_PROCEDURE_COMMENTS	(0040,1400)	Keep
ISSUE_DATE_OF_IMAGING_SERVICE_REQUEST	(0040,2004)	Remove
ORDER_ENTERED_BY	(0040,2008)	Remove
ORDER_ENTERERS_LOCATION	(0040,2009)	Empty
ORDER_CALLBACK_PHONE_NUMBER	(0040,2010)	Empty
IMAGING_SERVICE_REQUEST_COMMENTS	(0040,2400)	Keep
SCHEDULED_PROCEDURE_STEP_START_DATE_AND_TIME	(0040,4005)	Remove
SCHEDULED_PROCEDURE_STEP_MODIFICATION_DATE_AND_TIME	(0040,4010)	Remove
EXPECTED_COMPLETION_DATE_AND_TIME	(0040,4011)	Remove

HUMAN_PERFORMERS_NAME	(0040,4037)	Remove
VERIFICATION_DATE_TIME	(0040,A030)	Remove
OBSERVATION_DATE_TIME	(0040,A032)	Remove
VERIFYING_OBSERVER_NAME	(0040,A075)	Remove
PARTICIPATION_DATETIME	(0040,A082)	Remove
DATE_TIME	(0040,A120)	89+yyyy0101
DATE	(0040,A121)	89+yyyy0101
PERSON_NAME	(0040,A123)	Remove
UID	(0040,A124)	Keep
REFERENCED_DATETIME	(0040,A13A)	89+yyyy0101
CONCEPT_SEQUENCE	(0040,a730)	Remove
TEMPLATE_VERSION	(0040,DB06)	Remove
TEMPLATE_LOCAL_VERSION	(0040,DB07)	Remove
HL7_DOCUMENT_EFFECTIVE_TIME	(0040,E004)	Remove
APPROVAL_STATUS_DATETIME	(0044,0004)	89+yyyy0101
PRODUCT_EXPIRATION_DATETIME	(0044,000B)	89+yyyy0101
SUBSTANCE_ADMINISTRATION_DATETIME	(0044,0010)	89+yyyy0101
PRESENTATION_CREATION_DATE	(0070,0082)	89+yyyy0101
HANGING_PROTOCOL_CREATION_DATETIME	(0072,000A)	89+yyyy0101
SELECTOR_PN_VALUE	(0072,006A)	Remove
STORAGE_MEDIA_FILE_SET_UID	(0088,0140)	Remove
ELSCINT1_PATIENT_AGE_STRING	(00E1,0002)	Keep
ELSCINT1_ACS	(00E1,0036)	Keep
ELSCINT1_IMAGE_LABEL	(00E1,0040)	Keep
ELSCINT1_APEX_EDGE_CORRECTION	(00E1,0045)	Keep
ELSCINT1_ACQUISITION_DURATION	(00E1,0050)	Keep
ELSCINT1_PEDIATRIC	(00E1,0060)	Keep
ELSCINT1_PROTOCOL_FILE_NAME	(00E1,0061)	Keep
SOP_AUTHORIZATION_DATE_AND_TIME	(0100,0420)	Remove
ELSCINTCT_ECG_HR	(01E1,001F)	Keep
ELSCINTCT_ECG_TRIGGER_DELAY	(01E1,0020)	Keep

ELSCINTCT_ECG_DOSE_MODULATION	(01E1,0023)	Keep
ELSCINTCT_CT_ACQUISITION_TYPE	(01F1,0001)	Keep
ELSCINTCT_FOCAL_SPOT_RESOLUTION	(01F1,0002)	Keep
ELSCINTCT_ANGULAR_SAMPLING_DENSITY	(01F1,0004)	Keep
ELSCINTCT_RECONSTRUCTION_ARC	(01F1,0005)	Keep
ELSCINTCT_TABLE_VELOCITY	(01F1,0007)	Keep
ELSCINTCT_ACQUISITION_LENGTH	(01F1,0008)	Keep
ELSCINTCT_EDGE_ENHANCEMENT_WEIGHT	(01F1,000A)	Keep
ELSCINTCT_SCANNER_RELATIVE_CENTER	(01F1,000C)	Keep
ELSCINTCT_ROTATION_ANGLE	(01F1,000D)	Keep
ELSCINTCT_RECON_ENHANCEMENT_FACTOR	(01F1,000E)	Keep
ELSCINTCT_SCAN_DIRECTION	(01F1,000F)	Keep
ELSCINTCT_PITCH	(01F1,0026)	Keep
ELSCINTCT_ROTATION_TIME	(01F1,0027)	Keep
ELSCINTCT_TABLE_INCREMENT	(01F1,0028)	Keep
ELSCINTCT_PARTIAL_RECON	(01F1,0031)	Keep
ELSCINTCT_IMAGE_VIEW_CONV	(01F1,0032)	Keep
ELSCINTCT_CYCLE_TIME	(01F1,0033)	Keep
ELSCINTCT_INJECTION_MODE	(01F1,0036)	Keep
ELSCINTCT_TRIGGER_DELAY	(01F1,0037)	Keep
ELSCINTCT_TRIGGER_TYPE	(01F1,0038)	Keep
ELSCINTCT_GATING	(01F1,0039)	Keep
ELSCINTCT_ORIGINAL_SCAN_TYPE	(01F1,0040)	Keep
ELSCINTCT_GATING_DELAY	(01F1,0041)	Keep
ELSCINTCT_ULTRA_IMAGE	(01F1,0042)	Keep
ELSCINTCT_CONTRAST_AGENT	(01F1,0043)	Keep
ELSCINTCT_HEART_RATE	(01F1,0045)	Keep
ELSCINTCT_COLLIMATION	(01F1,0046)	Keep
ELSCINTCT_3DBP	(01F1,0047)	Keep
ELSCINTCT_CARDIAC_STUDY	(01F1,0048)	Keep
ELSCINTCT_PLANNED_MAS	(01F1,0049)	Keep

ELSCINTCT_DOSE_MODULATION	(01F1,004A)	Keep
ELSCINTCT_THICKNESS	(01F1,004B)	Keep
ELSCINTCT_DOSE_RIGHT	(01F1,004C)	Keep
ELSCINTCT_ADAPTIVE_FILTER	(01F1,004D)	Keep
ELSCINTCT_SCAN_TYPE	(01F1,004E)	Keep
ELSCINTCT_AVG_PATIENT_SIZE_CM	(01F1,0056)	Keep
ELSCINTCT_IDOSE_LEVEL	(01F7,009B)	Keep
ELSCINTCT_HEAD_BODY	(01F7,00D4)	Keep
DIGITAL_SIGNATURE_DATETIME	(0400,0105)	Remove
ATTRIBUTE_MODIFICATION_DATETIME	(0400,0562)	Remove
CREATION_DATE	Creation Date	Remove
STRUCTURE_SET_DATE	(3006,0008)	Remove
REFERENCED_FRAME_OF_REFERENCE_UID	(3006,0024)	Keep
ROI_INTERPRETER	(3006,00A6)	Remove
RELATED_FRAME_OF_REFERENCE_UID	(3006,00C2)	Keep
TREATMENT_CONTROL_POINT_DATE	(3008,0024)	Remove
FIRST_TREATMENT_DATE	(3008,0054)	Remove
MOST_RECENT_TREATMENT_DATE	(3008,0056)	Remove
SAFE_POSITION_EXIT_DATE	(3008,0162)	Remove
SAFE_POSITION_RETURN_DATE	(3008,0166)	Remove
TREATMENT_STATUS_COMMENT	(3008,0202)	Remove
TREATMENT_DATE	(3008,0250)	Remove
RT_PLAN_DATE	(300A,0006)	Remove
SOURCE_STRENGTH_REFERENCE_DATE	(300A,022C)	Remove
SETUP_IMAGE_COMMENT	(300A,0402)	Remove
REVIEW_DATE	(300E,0004)	Remove
REVIEWER_NAME	(300E,0008)	Remove
INTERPRETATION_RECORDED_DATE	(4008,0100)	Remove
INTERPRETATION_RECORDER	(4008,0102)	Remove
INTERPRETATION_TRANSCRIPTION_DATE	(4008,0108)	Remove
INTERPRETATION_TRANSCRIBER	(4008,010A)	Remove

INTERPRETATION_AUTHOR	(4008,010C)	Remove
INTERPRETATION_APPROVAL_DATE	(4008,0112)	Remove
PHYSICIAN_APPROVING_INTERPRETATION	(4008,0114)	Remove
DISTRIBUTION_NAME	(4008,0119)	Remove
RESULTS_COMMENTS	(4008,4000)	Remove
OVERLAY_COMMENTS	(60xx,4000)	Remove

Note: *Private DICOM attributes are defined freely by the creator of a DICOM object and may contain individually identifiable personal data. Private DICOM Attributes are neither modified nor deleted during the de-identification process on Philips IntelliSpace Portal*.

7.1.6. Network Address Management Profiles

Not applicable.

7.1.7. Time Synchronization Profiles

Philips IntelliSpace Portal conforms to the IHE CT Profile. It is possible to synchronize time with the NTP Timeserver using serviceability. The NTP Timeserver is an element of Hospital Infrastructure.

7.1.8. Application Configuration Management Profiles

Not applicable.

7.1.9. Audit Trail Profiles

The Audit Trail Component is a component of Philips IntelliSpace Portal and can create messages according to the ATNA, IHE defined standard. Actors are information systems or components of information systems that produce, manage, or act on categories of information required by operational activities in the enterprise. The Audit Trail Component allows security officers in an institution to audit activities, to detect non-compliant behavior in the enterprise, and to facilitate detection of improper creation, access, modification and deletion of Protected Health Information (PHI), where PHI data is considered as information records (Registration, Order, Study/Procedure, Reports and to a lesser degree Images/Presentation States), and not the flow of information between the systems. This includes information exported to and imported from every secured node in the "secured domain".

The messages will be created and sent to a syslog server according to the syslog protocol. The time that is used will be the local time of the system which is synchronized with the NTP Time Server. The timeserver and syslog server are elements of the Hospital infrastructure. The following messages will be created and sent to a central Audit Record Repository

- Actor-start-stop / Application Activity
- Audit-Log-Used
- Begin-storing-instances / Begin Transferring DICOM Instances
- Instances-deleted / DICOM Instances Accessed / DICOM Study Deleted
- Instances-Stored / DICOM Instances Transferred
- Node-Authentication-failure / Security Alert
- PHI-export / Export
- PHI-import / Import
- Query Information / Query
- Security Alert
- User Authentication
- Study-Object-Event / DICOM Instances Accessed
- Study-used / DICOM Instances Accessed

7.2. Association Level Security

Not applicable.

7.3. Application Level Security

System access is restricted by user accounts and requires a logon (username and password).

8. Clinical Applications

Following are the list of clinical applications available in Philips IntelliSpace Portal V12:

- CT Applications on Philips IntelliSpace Portal V12
- MR Applications on Philips IntelliSpace Portal V12
- Multi-Modality Applications on Philips IntelliSpace Portal V12
- IntelliSpace Collaboration Viewer on Philips IntelliSpace Portal V12
- NM Applications on Philips IntelliSpace Portal V12
- US Applications on Philips IntelliSpace Portal V12
- 3D Modeling Applications on Philips IntelliSpace Portal V12