DICOM

Conformance Statement

EBW NM V1.0

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PHILIPS

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1. DICOM CONFORMANCE STATEMENT OVERVIEW

This Conformance Statement refers to the Brilliance™ Workspace, Philips user environment for CT/NM/PET visualization. All Brilliance Workspace users enjoy the same easy to use interface and access to advanced applications. This version of the DICOM Conformance Statement applies to Extended Brilliance Workspace (EBW) workstation, versions 4.x.

The Extended Brilliance Workspace (EBW) workstation 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.

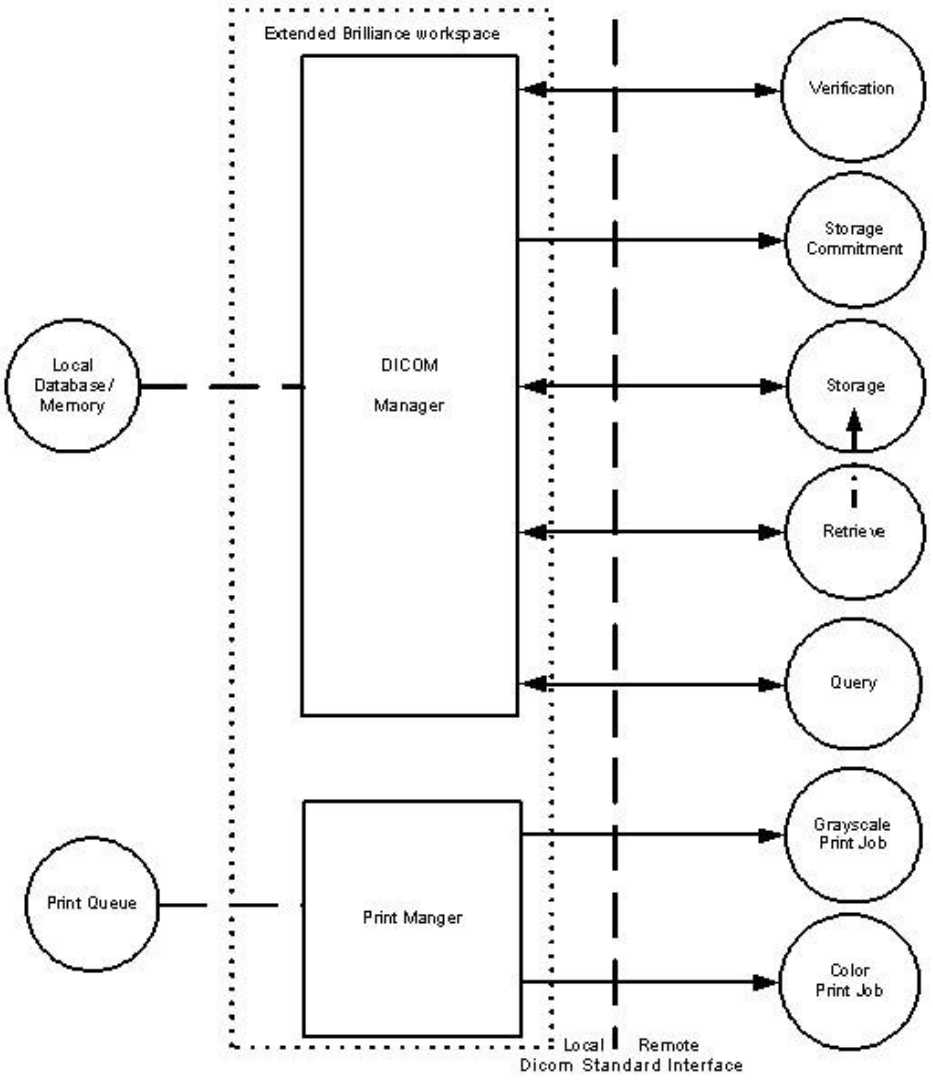

Figure 1: Extended Brilliance Workspace in a DICOM Network

The following Table presents an overview of all network services and the applicable SOP Classes as provided by the Extended Brilliance Workspace (EBW) workstation.

Table 1: Network Services

SOP Class		User of Service (SCU)	Provider of Service (SCP)
Name	**UID**		
Other			
Verification SOP Class	1.2.840.10008.1.1	Yes	Yes
Print Management			
Basic 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
Query/Retrieve			
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
Transfer			
Blending Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.4	Yes	Yes
Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.2	Yes	Yes
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	Yes	Yes
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	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
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 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
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
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	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 Single Bit Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.1	Yes	Yes

SOP Class		User of Service (SCU)	Provider of Service (SCP)
Name	**UID**		
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	Yes
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	Yes	Yes
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	Yes	Yes
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	Yes	Yes
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	Yes	Yes
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	Yes	Yes
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	Yes	Yes
RT Plan Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.5	Yes	Yes
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	Yes	Yes
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Yes	Yes
Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Yes	Yes
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	Yes	Yes
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes
Workflow Management			
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Yes	No

Notes: Normally the system (SCU) requests only supported DICOM objects. All SOP Classes support as default Transfer Syntaxes ILE. All other transfer Syntaxes are configurable in LAN Config.

In the next table all the supported Network Services which can be blocked by the Blocking Filter are shown.

Table 2: Supported Network Services which can be blocked by the Blocking Filter

SOP Class	SOP Class UID	Description	SCU	SCP
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	RAW	Yes	No
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Encapsulated PDF	Yes	No
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	NM Original	Yes	No
		NM Derived	Yes	No
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	ECG Wave	Yes	No
Multi-frame Grayscale Word SC Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Grayscale Word MFSC	Yes	No
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	CT Original	Yes	No
		CT Derived	Yes	No
		Surview with Executed Lines (ES)	Yes	No
		Surview with Plan (PS)	Yes	No
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	MR Original	Yes	No
		MR Derived	Yes	No
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Key Image Selection	Yes	No
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	Color Softcopy PS	Yes	No

SOP Class	SOP Class UID	Description	SCU	SCP
Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4	Blending Softcopy PS	Yes	No
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Secondary Capture	Yes	No
		Tissue	Yes	No
		Pulmo Wave	Yes	No
		Surview with Executed Lines (ES) as SC	Yes	No
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Spatial Registration	Yes	No
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	RT Dose	Yes	No
Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Grayscale Softcopy PS	Yes	No
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Single Bit MFSC	Yes	No
Multi-frame Grayscale Byte SC Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Grayscale Byte MFSC	Yes	No
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	True Color MFSC	Yes	No
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	PET Original	Yes	No
		PET Derived	Yes	No
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	Pseudo Color Softcopy PS	Yes	No

Notes:
- The possibility to block objects based on photometric interpretation = RGB is also provided (option "Color Images").
- The option to block all objects listed above is also provided.

Below, a table of Supported Media Storage Application Profiles (with roles) is provided.

After data is written to DVD, the DVD is finalized; the finalized DVD can now be read on mostly every DVD reader. Currently the EBW supports:
- FSC service for CD-R, CD-RW, DVD + R, DVD - R, DVD + RW, DVD - RW media
- FSR service for CD-R, CD-RW, DVD + R, DVD - R, DVD + RW, DVD - RW media

Table 3: Media Services

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

2. TABLE OF CONTENTS

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	Author	Description
00	03-June-2009	IOCC	Initial version
01	28- October-2009	IOCC	Revised based on the feedback from Product group. Changes to NM IOD section.
02	2-December-2009	IOCC	Attribute 1001,1012 moved from table 251 to 289

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
ANSI	American National Standard Institute
AP	Application Profile
BOT	Basic Offset Table
CD	Compact Disc
CD-R	CD-Recordable
CD-M	CD-Medical
CR	Computed Radiography
CT	Computed Tomography
DCR	Dynamic Cardio Review
DICOM	Digital Imaging and Communications in Medicine
DIMSE	DICOM Message Service Element
DIMSE-C	DIMSE-Composite
DIMSE-N	DIMSE-Normalized
DX	Digital X-Ray
EBE	DICOM Explicit VR Big Endian
ELE	DICOM Explicit VR Little Endian
FSC	File-set Creator
FSR	File-set Reader
FSU	File-set Updater
GUI	Graphic User Interface
HIS	Hospital Information System
HL7	Health Level Seven
ILE	DICOM Implicit VR Little Endian
IOD	Information Object Definition
ISIS	Information System - Imaging System
MOD	Magneto-Optical Disk

Abbreviation/Term	Explanation
MPPS	Modality Performed Procedure Step
MR	Magnetic Resonance
NEMA	National Electrical Manufacturers Association
NM	Nuclear Medicine
PDU	Protocol Data Unit
RF	X-Ray Radiofluoroscopic
RIS	Radiology Information System
RT	Radiotherapy
RWA	Real-World Activity
SC	Secondary Capture
SCM	Study Component Management
SCP	Service Class Provider
SCU	Service Class User
SOP	Service Object Pair
TCP/IP	Transmission Control Protocol/Internet Protocol
UID	Unique Identifier
US	Ultrasound
USMF	Ultrasound Multi-frame
WLM	Worklist Management
XA	X-Ray Angiographic

3.5. References

[DICOM] Digital Imaging and Communications in Medicine, Part 1 - 18 (NEMA PS 3.1- PS 3.18),
National Electrical Manufacturers Association (NEMA)
Publication Sales 1300 N. 17th Street, Suite 1752
Rosslyn, Virginia. 22209, United States of America
Internet: http://medical.nema.org/
Note that at any point in time the official standard consists of the most recent yearly edition of the base standard (currently 2008) plus all the supplements and correction items that have been approved as Final Text.

4. NETWORKING

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

4.1. Implementation model

The implementation model consists of three sections:

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

4.1.1. Application Data Flow

The Extended Brilliance Workspace (EBW) system implements and provides DICOM services using the following Application Entities:
- DICOM-Manager
- Print-Manager

The EBW workstation system consists of two Application Entities. The following figure shows the Networking application data flow as a functional overview of the EBW workstation. As depicted in the Figure, the EBW workstation incorporates the following functionality.

- After RWA Request Verification, the EBW workstation as SCP provides standard Verification Service Class functionality to the requesting SCU.

- After RWA Import Images, the EBW workstation as SCP provides standard Storage Service Class functionality to the requesting SCU.

- After RWA Query Local Images/Retrieve Local Images, the EBW workstation 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 EBW workstation 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 EBW workstation as SCU uses the remote SCP Query/Retrieve Service Class functionality to query remote images.

- After operator RWA Move Remote Images, the EBW workstation as SCU uses the remote SCP Query/Retrieve Service Class functionality to retrieve remote images.

- After operator RWA Request Storage Commitment, the EBW workstation as SCU uses the remote SCP Storage Commitment Service Class functionality to commit remote images.

- After operator RWA Print Images, the EBW workstation as SCU uses the remote Print Management Service Class to print local images.

- After operator RWA Request Printer Status, the EBW workstation as SCU uses the remote Print Management Service Class to request the printer status.

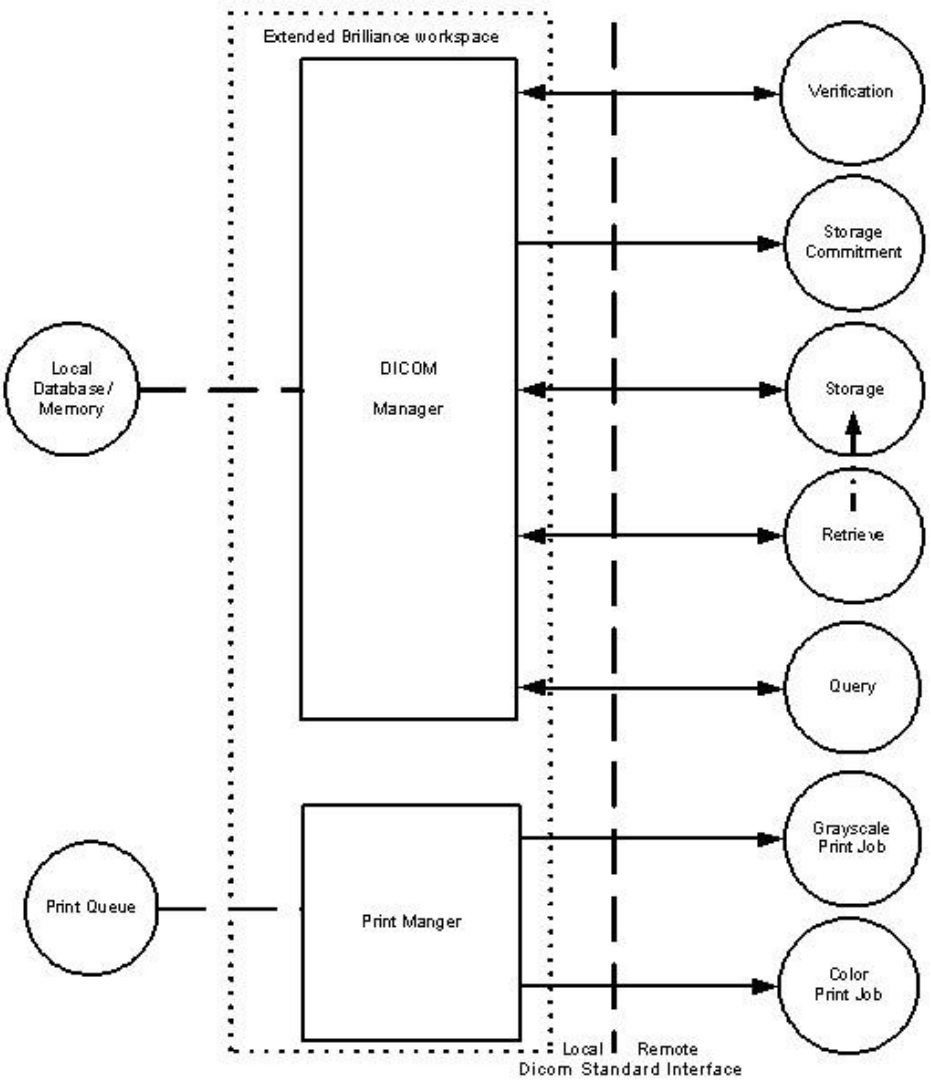

Figure 2: Network Application Data Flow Diagram

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 following figure shows the Network Application Data Flow Diagram of the DICOM Manager.

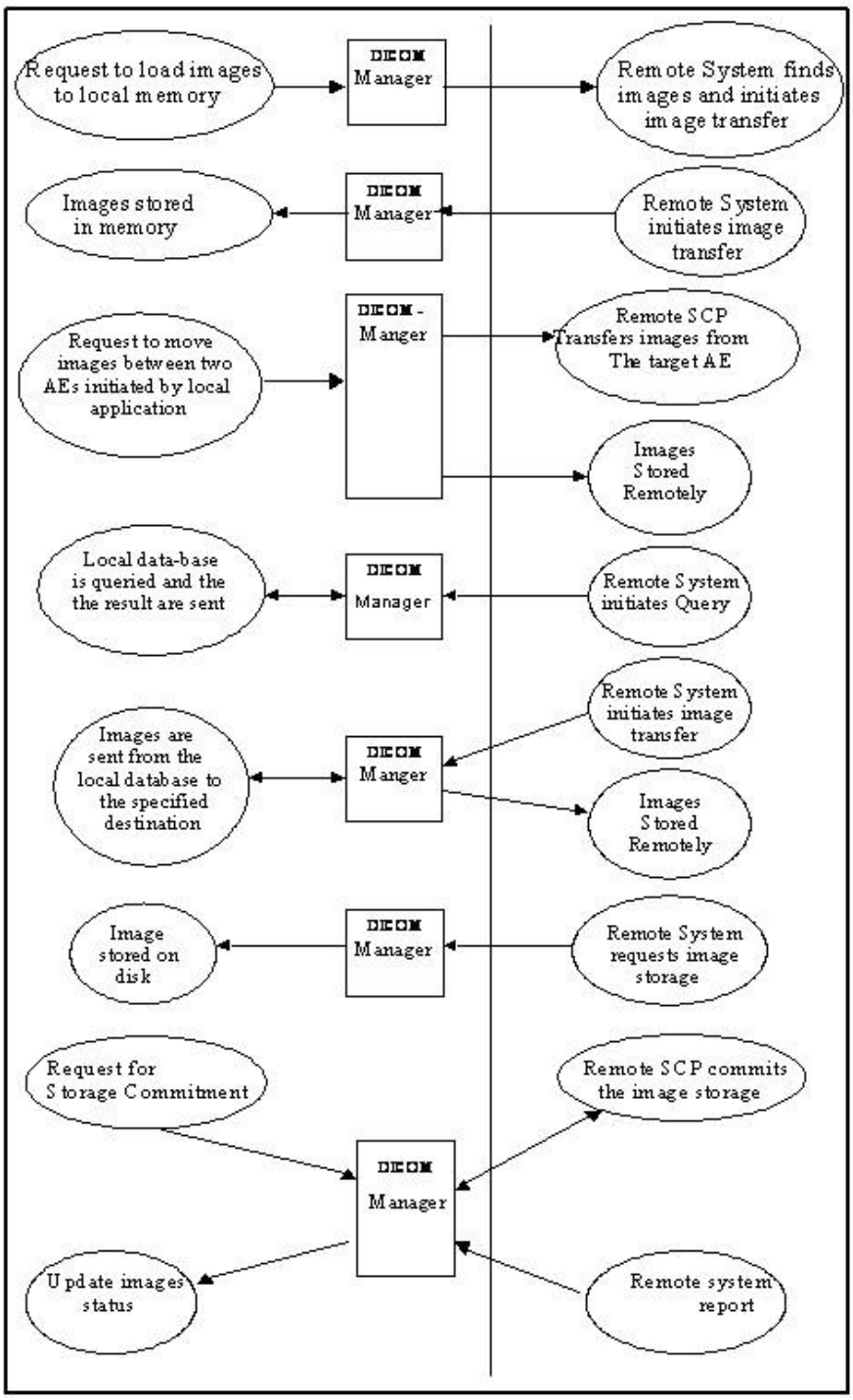

Figure 3: Network Application Data Flow Diagram of the DICOM Manager

The DICOM Manager includes the following service classes:

- The DICOM-Manager is responsible for loading images into memory.
- The DICOM- Manager gets requests from local image processing and display applications to load images to the memory. It performs these requests using the Query-Retrieve Service Class (C-MOVE only).
- The DICOM-Manager waits for another application to connect at the presentation address configured for its AE title. Memory-Server will accept associations

with Presentation Contexts for SOP classes of the Storage and Verification Service Classes. It will receive images on these Presentation Contexts and load them into the system's memory.

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 local MOD or different local hard disk folders.

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 push the 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 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 of the Storage, Query-Retrieve (C-MOVE and C-FIND only) and 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.

Import Service
- 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.

Export Service
- When an object is exported from the local database to an external device, the attributes will be preserved unless an Export Converter is applied.

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 predefined images using the DICOM protocol. The user can specify as a printing destination one of several predefined 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.

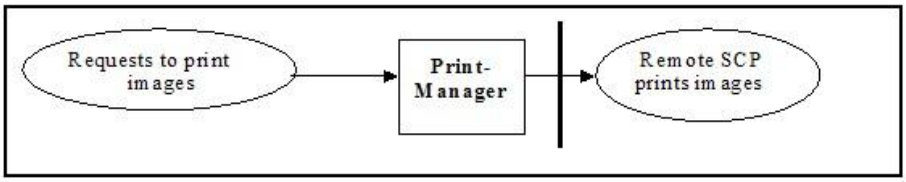

Figure 4: Network Application Data Flow Diagram of the Print Manager

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.

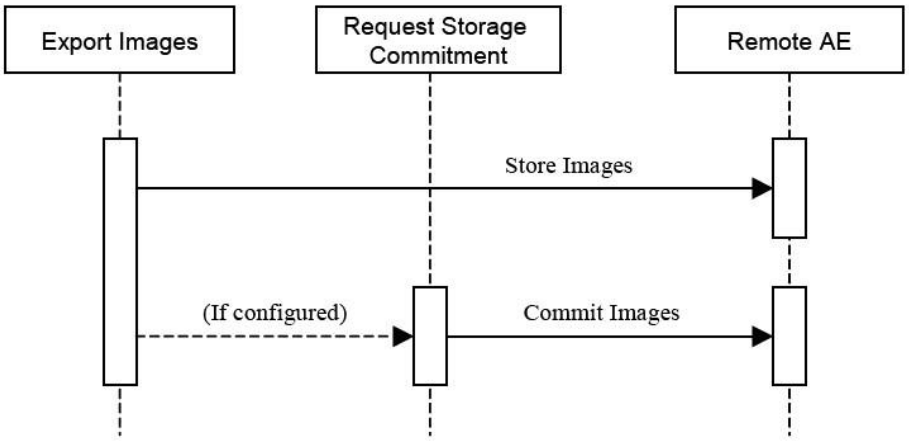

Figure 5: RWA Sequencing for Export Images

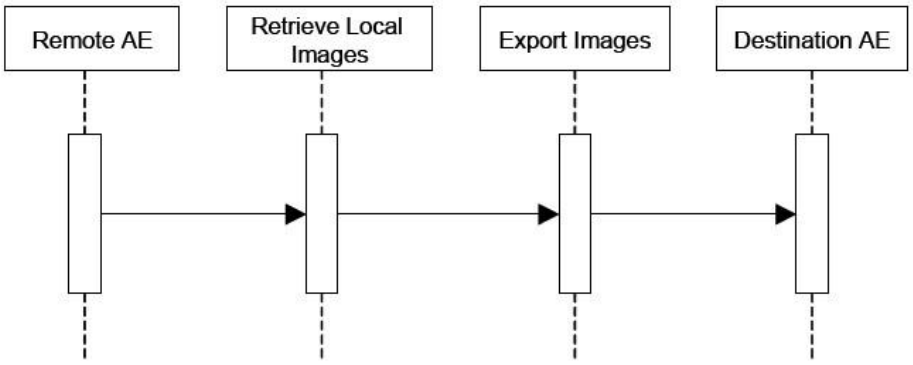

Figure 6: RWA Sequencing for Retrieve Local Images

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
Blending Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.4	Yes	Yes
Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.2	Yes	Yes
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	Yes	Yes
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	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
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 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
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
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	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 Single Bit Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.1	Yes	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	Yes
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	Yes	Yes
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	Yes	Yes
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	Yes	Yes
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	Yes	Yes
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	Yes	Yes
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	Yes	Yes
RT Plan Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.5	Yes	Yes
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	Yes	Yes
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Yes	Yes
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Yes	No
Study Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	Yes	Yes

SOP Class Name	SOP Class UID	SCU	SCP
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Yes	Yes
Verification SOP Class	1.2.840.10008.1.1	Yes	Yes
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	Yes	Yes
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes

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

The following SOP Classes are only supported for storage (not for viewing/processing):

Table 7: Network Services that are only supported for storage

SOP Class Name	SOP Class UID	SCU	SCP
RT Plan Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.5	Yes	Yes
RT Structure Set Storage SOP Class	12.840.10008.5.1.4.1.1.481.3	Yes	Yes
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	Yes	Yes
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	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
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	Yes	Yes
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 SOP Class	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
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	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 Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2	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

The next IODs (as configured in LAN Config by FSE) can be blocked with the Blocking Filter in EBW.

Table 8: Supported Network Services for DICOM Manager that can be blocked by the Blocking Filter

SOP Class Name	SOP Class UID	Description	SCU	SCP
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	RAW	Yes	No
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Encapsulated PDF	Yes	No
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	NM Original	Yes	No
		NM Derived	Yes	No
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	ECG Wave	Yes	No
Multi-frame Grayscale Word SC Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Grayscale Word MFSC	Yes	No
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	CT Original	Yes	No
		CT Derived	Yes	No

SOP Class Name	SOP Class UID	Description	SCU	SCP
		Surview with Executed Lines (ES)	Yes	No
		Surview with Plan (PS)	Yes	No
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	MR Original	Yes	No
		MR Derived	Yes	No
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Key Image Selection	Yes	No
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	Color Softcopy PS	Yes	No
Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4	Blending Softcopy PS	Yes	No
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Secondary Capture	Yes	No
		Tissue	Yes	No
		Pulmo Wave	Yes	No
		Surview with Executed Lines (ES) as SC	Yes	No
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Spatial Registration	Yes	No
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	RT Dose	Yes	No
Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Grayscale Softcopy PS	Yes	No
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.66.1	Single Bit MFSC	Yes	No
Multi-frame Grayscale Byte SC Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Grayscale Byte MFSC	Yes	No
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	True Color MFSC	Yes	No
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	PET Original	Yes	No
		PET Derived	Yes	No
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	Pseudo Color Softcopy PS	Yes	No

Notes:
- The possibility to block objects based on photometric interpretation = RGB is also provided (option "Color Images").
- The option to block all objects listed above is also provided.

4.2.1.2. Association Policies

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

Per configuration in LAN Config Tool, the system shall allow 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 LAN Config application. The system will not be IP or AE title sensitive.

4.2.1.2.1. General

The DICOM standard application context has specified.

Table 9: 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. As specified in the tables below, the number of simultaneous associations that will be accepted by DICOM Manager is limited to 50.

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

Description	Value
Maximum number of simultaneous associations	Unlimited

Table 11: 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 implementation supports negotiation of multiple outstanding transactions, along with the maximum number of outstanding transactions supported.

Table 12: 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 13: DICOM Implementation Class and Version for DICOM Manager

Implementation Class UID	1.3.46.670589.33.1.1
Implementation Version Name	BRCONN_4.0

4.2.1.2.5. Communication Failure Handling

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

Table 14: Communication Failure Behavior

Exception	Behavior	Comment
ARTIM Timeout	The system stops the ARTIM timer and closes the transport connection.	Configurable, minimum value=1.
Association Timeout	A release request is sent in order to close the association.	Configurable, minimum value=1.

4.2.1.3. Association Initiation Policy

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

Table 15: Association Rejection response

Result	Source	Reason/Diagnosis	Explanation
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 next table.

Table 16: 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 17: 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).

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

4.2.1.3.1.1. Description and Sequencing of Activities

DICOM Manager initiates an association when the user points to one of the icons in the devices tool-bar, clicks the right mouse button and selects "Verify Connection" operation. A DICOM ping (C-ECHO) is available from the EBW application UI.

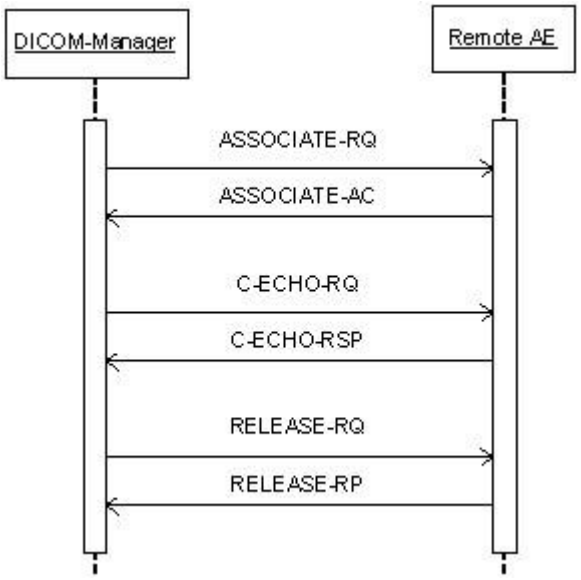

Figure 7: (Real World) Activity - Verification as SCU

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

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Verification SOP Class	1.2.840.10008.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		CT-private-ELE	1.3.46.670589.33.1.4.1		
		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. Configurable are all Transfer Syntaxes in LAN Config, in the order Private-ELE, JPEG, ELE, and ILE. JPEG has preference over ELE and ILE.

4.2.1.3.1.3. SOP Specific Conformance for Verification SOP Class

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.

4.2.1.3.1.3.1. Dataset Specific Conformance for Verification C-ECHO SCU

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

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

Table 19: Status Response

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

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

4.2.1.3.2.1. 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.

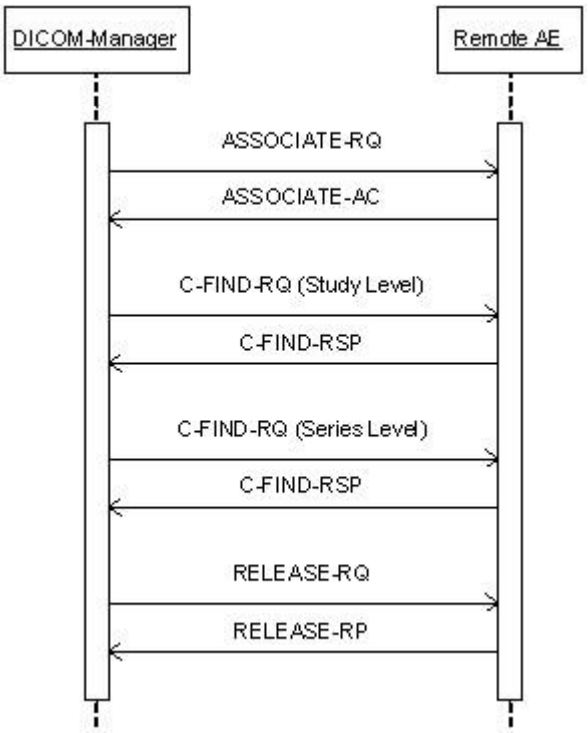

Figure 8: (Real World) Activity - Find as SCU

4.2.1.3.2.2. 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 20: Proposed Presentation Contexts for (Real-World) Activity – FIND As SCU

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Study Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		

4.2.1.3.2.3. SOP Specific Conformance for Study Root QR Information Model - FIND 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 DICOM-Manager provides standard conformance to the DICOM V3.0.

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

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

Table 21: Supported 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	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	
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	
Slice Location	0020,1041	DS	Universal	
Slice Thickness	0018,0050	DS	Universal	
SOP Class UID	0008,0016	UI	Single Value	
SOP Instance UID	0008,0018	UI	Universal	
Q/R Series level				
Body Part Examined	0018,0015	CS	Universal	
Manufacturer	0008,0070	LO	Universal	
Modality	0008,0060	CS	Universal	
Number of Series Related Instances	0020,1209	IS	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	Single Value	
Series Date	0008,0021	DA	Single Value, Universal	
Series Instance UID	0020,000E	UI	Universal	
Series Number	0020,0011	IS	Universal	
Series Time	0008,0031	TM	Universal	
Request Attributes Sequence	0040,0275	SQ	Universal	
>Requested Procedure ID	0040,1001	SH	Universal	
>Scheduled Procedure Step ID	0040,0009	SH	Universal	
Q/R Study level				
Accession Number	0008,0050	SH	Single Value	
Modalities in Study	0008,0061	CS	Single Value	
Number of Study Related Instances	0020,1208	IS	Universal	
Number of Study Related Series	0020,1206	IS	Universal	
Patient ID	0010,0020	LO	Single Value	
Patient's Birth Date	0010,0030	DA	Single Value	
Patient's Birth Time	0010,0032	TM	Single Value, Universal, WildCard	
Patient's Name	0010,0010	PN	Single Value	
Performed Procedure Step Description	0040,0254	LO	Single Value, Universal	

Referring Physician's Name	0008,0090	PN	Range, Single Value, Universal	
Study Date	0008,0020	DA	Range, Single Value, Universal	
Study Description	0008,1030	LO	Universal	
Study ID	0020,0010	SH	Single Value, Universal, WildCard	
Study Instance UID	0020,000D	UI	Single Value, Universal, WildCard	
Study Time	0008,0030	TM		

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

Table 22: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	Matching is successful.
Failure	A700	Refused - Out of resources	
	A900	Failed - Unknown reason	
	C000	Failed - Unknown reason	

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

4.2.1.3.3.1. Description and Sequencing of Activities

The RWA Move Remote Images involves the retrieve of images on a remote system by moving 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 association to the selected peer entity (Remote AE) and uses it to send the Retrieve (C-MOVE) request (and receive the associated responses). An examination may contain both images and presentation states. The association is released after the final Retrieve (C-MOVE) response for the related request has been received (no more pending).

DICOM-Manager initiates an association when an image processing application asks for image loading from a specified source device using a proprietary IPC protocol.

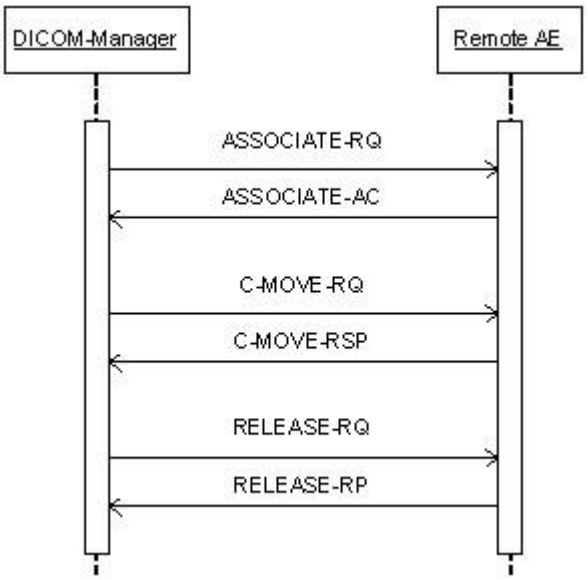

Figure 9: (Real World) Activity - Move as SCU

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 DICOM-Manager for (Real-World) Activity - Move as SCU are defined in the following table.

Table 23: 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	CT-private-ELE	1.3.46.670589.33.1.4.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

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

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 Query/Retrieve Service Class as an SCU for the SOP Class Study Root Query/Retrieve Information Model - Move.

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

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

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

Table 24: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	Storage successful.
Failure	A701	Refused - Out of Resources	Message by transfer result - Refused Unknown reason.
	A702	Refused - Out of Resources	Message by transfer result - Refused Store Failed.
	A801	Refused - Move Destination Unknown	Message by transfer result - Refused Unknown target.
	A900	Error - Identifier Does Not Match SOP Class	Message by transfer result - Failed Unknown reason.
	C000	Error - Unable to Process	Message by transfer result - Failed Store Failed.
Warning	B000	Sub-operations complete - One or more failures	Whenever one of the store operations failed.
Cancel	FE00	Cancel	Message by transfer result - Refused Connection closed on timeout.

4.2.1.3.4. (Real-World) Activity – Image Export

4.2.1.3.4.1. Description and Sequencing of Activities

The associated Real-World Activity is a request for retrieval of images from the disk/memory and storage of the images to a remote system using a C-STORE command.

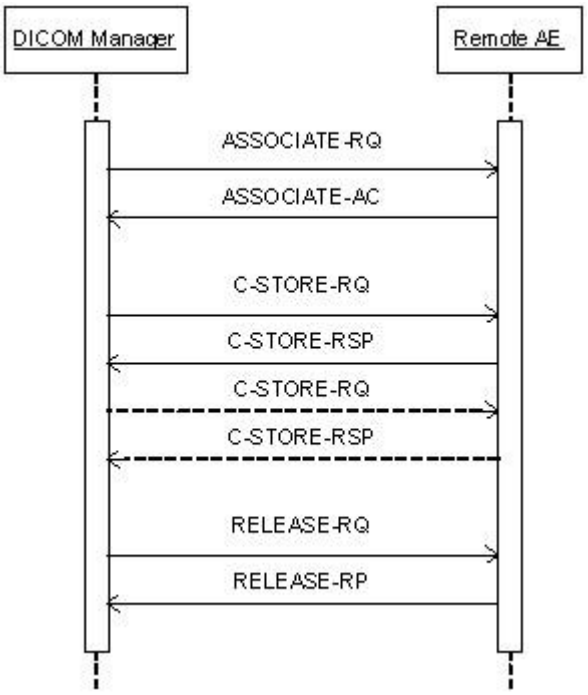

Figure 10: (Real World) Activity - Image Export

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.

If, per configuration all DICOM objects are requested, then there is no correction on import for those objects and can be saved "as is" (except ILE/ELE conversion or compression).

The system configuration (by FSE in LAN Config) 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) syntaxes will be proposed. If more than one Transfer Syntax is accepted by the SCP, the order of selecting the syntax to use is: Private-ELE, JPEG, ELE and ILE.

When accepting association from the remote device, only the enabled (for that device) transfer syntaxes will be accepted. If more than one transfer syntax fits this, the order of selecting the syntax to use is: Private-ELE, JPEG, ELE and ILE.

The default enabled configuration setting in LAN Config, for transfer syntaxes are ILE and ELE. By default the Private ELE and JPEG transfer syntaxes are disabled.

During data export the EBW preserves the Date and Time format of the original data.

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

Explicit VR Transfer Syntaxes for a specific AE target may be restricted using the configuration utility.

Table 25: 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**		
Blending Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.4	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		CT-private-ELE	1.3.46.670589.33.1.4.1		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Multi-frame Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Multi-frame Grayscale Word SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.3	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Multi-frame Single Bit Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
RT Plan Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.5	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
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	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	CT-private-ELE	1.3.46.670589.33.1.4.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		

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. JPEG has preference over ELE and ILE.

"JPEG" here refers to JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1]): Default Transfer Syntax for Lossless JPEG Image Compression.

DICOM Manager prefers an explicit Transfer Syntax encoding. If offered a choice of Transfer Syntax's in a Presentation Context, it will apply the following priorities to the choice of Transfer Syntax which can be configured in LAN Config Tool:

Table 26: Transfer Syntax Priorities

Transfer Syntax	UID	Comment
1. Private DICOM Explicit VR Little Endian (CT-private-ELE)	1.3.46.670589.33.1.4.1	LAN Config.
2. DICOM JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70	LAN Config, Transfer Syntax for Lossless JPEG Image Compression (JPEG).
3. DICOM Explicit VR Little Endian	1.2.840.10008.1.2.1	LAN Config.
4. DICOM Implicit VR Little Endian	1.2.840.10008.1.2	LAN Config, default.

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

The system configuration of EBW (by FSE in LAN Config) allows the FSE to disable individually each of the supported Transfer Syntaxes per remote device when establishing and accepting associations. At least one of the Transfer Syntaxes will be enabled.

During association negotiation, the system offers all the transfer syntaxes in one presentation context. The SCP will determine which transfer syntax is going to select, not the SCU.

4.2.1.3.4.3. 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.

The 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.

Multiple C-STORE operations can be performed over a single association. Upon receiving a C-STORE Response containing a successful status, this implementation will perform the next C-STORE operation (if this operation is the result of the Series Level Move request). The association will be kept open if possible.

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.

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.

For detailed information about the created SOP Classes, refer to chapters 8 to 12.

4.2.1.3.4.3.1. Dataset Specific Conformance for C-STORE-RQ

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

Table 27: 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.
	A700	Refused - Out of Resources	Message by transfer result - Out of Resources.
	A900	Error - Data Set does not match SOP	Message by transfer result - Unknown reason.
	C000	Error - Cannot understand	Message by transfer result - Store failed.
Warning	B000	Coercion of Data Elements	Warning status is treated as success.
	B006	Elements Discarded	Warning status is treated as success.
	B007	Data Set does not match	Warning status is treated as success.

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

4.2.1.3.5.1. Description and Sequencing of Activities

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

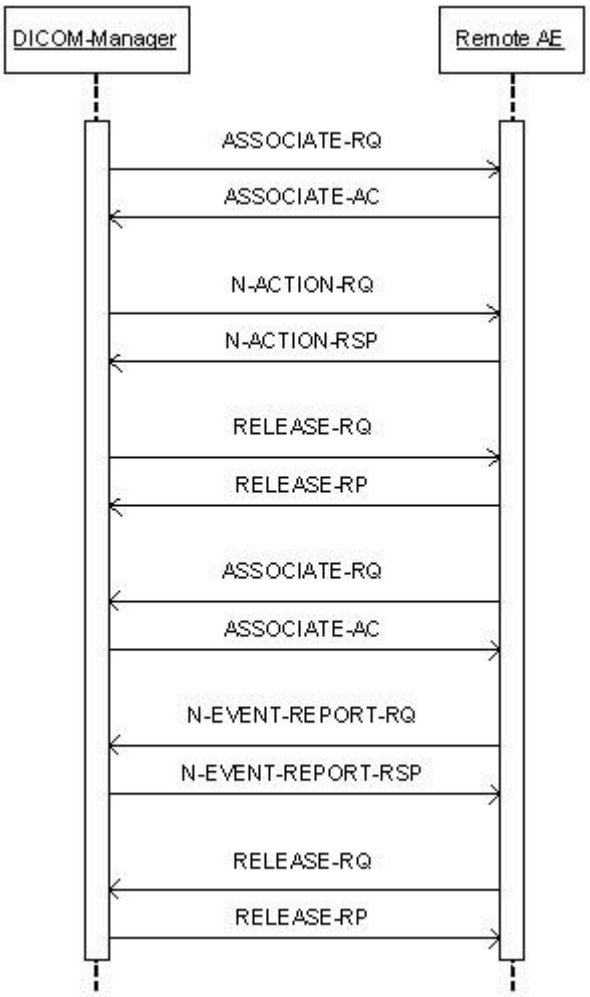

Figure 11: (Real World) Activity - Storage Commitment as SCU

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

Table 28: Proposed Presentation Contexts for (Real-World) Activity – Storage Commitment Push Model AS SCU

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		

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

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 Commitment Service Class using Push Model as an SCU.

Multiple N-ACTION requests can be performed over a single association. Multiple N-EVENT-REPORT requests can be accepted over a single association. After all N-ACTION requests that are waiting in the stack are issued, association will be closed with the timeout of 60 seconds.

A remote system reports about storage commitment completion using N-EVENT-REPORT command. The system can also accept the N-EVENT-REPORT 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.

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

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

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

Table 29: Storage Commitment N-EVENT-REPORT Behavior

Event Type Name	Event Type	Behavior
Storage Commitment Request Successful	1	Successfully committed instances are marked as "transferred".
Storage Commitment Request Complete - Failures Exist	2	

Table 30: 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.
Failure	0211	Unrecognized Operation	The transaction UID in the N-EVENT-REPORT request is not recognized.
	0213	Resource Limitation	The Transaction UID in the N-EVENT-REPORT request has expired.
	0113	No Such Event Type	An invalid Event Type ID was supplied in the N-EVENT-REPORT.
	0110	Processing Failure	An internal error occurred during processing.
	0115	Invalid Argument Value	One of more SOP Instance UID's with the Referenced SOP Sequence (0008.1199) or Failed SOP Sequence (0008,1198) was not included in the Storage Commitment Request associated with this Transaction UID.

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

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

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

Table 31: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	The request for storage commitment is considered successfully stored.
Other than Success	<>0000	Problems with sending the N-ACTION	The association is aborted and 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 32: DICOM Association Rejection Policies

Result	Source	Reason/Diagnosis	Explanation
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.
		3 - calling-AE-title-not-recognized	When receiving association request and the calling AE title is not supported.
		7 - called-AE-title-not-recognized	When receiving association request and the called AE title is not supported.
	2 - DICOM UL service-provider (ACSE related function)	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 - 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 33: 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 34: 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.

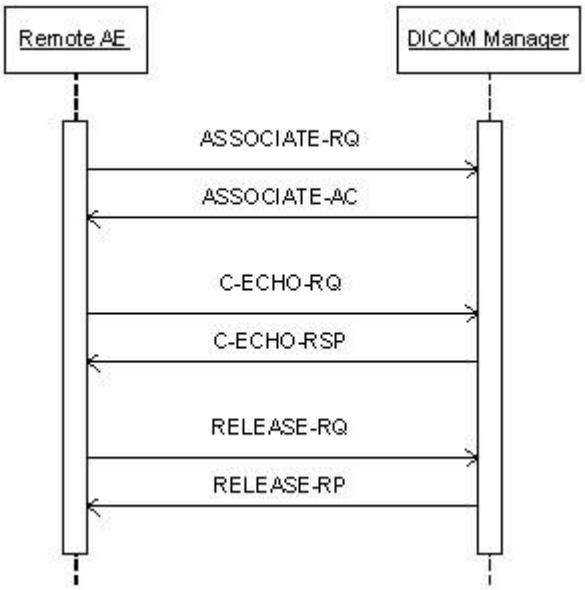

Figure 12: (Real World) Activity - Verification as SCP

4.2.1.4.1.2. Accepted Presentation Contexts

The presentation contexts are defined in next table.

Table 35: Acceptable Presentation Contexts for (Real-World) Activity – Verification as SCP

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification SOP Class	1.2.840.10008.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		

Note: The default Transfer Syntax is ILE. All other Transfer Syntaxes are configurable.

4.2.1.4.1.3. SOP Specific Conformance for Verification SOP Class

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

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

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

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

Table 36: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	C-ECHO command was successful received.
Other than Success	<>0000	Problems with receiving the C-ECHO command	Problems with receiving the C-ECHO command.

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

4.2.1.4.2.1. Description and Sequencing of Activities

The Real World activity associated with the C-FIND-SCP is querying of the local disk 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.

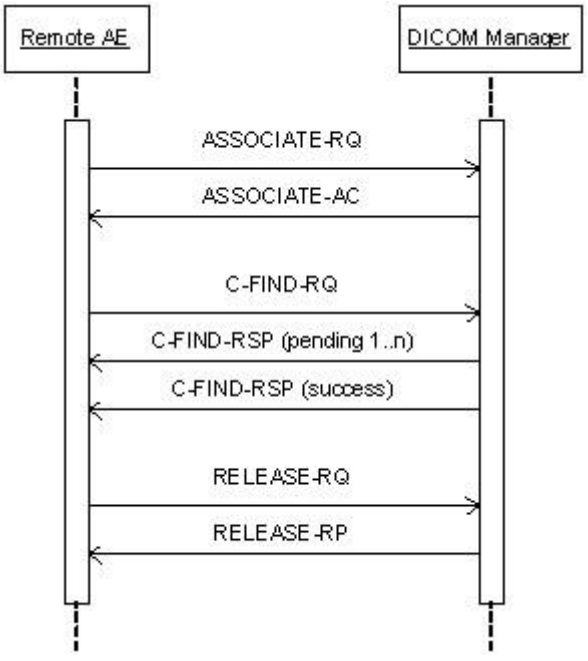

Figure 13: (Real World) Activity - Find as SCP

4.2.1.4.2.2. Accepted Presentation Contexts

The presentation contexts are defined in next table.

Table 37: 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 Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		

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

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 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

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

EBW 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 38: 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	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	
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	
Slice Location	0020,1041	DS	Universal	
Slice Thickness	0018,0050	DS	Universal	
SOP Class UID	0008,0016	UI	Single Value	
SOP Instance UID	0008,0018	UI	Universal	
Q/R Series level				
Body Part Examined	0018,0015	CS	Universal	
Manufacturer	0008,0070	LO	Universal	
Modality	0008,0060	CS	Universal	
Number of Series Related Instances	0020,1209	IS	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	Single Value	
Series Date	0008,0021	DA	Single Value, Universal	
Series Instance UID	0020,000E	UI	Universal	
Series Number	0020,0011	IS	Universal	
Series Time	0008,0031	TM	Universal	
Request Attributes Sequence	0040,0275	SQ	Universal	
>Requested Procedure ID	0040,1001	SH	Universal	
>Scheduled Procedure Step ID	0040,0009	SH	Universal	
Q/R Study level				
Accession Number	0008,0050	SH	Single Value	
Modalities in Study	0008,0061	CS	Single Value	
Number of Study Related Instances	0020,1208	IS	Universal	
Number of Study Related Series	0020,1206	IS	Universal	
Patient ID	0010,0020	LO	Single Value	
Patient's Birth Date	0010,0030	DA	Single Value	
Patient's Birth Time	0010,0032	TM	Single Value, Universal, WildCard	
Patient's Name	0010,0010	PN	Single Value	
Performed Procedure Step Description	0040,0254	LO	Single Value, Universal	
Referring Physician's Name	0008,0090	PN	Range, Single Value, Universal	
Study Date	0008,0020	DA	Range, Single Value, Universal	
Study Description	0008,1030	LO	Universal	
Study ID	0020,0010	SH	Single Value, Universal, WildCard	
Study Instance UID	0020,000D	UI	Single Value, Universal, WildCard	
Study Time	0008,0030	TM		

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

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	Matching complete	Matching successful.
Failure	C000	General failure status	Whenever the find operation failed.

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.

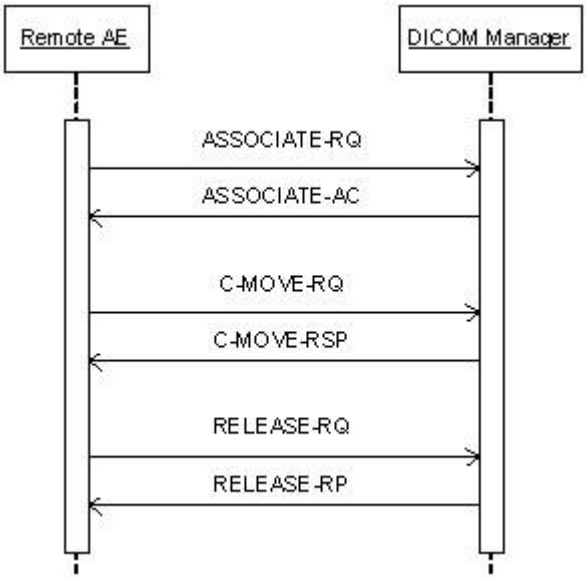

Figure 14: (Real World) Activity - Move as SCP

4.2.1.4.3.2. Accepted Presentation Contexts

The presentation contexts are defined in next table.

Table 40: 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 Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
		CT-private-ELE	1.3.46.670589.33.1.4.1		

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

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 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

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

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

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

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 41: 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.

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.

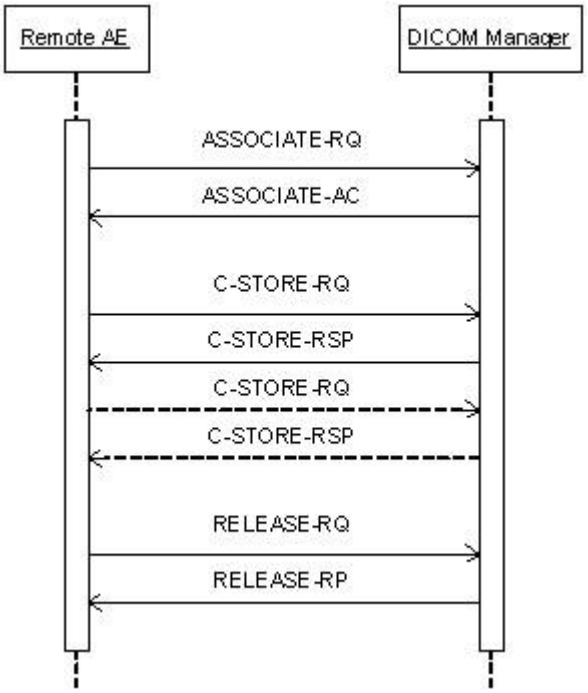

Figure 15: (Real World) Activity - Image Import

4.2.1.4.4.2. Accepted Presentation Contexts

The presentation contexts are defined in next table.

Table 42: 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		
Blending Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.4	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Multi-frame Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Multi-frame Grayscale Word SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.3	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Multi-frame Single Bit	1.2.840.10008.5.1.4.1.1.7.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Secondary Capture Image Storage SOP Class		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
RT Plan Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.5	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
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 Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	CT-private-ELE	1.3.46.670589.33.1.4.1	SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
X-Ray Angiographic Image Storage SOP	1.2.840.10008.5.1.4.1.1.12.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Class		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		CT-private-ELE	1.3.46.670589.33.1.4.1		

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. JPEG has preference over ELE and ILE.

For all SOP classes without pixel data the JPEG transfer syntax 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

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

Table 43: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Successfully stored	Whenever the store operation succeeded.
Failure	C000	Failed	Whenever the store operation failed.

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 44: 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.

Note: The Printer SOP Class is not supported, even though it is included in the table above.

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 45: DICOM Application Context

Description	Value
Application Context Name	1.2.840.10008.3.1.1.1

4.2.2.2.2. Number of Associations

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

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

Table 46: Number of associations as an Association Initiator for this AE

Description	Value
Maximum number of simultaneous associations	1

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

Description	Value
Maximum number of simultaneous associations	50

4.2.2.2.3. Asynchronous Nature

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

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

Table 48: 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 49: DICOM Implementation Class and Version for Print Manager

Implementation Class UID	1.3.46.670589.33.1.1
Implementation Version Name	BRCONN_4.0

4.2.2.2.5. Communication Failure Handling

Not applicable.

4.2.2.3. Association Initiation Policy

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

Table 50: Association Rejection response

Result	Source	Reason/Diagnosis	Explanation
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.

Result	Source	Reason/Diagnosis	Explanation
		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 next table.

Table 51: 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.

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.

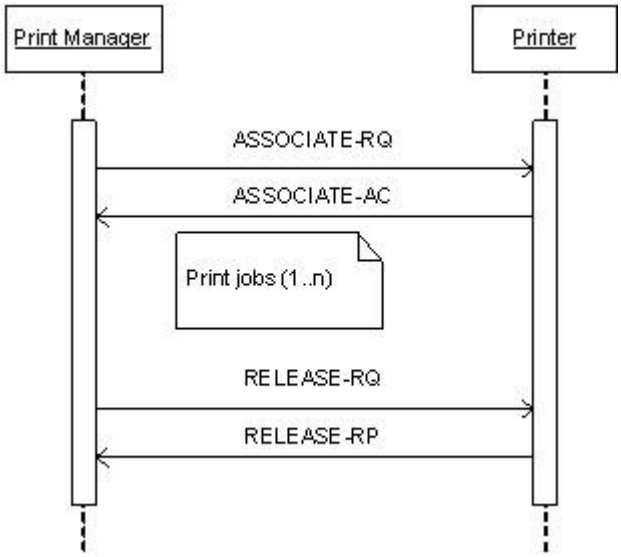

Figure 16: (Real World) Activity - Print Manager Initiates

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.

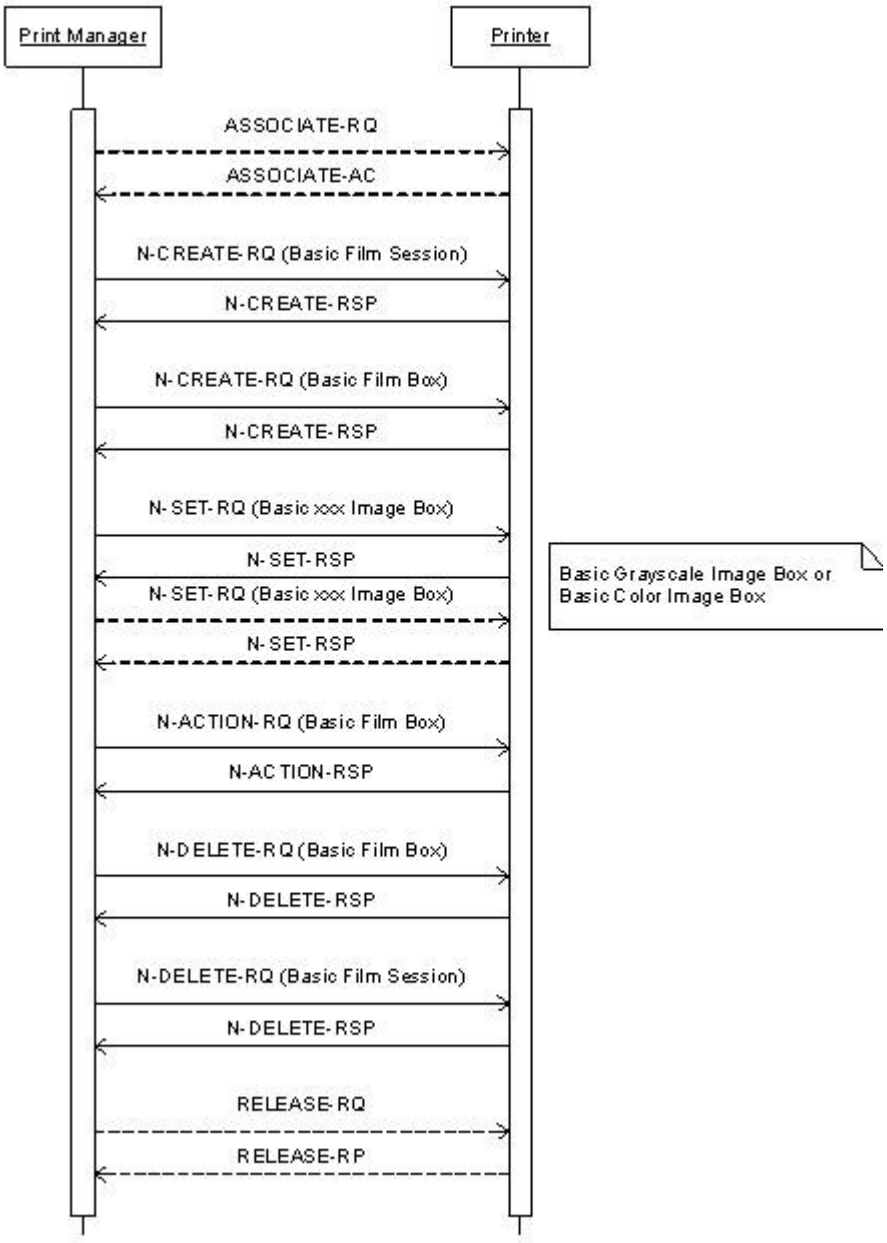

Figure 17: (Real World) Activity - Print Management as SCU

4.2.2.3.1.2. Proposed Presentation Contexts

The presentation contexts are defined in 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 Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Printer SOP Class	1.2.840.10008.5.1.1.16	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9			SCU	None
>Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Printer SOP Class	1.2.840.10008.5.1.1.16	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

Note: The only supported default Transfer Syntaxes for printing is 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
VNAPCV	The attribute is present under specified condition – if present then its Value is Not Always Present (attribute sent zero length if condition applies and no value is present)
ANAPEV	The attribute is present under specified condition – if present then it will not have any value

The abbreviations used in the Module table for the column "Source" are:

AUTO	The attribute value is generated automatically
CONFIG	The attribute value source is a configurable parameter

COPY	The attribute value source is another SOP instance
FIXED	The attribute value is hard-coded in the application
IMPLICIT	The attribute value source is a user-implicit setting
MPPS	The attribute value is the same as that use for Modality Performed Procedure Step
MWL	The attribute value source is a Modality Worklist
USER	The attribute value source is explicit user input

4.2.2.3.1.3. SOP Specific Conformance for Basic Color Image 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 Color Image Box Sop Class. The following DIMSE service element is supported: N-SET

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

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

Table 53: Image Box Pixel Presentation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Box Position	2020,0010	US	1	ALWAYS	AUTO	
Polarity	2020,0020	CS		ALWAYS	AUTO	As in printer configuration file.
Basic Color Image Sequence	2020,0111	SQ		ALWAYS	AUTO	
>Bits Allocated	0028,0100	US	8	ALWAYS	AUTO	
>Bits Stored	0028,0101	US	8	ALWAYS	AUTO	
>Columns	0028,0011	US		ALWAYS	AUTO	As in printer configuration file.
>High Bit	0028,0102	US	7	ALWAYS	AUTO	
>Photometric Interpretation	0028,0004	CS	RGB	ALWAYS	AUTO	
>Pixel Aspect Ratio	0028,0034	IS		ALWAYS	AUTO	Must be present if not 1/1.
>Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	
>Pixel Representation	0028,0103	US	0	ALWAYS	AUTO	
>Planar Configuration	0028,0006	US	1, 0	ALWAYS	AUTO	
>Rows	0028,0010	US		ALWAYS	AUTO	As in printer configuration file.
>Samples per Pixel	0028,0002	US	3	ALWAYS	AUTO	

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	Image successfully stored in Image Box	The print job continues.
Warning	B604	Image Size is larger than Image Box Size - The Image has been de-magnified	The print job continues and the warning is logged and reported to the user.

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

4.2.2.3.1.4. 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.

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

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

Table 55: Basic Film Box Presentation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Configuration Information	2010,0150	ST		ALWAYS	CONFIG	As in printer configuration file.
Film Orientation	2010,0040	CS	LANDSCAPE, PORTRAIT	ALWAYS	CONFIG, USER	
Film Size ID	2010,0050	CS		ALWAYS	CONFIG, USER	As in printer configuration file.
Image Display Format	2010,0010	ST	STANDARD\1,1	ALWAYS	CONFIG	
Magnification Type	2010,0060	CS		ALWAYS	CONFIG	As in printer configuration file.
Max Density	2010,0130	US		ALWAYS	CONFIG	As in printer configuration file.
Min Density	2010,0120	US		ALWAYS	CONFIG	As in printer configuration file.
Trim	2010,0140	CS	NO, YES	ALWAYS	CONFIG, USER	

Table 56: 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 57: 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.
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.

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

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

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

Table 58: 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.
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.

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

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

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

Table 59: 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	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 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.

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

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

Table 60: Basic Film Session Presentation Module

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

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 Session successfully created	The print job continues.
Warning	B600	Memory Allocation not supported	The print job continues and the warning is logged.

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

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

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

Table 62: 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.

4.2.2.3.1.6. SOP Specific Conformance for Printer SOP Class of the Basic Color Print Management Meta SOP Class

Not applicable, Printer SOP Class is not supported.

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

Not applicable, Printer SOP Class is not supported.

4.2.2.3.1.7. 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

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

Table 63: Basic Film Box Presentation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Configuration Information	2010,0150	ST		ALWAYS	CONFIG	As in printer configuration file.
Film Orientation	2010,0040	CS	LANDSCAPE, PORTRAIT	ALWAYS	CONFIG, USER	
Film Size ID	2010,0050	CS		ALWAYS	CONFIG, USER	As in printer configuration file.
Image Display Format	2010,0010	ST	STANDARD\1,1	ALWAYS	CONFIG	
Magnification Type	2010,0060	CS		ALWAYS	CONFIG	As in printer configuration file.
Max Density	2010,0130	US		ALWAYS	CONFIG	As in printer configuration file.
Min Density	2010,0120	US		ALWAYS	CONFIG	As in printer configuration file.
Trim	2010,0140	CS	NO, YES	ALWAYS	CONFIG, USER	

Table 64: 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 65: 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.
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

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

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

Table 66: 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.
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

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

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

Table 67: 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.

4.2.2.3.1.8. SOP Specific Conformance for Basic Film Session 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 Session SOP Class. The following DIMSE service element is supported: N-CREATE, N-DELETE.

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

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

Table 68: Basic Film Session Presentation Module

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

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

Table 69: 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.

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

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

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

Table 70: 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.

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

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

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

Detail 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 Grayscale Image Sequence	2020,0110	SQ		ALWAYS	AUTO	
>Bits Allocated	0028,0100	US	8	ALWAYS	AUTO	
>Bits Stored	0028,0101	US	8	ALWAYS	AUTO	
>Columns	0028,0011	US		ALWAYS	AUTO	As in printer configuration file.
>High Bit	0028,0102	US	7	ALWAYS	AUTO	
>Photometric Interpretation	0028,0004	CS	MONOCHROME2, RGB	ALWAYS	AUTO	
>Pixel Aspect Ratio	0028,0034	IS		ALWAYS	AUTO	Must be present if not 1/1.
>Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	
>Pixel Representation	0028,0103	US	0	ALWAYS	AUTO	
>Rows	0028,0010	US		ALWAYS	AUTO	As in printer configuration file.
>Samples per Pixel	0028,0002	US	3, 1	ALWAYS	AUTO	

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

Table 72: Status Response

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

4.3. Network Interfaces

4.3.1. Physical Network Interfaces

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

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

4.3.2. Additional Protocols

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

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

Per configuration in LAN Config Tool, 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 LAN Config application. The system is not IP or AE title sensitive.

An important installation issue is the translation from AE title to presentation address. With incoming association requests the system allows acceptance of a range of defined IP addresses which is configurable in the LAN Config application. How this is performed is described in this section. The system is not IP or AE title sensitive.

This mapping (including IP and port numbers) is defined during the system Networking Procedure. Configurable are the following parameters:

- Calling AE Titles.
- Called AE Titles.
- Maximum PDU size.
- Manufacturer.
- Model.
- Version.
- Association timeout, the minimum configurable timeout value is "1".
- ARTIM timer.
- Large Archive - Force Filter when querying this device.
- Archived - Mark studies as Archived when copying them to this device.
- Disable explicit transfer syntaxes are proposed at the association negotiation.
- Enable generation of DICOM overlays ("burn-in" instead).

4.4.1.1. Local AE Titles

The local AE title mapping and configuration are specified as:

Table 73: AE Title configuration table

Application Entity	Default AE Title	Default TCP/IP Port
DICOM Manager	<hostname>; <hostname><localfolder>	104 (configurable)
Print Manager	<hostname>	Configurable

4.4.1.2. Remote AE Title/Presentation Address Mapping

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

4.4.2. Parameters

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

Table 74: Configuration Parameters Table

General Parameter	Configurable	Default Value
Release Timeout	Yes	30 seconds (LAN Config)
Port-Number	Yes	104 (Fixed)
Maximum PDU size the AE can receive	Yes	16352 (Fixed)
Maximum PDU size the AE can send	Yes	16352 (Fixed)
Transfer Syntax support, P- ELE, JPEG, ELE, ILE, There is a configuration option to turn off Explicit VR support	Yes	Private ELE, JPEG, ELE, ILE
Storage / Retrieve Timeout	Yes	300 seconds (LAN Config)
ARTIM timeout	Yes	300 seconds (LAN Config)
Max association number	Yes	50

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.

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.

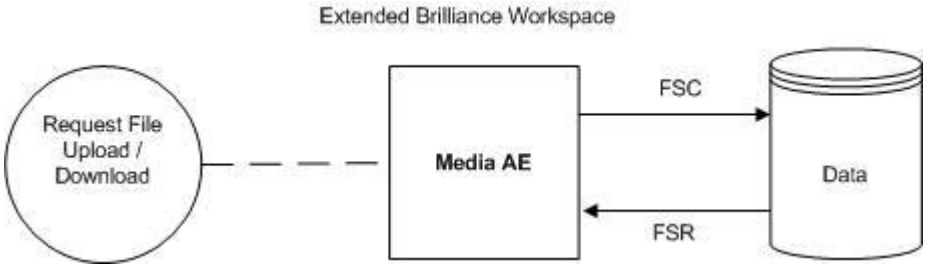

Figure 18: Media Interchange Application Data Flow Diagram

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

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. Extended Brilliance Workspace supports the media profiles as shows in the Table below:

Table 75: Media Profiles supported by Extended Brilliance Workspace

Supported Application Profile	Real-World Activity	Roles	SC Option
STD-GEN-CD	Display Directory	FSR	Interchange
	Write Images	FSC	Interchange
	Read Images	FSR	Interchange
STD-GEN-DVD-JPEG	Display Directory	FSR	Interchange
	Write Images	FSC	Interchange
	Read Images	FSR	Interchange

The system proposes the transfer syntaxes mentioned in Table below.

Table 76: Transfer Syntaxes of DVD / CD supported by Extended Brilliance Workspace

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax Name	Transfer Syntax UID	Role	Extended Negotiation
See Note 1	See Note 1	Private ELE	1.3.46.670589.33.1.4.1	SCU	None
		JPEG	1.2.840.10008.1.2.4.70		None
		ILE	1.2.840.10008.1.2		None
		ELE (Note 2)	1.2.840.10008.1.2.1		None

Note 1: Any of the standard image storage and private SOP classes mentioned before.
Note 2: The preferred transfer syntax for media is default ELE.

5.1.2. Functional Definitions of AE's

This session contains a functional definition for each local Application Entity. It's described in general terms the functions to be performed by the AE, and the DICOM services used to accomplish these functions.

The Media AE includes the following service class.

Media Storage Service Class for CD and DVD.

The Extended Brilliance Workspace can perform the CD Media Storage service as SCU, with capabilities for:
RWA Display Directory (as FSR),
RWA Write Images (as FSC), and
RWA Read Images (as FSR).

The Extended Brilliance Workspace can perform the DVD Media Storage service as SCU, with capabilities for:
RWA Display Directory (as FSR),
RWA Write Images (as FSC), and
RWA Read Images (as FSR).

The Extended Brilliance Workspace can Create and Read CD /DVD and Read CD/DVD.

Functional Definition of Extended Brilliance Workspace AE

The Media AE in an Extended Brilliance Workspace supports the following functions for CD and DVD 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 View Station. This information is displayed as an ordered list of frames of the selected image or as a dynamic review of the selected image.

And for CD and DVD 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 Extended Brilliance Workspace or for transport to another device for reading.

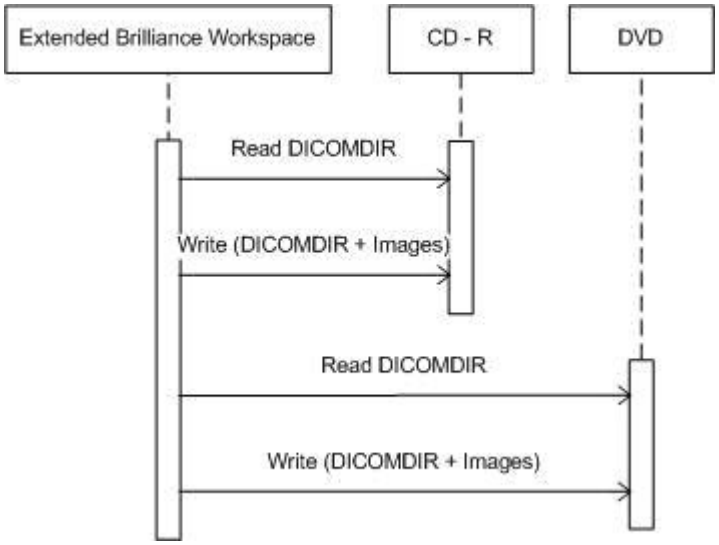

Figure 19: (Real World) Activity - Media

Another Real World Activity of the Media AE is: A CD/DVD from another system Extended Brilliance Workspace or previously created CD/DVD can be read by the Extended Brilliance Workspace. The Extended Brilliance Workspace cannot append (FSU) to this created CD/DVD.

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

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).

Extended Brilliance Workspace does not supports multi-patient and multi-session CD / DVD disks, both for Reading and Writing.

Supported media:

- CD: CD-R and CD-RW with the profile STD-GEN-CD.
- DVD: DVD-R, DVD+R, DVD-RW and DVD+RW with the profile: STD-GEN-DVD-JPEG.

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

Table 77: 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
General Purpose CD-R Interchange	STD-GEN-CD	Create File-set	FSC
		Read File-set	FSR
General Purpose DVD Interchange with JPEG	STD-GEN-DVD-JPEG	Create File-set	FSC
		Read File-set	FSR

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 a FSC.

Table 78: File Meta Information for the Media AE

Implementation Class UID	1.2.46.670589.33.1.1
Implementation Version Name	BRCONN_4.0

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

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

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 Extended Brilliance Workspace screen.

Read Images

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 application Profile that is used by this Media Application Entity is specified in this section.

Display Directory

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

Read Images

As depicted in the table in section 5.2.1, the Media AE supports the RWA Read Images for the Application Profile.

The mandatory attributes of the DICOM images are required for the correct storage of the images in the Extended Brilliance Workspace internal image database.

Optional attributes and Retired/Private attributes are stored too - if present; this is equivalent with the level 2 (Full) conformance for the Storage Service Class in the Network support.

5.2.1.2.1.1.1. Options

The options used in the Application Profile are specified in detail in this section.

Display Directory

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.

Read Images

Not applicable.

5.2.1.2.2. RWA - Create File-set

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

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

The application Profile that is used by this Media Application Entity is specified in this section.

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 79: 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.
Study 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 80: Supported attributes in the DICOMDIR

DICOM Tag	Description
0002,0000	Group 0002 Length
0002,0001	File Meta Information Version
0002,0002	UI Media Storage Sop Class UID
0002,0003	UI 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	First Directory Record Offset
0004,1202	Last Directory Record Offset
0004,1212	File Set Consistency Flag
0004,1220	Directory Record Sequence
Patient level	
0004,1400	Offset Of The Next Dir Record
0004,1410	Record In Use Flag
0004,1420	Offset of Referenced Lower-Level Directory Entity
0004,1430	Directory Record Type
0010,0010	Patient's Name
0010,0020	Patient ID
Study level	
0004,1400	Offset Of The Next Dir Record
0004,1410	Record In Use Flag
0004,1420	Offset Of Ref Lower Level Dir Ent
0004,1430	Directory Record Type
0008,0005	Specific Character Set
0008,0020	Study Date
0008,0030	Study Time
0008,0050	Accession Number

DICOM Tag	Description
0008,0054	Retrieve AE Title
0008,0061	Modalities in Study
0008,0090	Referring Physician's Name
0010,0030	Patient's Birth Date
0010,0040	Patient's Sex
0040,A120	DateTime
0008,1030	Study Description
0020,000D	Study Instance UID
0020,0010	Study ID
0020,1206	Number Of Study Related Series
0020,1208	Number Of Study Related Images
Series level	
0004,1400	Offset Of The Next Dir Record
0004,1410	Record In Use Flag
0004,1420	>Offset of Referenced Lower-Level Directory Entity
0004,1430	Directory Record Type
0008,0060	Modality
0008,0070	Manufacturer
0020,000E	Series Instance UID
0020,0011	Series Number
0020,1209	Number of Series Related Instances
Image level	
0004,1400	Offset Of The Next Dir Record
0004,1410	Record In Use Flag
0004,1420	Offset Of Ref Lower Level Dir Ent
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
0008,0008	Image Type
0018,0010	Contrast/Bolus Agent
0008,0016	SOP Class UID
0008,0018	SOP Instance UID
0008,0023	Content Date
0008,0033	Content Time
0018,0050	Slice Thickness
0018,0060	KVP
0020,0013	Instance Number
0020,0032	Image Position (Patient)
0020,0037	Image Orientation (Patient)
0020,0052	Frame of Reference UID
0028,0002	Samples per Pixels
0028,0004	Photometric Interpretation
0028,0010	Rows
0028,0011	Columns
0028,0030	Pixel Spacing
0028,0100	Bits Allocated

5.3. Augmented and Private Application Profiles

Not applicable

5.4. Media Configuration

Any configuration issues may be found in the Networking Section 4.4 Configuration.

6. SUPPORT OF CHARACTER SETS

Any support for character sets beyond the default character repertoire in Network and Media services is described here.

Table 81: Supported DICOM Character Sets

Character Set Description	Defined Term	ESC Sequence	ISO Registration Number	Code Element	Character Set
Latin alphabet No. 1	ISO_IR 100	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 100	G1	Supplementary set of ISO 8859
Default repertoire	-	-	ISO-IR 6	G0	ISO 646
		-	-	-	-

Localization settings are configurable from the Preferences Menu, Regional Setting, and can be applied to Interface, Reports and Keyboard. The list of available languages needs to check. The default character sets supported by EBW are ISO_IR 100 and ISO_IR 6.

For Value Representation (VR) equal to Patient's Name (PN), the leading spaces into the Patient's Name will be treated as insignificant for matching purposes.

From the Patient's Name only the first 32 characters are displayed into the Quick View Viewer.

In the Patient's data with Data Time information, only the 3 Fractional digits of the Data Time Format are supported.

7. SECURITY

7.1. Security Profiles

Not applicable.

7.1.1. Security use Profiles

Not applicable.

7.1.2. Security Transport Connection Profiles

Not applicable.

7.1.3. Digital Signature Profiles

Not applicable.

7.1.4. Media Storage Security Profiles

Not applicable.

7.1.5. Attribute Confidentiality Profiles

No instances of the Encrypted Attributes Data Set are created. No Transfer Syntaxes are supported for encoding/decoding of Encrypted Attributes Data Sets.

The table below lists the protected attributes during the anonymizing of Patient's data export.

The terms used to describe the replacement value can be read as below:
- Empty: The attribute will have a value of zero length, is cleared by Extended Brilliance Workspace.
- Copied: Attribute has same value as original.

Table 82: Basic Application Level Confidentiality Profile Attributes

Attribute Name	Tag	VR	Replacement Value
Patient's Name	0010,0010	PN	LastName and FirstName can be changed by user
Patient ID	0010,0020	LO	Can be changed by user
Patient's Birth Date	0010,0030	DA	Empty
Referring Physician's Name	0008,0090	OB	Empty
Accession Number	0008,0050	SH	Empty
Institution Name	0008,0080	LO	Can be cleared by user
Station Name	0008,1010	SH	Empty
Institutional Department	0008,1040	LO	Empty
Operators Name	0008,1070	PN	Empty
Institution Address	0008,0080	LO	Empty
Patient's Sex	0010,0040	CS	Copied from original
Study ID	0020, 0010	SH	Copied from original
Station Name	0008,1010	SH	Always with unique character string generated by EBW
Media Storage SOP Class UID	0002,0002	UI	Automatically changed

7.1.6. Network Address Management Profiles

Not applicable.

7.1.7. Time Synchronization Profiles

Not applicable.

7.1.8. Application Configuration Management Profiles

Not applicable.

7.1.9. Audit Trail Profiles

Not applicable.

7.2. Association Level Security

Not applicable.

7.3. Application Level Security

Not applicable.

8. ANNEXES OF APPLICATION "EBW PLATFORM"

8.1. IOD Contents

8.1.1. Created SOP Instance

This section specifies each IOD created by this application.

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

Abbreviations used in the IOD tables for the column "Presence of Module" are:

ALWAYS	The module is always present
CONDITIONAL	The module is used under specified condition

Abbreviations used in the Module table for the column "Presence of Value" are:

ALWAYS	The attribute is always present with a value
EMPTY	The attribute is always present without any value (attribute sent zero length)
VNAP	The attribute is always present and its Value is Not Always Present (attribute sent zero length if no value is present)
ANAP	The attribute is present under specified condition – if present then it will always have a value
ANAPCV	The attribute is present under specified condition – if present then its Value is Not Always Present (attribute sent zero length if condition applies and no value is present)
ANAPEV	The attribute is present under specified condition – if present then it will not have any value

The abbreviations used in the Module table for the column "Source" are:

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

8.1.1.1. List of created SOP Classes

Table 83: List of created SOP Classes

SOP Class Name	SOP Class UID
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7

8.1.2. Usage of Attributes from Received IOD

The following attributes shall be present in the received IODs in order to be accepted:

For all IODs
- SOP Class UID (0008,0016)
- Study Instance UID (0020,000D)
- Series Instance UID (0020,000E)

For Image IODs
- Pixel Data (7FE0,0010) - Size may not be 0.
- Rows (0028,0010)
- Columns (0028,0011)
- Bits Allocated (0028,0100)

8.1.3. Attribute Mapping

Not applicable.

8.1.4. Coerced/Modified fields

The Import/Export Transparency of DICOM objects means preserving the attributes' values of the objects imported from an external system (remote or removable), optionally processed and then exported to an external system. Exception in EBW Implementation: some attributes may be coerced during the conversion from ILE.

The system complies with Level-2 requirements for Storage SCP as defined in DICOM PS 3.4 Appendix B4.1. In other words, all Type 1, Type 2, and Type 3 Attributes defined in the Information Object Definition (IOD) associated with the SOP Class, as well as any Standard Extended attributes (including Private Attributes) included in the SOP Instance, will be stored and may be accessed.

The system does not coerce any Data Elements, except those defined in the DICOM PS 3.4 Appendix B4.1. In other words, when a DICOM object is imported from another system and later exported, all the attributes values will remain unchanged. In the received IODs, the following attributes may be modified under certain conditions.

Table 84: Modified Attributes

Attribute	Tag	When Modified
Patient's Name	0010,0010	If Empty, the Patient's Name will be set to "Unknown".
Patient ID	0010,0020	If Empty, the Patient ID will be set to "Unknown".
Rows	0028,0010	Is Fixed, if rows columns do not match pixel data size.
SOP Instance UID	0008,0018	If missing, a new SOP Instance UID will be generated by EBW.

8.2. Data Dictionary of Private Attributes

Not applicable.

8.3. Coded Terminology and Templates

The Extended Brilliance Workspace (EBW) reflects the fact that the IOD created by the workstation are always based on some source images after the viewing/processing applied and the modified images are saved. Most of the attributes or even the whole modules (Patient, General Study, etc.) are just copied from the source images.

DICOM Overlays are only created for saved Secondary Capture SOP Class images. When images with ROI, Annotations, etc. (group 50xx) are saved as DICOM Secondary Captures, the 50xx groups attributes are converted into DICOM Overlays attributes (group 60xx). In case SCP does not support group 60xx attributes - the EBW has a configurable option (in LAN Config) to burn the overlays into the pixel data thus allowing any PACS to display them.

The attribute "Burned In Annotation", for saving displays with multiple images has the value "YES". The attribute "Burned In Annotation" has the value "NO" for derived objects, if saved with "hide titles", (only for secondary capture SOP Class objects).

A Time attribute contains a string of characters of the format "hhmmss.frac". The Fractional part has in Extended Brilliance Workspace always 3 decimal places.

The following table lists the modules that are always copied from the source images when the created SOP Class IOD is the same as the source SOP Class IOD.

Table 85: Modules Copied to the Derived IODs Table

Information Entity	Module Name	Presence of Module
Patient	Patient Module	COPY
	Clinical Trial Subject Module	COPY
Study	General Study Module	COPY
	Patient Study Module	COPY
	Clinical Trial Study Module	COPY
Series	General Series Module	ALWAYS CREATED
	Clinical Trial Series Module	COPY
Frame of Reference	Frame of Reference Module	COPY
Equipment	General Equipment Module	COPY

Table 86: SC Image IOD Modules Table

Information Entity	Module Name	Presence of Module
Patient	Patient Module	COPY
Study	General Study Module	COPY
	Patient Study Module	COPY
Series	General Series Module	ALWAYS
Equipment	General Equipment Module	COPY
	SC Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
	Image Pixel Module	ALWAYS
	SC Image Module	ALWAYS
	Overlay Plane	CONDITIONAL - if present in the displayed image
	Modality LUT	CONDITIONAL - if Bits Stored > 8
	VOI LUT Module	CONDITIONAL - if Bits Stored > 8
	SOP Common Module	ALWAYS

Table 87: Encapsulated PDF IOD Modules Table

Information Entity	Module Name	Presence of Module
Patient	Patient Module	COPY
	Specimen Identification	COPY
Study	General Study Module	COPY
	Patient Study Module	COPY

Information Entity	Module Name	Presence of Module
Series	Encapsulated Document Series	ALWAYS
Equipment	General Equipment Module	COPY
	SC Equipment Module	ALWAYS
Image	Encapsulated Document	ALWAYS
	SOP Common Module	ALWAYS

Derived CT Image Attributes

Image Plane Module Attributes:

- All derived CT images, except curved (panoramic) slab, contain the Image Position (0028,0032) and Image Orientation (0028,0037) attributes.

- All derived CT (including curve slab) images contain the Pixel Spacing (0028,0030) and Slice Thickness (0018,0050) attributes.

- Non-Square pixels are not supported by EBW viewers.

Export Converters
A number of configurable export convertors allow to modify certain IOD when sent to specific SCP.

12-to-8-bit Converter
A 12-bit SC image is converted to an 8-bit SC by applying Window/Level attributes.

Color-to-Monochrome Converter
The Color (24-bits) SC IOD is converted to a monochrome 8-bit or 12 bit SC IOD, configurable by FSE. A new UID is generated for the converted image.

PET Units Convertor
PET pixel values are converted to counts, concentration, or Standard Uptake Values (SUVs) normalized by one of several factors.

Table 88: Private Elements for PET Images

Attribute Name	Tag	VR	Comment
Private Creator Data Element	(7053,0010)	LO	
SUV Scale Factor	(7053,1000)	DS	This value only applies when Units (0054,1001) is equal to CNTS. The SUV Scale Factor is used to convert the pixel data from counts to an SUV value. This is done by using the following formula: SUV Value = ((SV * m) + b) * f, where SV = original stored pixel value, m = Rescale Slope (0028,1053), b = Rescale Intercept (0028,1052), f = SUV Scale Factor (7053, 1000). If the SUV Scale Factor is 0.0, then the pixel data cannot be converted from counts to an SUV value.
Private	(7053,1001)	OB	
Private	(7053,1002)	OB	
Original image file name	(7053,1003)	ST	
Activity Concentration Scale Factor	(7053,1009)	DS	This value only applies when Units (0054,1001) is equal to CNTS. The Activity Concentration Scale Factor is used to convert the pixel data from counts to Activity Concentration (in Bq/ml). This is done by using the following formula: Activity Concentration Value = ((SV * m) + b) * f, where SV = original stored pixel value, m = Rescale Slope (0028,1053), b = Rescale Intercept (0028,1052), f = Activity Concentration Scale Factor (7053, 1009). If the Activity Concentration Scale Factor is 0.0, then the pixel data cannot be converted from counts to Activity Concentration.

8.3.1. Context Groups

Extended Brilliance Workspace uses the following Context groups.

Table 89: Context Groups

Context groups Name	Content ID
Patient Orientation	CID 19
Patient Orientation Modifier	CID 20
Patient Gantry Relationship	CID 21
PET Radionuclide	CID 4020
PET Radiopharmaceuticals	CID 4021
Route of Administration	CID 11
Nuclear Medicine Projections	CID 26
NM Procedural State Values	CID 3101

8.3.2. Template Specifications

Extended Brilliance Workspace uses the following Templates.

Table 90: Used Templates

Template Name	Template ID
NM Acquisition Context	TID 3470

8.3.3. Private code definitions

Not applicable.

8.4. Grayscale Image consistency

Not applicable.

8.5. Standard Extended/Specialized/Private SOPs

Not applicable.

8.6. Private Transfer Syntaxes

Supported Private Transfer Syntaxes are shown in the next Table.

Table 91: Supported Private Transfer Syntaxes

Transfer Syntax Name	Transfer Syntax UID	Comment
Private CT Transfer Syntax - Explicit VR Little Endian	1.3.46.670589.33.1.4.1	Private ELE.

9. ANNEXES OF APPLICATION "EMORY CARDIAC TOOLBOX"

9.1. IOD Contents

9.1.1. Created SOP Instance

This section specifies each IOD created by this application.

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

Abbreviations used in the IOD tables for the column "Presence of Module" are:

ALWAYS	The module is always present
CONDITIONAL	The module is used under specified condition

Abbreviations used in the Module table for the column "Presence of Value" are:

ALWAYS	The attribute is always present with a value
EMPTY	The attribute is always present without any value (attribute sent zero length)
VNAP	The attribute is always present and its Value is Not Always Present (attribute sent zero length if no value is present)
ANAP	The attribute is present under specified condition – if present then it will always have a value
ANAPCV	The attribute is present under specified condition – if present then its Value is Not Always Present (attribute sent zero length if condition applies and no value is present)
ANAPEV	The attribute is present under specified condition – if present then it will not have any value

The abbreviations used in the Module table for the column "Source" are:

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

9.1.1.1. List of created SOP Classes

Table 92: List of created SOP Classes

SOP Class Name	SOP Class UID
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7

9.1.1.2. Multi-frame True Color Secondary Capture Image Storage

Table 93: IOD of Created Multi-frame True Color Secondary Capture Image Storage Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	
Study	General Study Module	
Series	General Series Module	
Equipment	General Equipment Module	
Image	General Image Module	
Image	Image Pixel Module	
Equipment	SC Equipment Module	
Image	SC Multi-frame Image Module	
Image	SC Multi-frame Vector Module	
Image	SOP Common Module	

Table 94: Patient Module

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

Table 95: General Study Module

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

Table 96: General Series Module

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

Table 97: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Institution Name	0008,0080	LO		ALWAYS	AUTO	
Manufacturer	0008,0070	LO		ALWAYS	AUTO	

Table 98: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Content Date	0008,0023	DA		ALWAYS	AUTO	
Content Time	0008,0033	TM		ALWAYS	AUTO	
Image Comments	0020,4000	LT		VNAP	AUTO	
Image Type	0008,0008	CS		VNAP	AUTO	
Instance Number	0020,0013	IS		ALWAYS	AUTO	
Patient Orientation	0020,0020	CS		VNAP		

Table 99: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Bits Allocated	0028,0100	US		ALWAYS	AUTO	
Bits Stored	0028,0101	US		ALWAYS	AUTO	
Columns	0028,0011	US		ALWAYS	AUTO	
High Bit	0028,0102	US		ALWAYS	AUTO	
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	
Planar Configuration	0028,0006	US		VNAP		
Rows	0028,0010	US		ALWAYS	AUTO	
Samples per Pixel	0028,0002	US		ALWAYS	AUTO	

Table 100: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Conversion Type	0008,0064	CS	WSD	ALWAYS		
Modality	0008,0060	CS		ALWAYS	AUTO	
Secondary Capture Device ID	0018,1010	LO		ALWAYS	AUTO	

Table 101: SC Multi-frame Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Burned In Annotation	0028,0301	CS		ALWAYS	AUTO	
Frame Increment Pointer	0028,0009	AT		ALWAYS		
Presentation LUT Shape	2050,0020	CS		VNAP		

Table 102: SC Multi-frame Vector Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Page Number Vector	0018,2001	IS		ALWAYS	AUTO	

Table 103: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
SOP Class UID	0008,0016	UI		ALWAYS	AUTO	
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	
Specific Character Set	0008,0005	CS		VNAP		

9.1.1.3. Secondary Capture Image Storage SOP Class

Table 104: IOD of Created Secondary Capture Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	
Study	General Study Module	
Series	General Series Module	
Equipment	General Equipment Module	
Image	General Image Module	
Image	Image Pixel Module	
Equipment	SC Equipment Module	
Image	VOI LUT Module	
Image	SOP Common Module	

Table 105: Patient Module

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

Table 106: General Study Module

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

Table 107: General Series Module

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

Table 108: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Institution Name	0008,0080	LO		ALWAYS	AUTO	
Manufacturer	0008,0070	LO		ALWAYS	AUTO	

Table 109: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Content Date	0008,0023	DA		ANAPCV	AUTO	
Content Time	0008,0033	TM		ANAPCV	AUTO	
Image Comments	0020,4000	LT		VNAP	AUTO	
Image Type	0008,0008	CS		VNAP	AUTO	
Instance Number	0020,0013	IS		VNAP	AUTO	
Patient Orientation	0020,0020	CS		VNAP		

Table 110: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Bits Allocated	0028,0100	US		ALWAYS	AUTO	
Bits Stored	0028,0101	US		ALWAYS	AUTO	
Columns	0028,0011	US		ALWAYS	AUTO	
High Bit	0028,0102	US		ALWAYS	AUTO	
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	
Pixel Data	7FE0,0010	O W/ OB		ANAP	AUTO	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	
Planar Configuration	0028,0006	US		VNAP	AUTO	
Rows	0028,0010	US		ALWAYS	AUTO	
Samples per Pixel	0028,0002	US		ALWAYS	AUTO	

Table 111: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Conversion Type	0008,0064	CS		ALWAYS		
Modality	0008,0060	CS		ALWAYS	AUTO	
Secondary Capture Device ID	0018,1010	LO		ALWAYS	AUTO	

Table 112: VOI LUT Module

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

Table 113: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
SOP Class UID	0008,0016	UI		ALWAYS	AUTO	
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	
Specific Character Set	0008,0005	CS		VNAP		

9.1.2. Usage of Attributes from Received IOD

Not applicable.

9.1.3. Attribute Mapping

Not applicable.

9.1.4. Coerced/Modified fields

Not applicable.

9.2. Data Dictionary of Private Attributes

Not applicable.

9.3. Coded Terminology and Templates

Not applicable.

9.3.1. Context Groups

Not applicable.

9.3.2. Template Specifications

Not applicable.

9.3.3. Private code definitions

Not applicable.

9.4. Grayscale Image consistency

Not applicable.

9.5. Standard Extended/Specialized/Private SOPs

Not applicable.

9.6. Private Transfer Syntaxes

Not applicable.

10. ANNEXES OF APPLICATION "NEUROQ"

10.1. IOD Contents

10.1.1. Created SOP Instance

This section specifies each IOD created by this application.

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

Abbreviations used in the IOD tables for the column "Presence of Module" are:

ALWAYS	The module is always present
CONDITIONAL	The module is used under specified condition

Abbreviations used in the Module table for the column "Presence of Value" are:

ALWAYS	The attribute is always present with a value
EMPTY	The attribute is always present without any value (attribute sent zero length)
VNAP	The attribute is always present and its Value is Not Always Present (attribute sent zero length if no value is present)
ANAP	The attribute is present under specified condition – if present then it will always have a value
ANAPCV	The attribute is present under specified condition – if present then its Value is Not Always Present (attribute sent zero length if condition applies and no value is present)
ANAPEV	The attribute is present under specified condition – if present then it will not have any value

The abbreviations used in the Module table for the column "Source" are:

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

10.1.1.1. List of created SOP Classes

Table 114: List of created SOP Classes

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

10.1.1.2. Secondary Capture Image Storage SOP Class

Table 115: IOD of Created Secondary Capture Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	
Study	General Study Module	
Series	General Series Module	
Equipment	General Equipment Module	
Image	General Image Module	
Equipment	SC Equipment Module	

Table 116: Patient Module

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

Table 117: General Study Module

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

Table 118: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Description	0008,103E	LO		ALWAYS	AUTO	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		ALWAYS	AUTO	

Table 119: General Equipment Module

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

Table 120: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Burned In Annotation	0028,0301	CS		VNAP		
Content Date	0008,0023	DA		ALWAYS	AUTO	
Content Time	0008,0033	TM		ALWAYS	AUTO	
Image Comments	0020,4000	LT		VNAP	AUTO	

Image Type	0008,0008	CS		VNAP	AUTO	
Instance Number	0020,0013	IS		ALWAYS	AUTO	
Patient Orientation	0020,0020	CS		VNAP		

Table 121: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Conversion Type	0008,0064	CS		ALWAYS		
Modality	0008,0060	CS		ALWAYS	AUTO	
Secondary Capture Device Manufacturer	0018,1016	LO		ALWAYS	AUTO	
Secondary Capture Device Manufacturer's Model Name	0018,1018	LO		ALWAYS	AUTO	
Secondary Capture Device Software Version(s)	0018,1019	LO		ALWAYS	AUTO	

10.1.2. Usage of Attributes from Received IOD

Not applicable.

10.1.3. Attribute Mapping

Not applicable.

10.1.4. Coerced/Modified fields

Not applicable.

10.2. Data Dictionary of Private Attributes

Not applicable.

10.3. Coded Terminology and Templates

Not applicable.

10.3.1. Context Groups

Not applicable.

10.3.2. Template Specifications

Not applicable.

10.3.3. Private code definitions

Not applicable.

10.4. Grayscale Image consistency

Not applicable.

10.5. Standard Extended/Specialized/Private SOPs

Not applicable.

10.6. Private Transfer Syntaxes

Not applicable.

11. ANNEXES OF APPLICATION "PET CT VIEWER"

11.1. IOD Contents

11.1.1. Created SOP Instance

This section specifies each IOD created by this application.

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

Abbreviations used in the IOD tables for the column "Presence of Module" are:

ALWAYS	The module is always present
CONDITIONAL	The module is used under specified condition

Abbreviations used in the Module table for the column "Presence of Value" are:

ALWAYS	The attribute is always present with a value
EMPTY	The attribute is always present without any value (attribute sent zero length)
VNAP	The attribute is always present and its Value is Not Always Present (attribute sent zero length if no value is present)
ANAP	The attribute is present under specified condition – if present then it will always have a value
ANAPCV	The attribute is present under specified condition – if present then its Value is Not Always Present (attribute sent zero length if condition applies and no value is present)
ANAPEV	The attribute is present under specified condition – if present then it will not have any value

The abbreviations used in the Module table for the column "Source" are:

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

11.1.1.1. List of created SOP Classes

Table 122: List of created SOP Classes

SOP Class Name	SOP Class UID
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1

11.1.1.2. CT Image Storage SOP Class

Table 123: IOD of Created CT Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	ALWAYS
Series	General Series Module	ALWAYS
Frame of Reference	Frame of Reference Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Plane Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	CT Image Module	ALWAYS
Image	VOI LUT Module	ALWAYS
Image	SOP Common Module	ALWAYS
	Additional Module	ALWAYS

Table 124: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Ethnic Group	0010,2160	SH		VNAP	MWL	
Patient Comments	0010,4000	LT		VNAP		
Patient ID	0010,0020	LO		ALWAYS	MWL, USER	
Patient's Birth Date	0010,0030	DA		ALWAYS	MWL, USER	
Patient's Name	0010,0010	PN		ALWAYS	MWL, USER	
Patient's Sex	0010,0040	CS		ALWAYS	MWL, USER	

Table 125: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Accession Number	0008,0050	SH		VNAP	MWL, USER	
Name of Physician(s) Reading Study	0008,1060	PN		VNAP		
Referring Physician's Name	0008,0090	PN		VNAP	USER	

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Date	0008,0020	DA		ALWAYS	AUTO	
Study Description	0008,1030	LO		ALWAYS	USER	
Study ID	0020,0010	SH		ALWAYS	USER	
Study Instance UID	0020,000D	UI		ALWAYS	AUTO, MWL	
Study Time	0008,0030	TM		ALWAYS	AUTO	
Referenced Study Sequence	0008,1110	SQ		VNAP		
>Referenced SOP Class UID	0008,1150	UI		VNAP		
>Referenced SOP Instance UID	0008,1155	UI		VNAP		

Table 126: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Age	0010,1010	AS		VNAP		
Patient's Size	0010,1020	DS		VNAP		
Patient's Weight	0010,1030	DS		VNAP	USER	

Table 127: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Body Part Examined	0018,0015	CS		VNAP		
Laterality	0020,0060	CS		VNAP		
Modality	0008,0060	CS		ALWAYS	AUTO	
Operators' Name	0008,1070	PN		VNAP		
Patient Position	0018,5100	CS		ALWAYS	AUTO	
Protocol Name	0018,1030	LO		ALWAYS	AUTO	
Series Date	0008,0021	DA		ALWAYS	AUTO	
Series Description	0008,103E	LO		ALWAYS	AUTO	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		ALWAYS	AUTO	
Series Time	0008,0031	TM		ALWAYS	AUTO	
Referenced Performed Procedure Step Sequence	0008,1111	SQ		VNAP		
>Referenced SOP Class UID	0008,1150	UI		VNAP		
>Referenced SOP Instance UID	0008,1155	UI		VNAP		
Request Attributes Sequence	0040,0275	SQ		VNAP	MWL	
>Requested Procedure ID	0040,1001	SH		VNAP	MWL	
>Scheduled Procedure Step Description	0040,0007	LO		VNAP	MWL	
>Scheduled Procedure Step ID	0040,0009	SH		VNAP	MWL	
>Scheduled Protocol Code Sequence	0040,0008	SQ		VNAP	MWL	
>>Code Meaning	0008,0104	LO		VNAP	MWL	
>>Code Value	0008,0100	SH		VNAP	MWL	
>>Coding Scheme Designator	0008,0102	SH		VNAP	MWL	
Performed Procedure Step ID	0040,0253	SH		VNAP	MWL	

Table 128: Frame of Reference Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Frame of Reference UID	0020,0052	UI		ALWAYS	AUTO	
Position Reference Indicator	0020,1040	LO		VNAP		

Table 129: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Institution Address	0008,0081	ST		VNAP		
Institution Name	0008,0080	LO		ALWAYS	AUTO	
Institutional Department Name	0008,1040	LO		VNAP		
Manufacturer	0008,0070	LO	Philips Medical System	ALWAYS	AUTO	
Manufacturer's Model Name	0008,1090	LO		VNAP		
Software Version(s)	0018,1020	LO		ALWAYS	AUTO	
Station Name	0008,1010	SH		ALWAYS	AUTO	

Table 130: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Date	0008,0022	DA		ALWAYS	AUTO	
Acquisition Time	0008,0032	TM		ALWAYS	AUTO	
Content Date	0008,0023	DA		ALWAYS	AUTO	
Content Time	0008,0033	TM		ALWAYS	AUTO	
Image Comments	0020,4000	LT		VNAP	AUTO	
Instance Number	0020,0013	IS		ALWAYS	AUTO	

Table 131: Image Plane Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Orientation (Patient)	0020,0037	DS		ALWAYS	AUTO	
Image Position (Patient)	0020,0032	DS		ALWAYS	AUTO	
Pixel Spacing	0028,0030	DS		ALWAYS	AUTO	
Slice Thickness	0018,0050	DS		ALWAYS	AUTO	

Table 132: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Columns	0028,0011	US		ALWAYS	AUTO	
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	
Rows	0028,0010	US		ALWAYS	AUTO	

Table 133: CT Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Number	0020,0012	IS		VNAP		
Bits Allocated	0028,0100	US		ALWAYS		
Bits Stored	0028,0101	US		ALWAYS		
Convolution Kernel	0018,1210	SH		ANAPCV		
Data Collection Diameter	0018,0090	DS		ANAPCV		
Exposure	0018,1152	IS		ANAPCV		
Filter Type	0018,1160	SH		ANAPCV		
Gantry/Detector Tilt	0018,1120	DS		ANAPCV		
High Bit	0028,0102	US		ALWAYS		
Image Type	0008,0008	CS		ALWAYS		
KVP	0018,0060	DS		VNAP		
Photometric Interpretation	0028,0004	CS		ALWAYS		
Reconstruction Diameter	0018,1100	DS		ANAPCV		
Rescale Intercept	0028,1052	DS		ALWAYS		
Rescale Slope	0028,1053	DS		ALWAYS		

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rotation Direction	0018,1140	CS		ANAPCV		
Samples per Pixel	0028,0002	US		ALWAYS		
Scan Options	0018,0022	CS		ANAPCV		
Table Height	0018,1130	DS		ANAPCV		
X-ray Tube Current	0018,1151	IS		ANAPCV		

Table 134: VOI LUT Module

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

Table 135: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Creation Date	0008,0012	DA		VNAP		
Instance Creation Time	0008,0013	TM		VNAP		
SOP Class UID	0008,0016	UI		ALWAYS	AUTO	
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	
Specific Character Set	0008,0005	CS		VNAP		

Table 136: Additional Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Medical Alerts	0010,2000	LO				
Allergies	0010,2110	LO				
Pregnancy Status	0010,21C0	US				
Requesting Physician	0032,1032	PN				
Requesting Service	0032,1033	LO				
Requested Procedure Description	0032,1060	LO				
Admission ID	0038,0010	LO				
Special Needs	0038,0050	LO				
Confidentiality Constraint on Patient Data Description	0040,3001	LO				

11.1.1.3. MR Image Storage SOP Class

Table 137: IOD of Created MR Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	ALWAYS
Series	General Series Module	ALWAYS
Frame of Reference	Frame of Reference Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Plane Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	MR Image Module	ALWAYS
Image	VOI LUT Module	ALWAYS
Image	SOP Common Module	ALWAYS
	Additional Module	ALWAYS

Table 138: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient Comments	0010,4000	LT		VNAP	MWL, USER	
Patient ID	0010,0020	LO		ALWAYS	MWL, USER	
Patient's Birth Date	0010,0030	DA		ALWAYS	MWL, USER	
Patient's Name	0010,0010	PN		ALWAYS	MWL, USER	
Patient's Sex	0010,0040	CS		ALWAYS	MWL, USER	

Table 139: General Study Module

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

Table 140: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Additional Patient History	0010,21B0	LT		VNAP	MWL	
Patient's Age	0010,1010	AS		VNAP		
Patient's Weight	0010,1030	DS		VNAP	USER	

Table 141: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Laterality	0020,0060	CS		VNAP		
Modality	0008,0060	CS		ALWAYS	AUTO	
Operators' Name	0008,1070	PN		ALWAYS	AUTO	
Patient Position	0018,5100	CS		ALWAYS	AUTO	
Performing Physician's Name	0008,1050	PN		VNAP		
Protocol Name	0018,1030	LO		ALWAYS	AUTO	
Series Date	0008,0021	DA		ALWAYS	AUTO	
Series Description	0008,103E	LO		ALWAYS	AUTO	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		ALWAYS	AUTO	
Series Time	0008,0031	TM		ALWAYS	AUTO	
Performed Procedure Step Description	0040,0254	LO		VNAP	MWL	
Performed Procedure Step ID	0040,0253	SH		VNAP	MWL	
Performed Procedure Step Start Date	0040,0244	DA		VNAP	MWL	
Performed Procedure Step Start Time	0040,0245	TM		VNAP	MWL	

Table 142: Frame of Reference Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Frame of Reference UID	0020,0052	UI		ALWAYS	AUTO	
Position Reference Indicator	0020,1040	LO		VNAP		

Table 143: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Device Serial Number	0018,1000	LO		ALWAYS	AUTO	
Institution Name	0008,0080	LO		ALWAYS	AUTO	
Manufacturer	0008,0070	LO	Philips Medical System	ALWAYS	AUTO	
Manufacturer's Model Name	0008,1090	LO		VNAP		
Software Version(s)	0018,1020	LO		ALWAYS	AUTO	
Station Name	0008,1010	SH		ALWAYS	AUTO	

Table 144: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Date	0008,0022	DA		ALWAYS	AUTO	
Acquisition Number	0020,0012	IS		VNAP		
Acquisition Time	0008,0032	TM		ALWAYS	AUTO	
Content Date	0008,0023	DA		ALWAYS	AUTO	
Content Time	0008,0033	TM		ALWAYS	AUTO	
Image Comments	0020,4000	LT		VNAP	AUTO	
Instance Number	0020,0013	IS		ALWAYS	AUTO	
Referenced Image Sequence	0008,1140	SQ		VNAP		
>Referenced SOP Class UID	0008,1150	UI		VNAP		
>Referenced SOP Instance UID	0008,1155	UI		VNAP		

Table 145: Image Plane Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Orientation (Patient)	0020,0037	DS		ALWAYS	AUTO	
Image Position (Patient)	0020,0032	DS		ALWAYS	AUTO	
Pixel Spacing	0028,0030	DS		ALWAYS	AUTO	
Slice Thickness	0018,0050	DS		ALWAYS	AUTO	

Table 146: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Bits Stored	0028,0101	US		ALWAYS	AUTO	
Columns	0028,0011	US		ALWAYS	AUTO	
High Bit	0028,0102	US		ALWAYS	AUTO	
Largest Image Pixel Value	0028,0107	US /SS		ALWAYS	AUTO	
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	
Rows	0028,0010	US		ALWAYS	AUTO	
Smallest Image Pixel Value	0028,0106	US /SS		ALWAYS	AUTO	

Table 147: MR Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Matrix	0018,1310	US		VNAP		
Angio Flag	0018,0025	CS		VNAP		
Bits Allocated	0028,0100	US		VNAP		
dB/dt	0018,1318	DS		VNAP		
Echo Number(s)	0018,0086	IS		VNAP		
Echo Time	0018,0081	DS		VNAP		
Echo Train Length	0018,0091	IS		VNAP		
Flip Angle	0018,1314	DS		VNAP		
Image Type	0008,0008	CS		VNAP		
Imaged Nucleus	0018,0085	SH		VNAP		
Imaging Frequency	0018,0084	DS		VNAP		
In-plane Phase Encoding Direction	0018,1312	CS		VNAP		
Magnetic Field Strength	0018,0087	DS		VNAP		
MR Acquisition Type	0018,0023	CS		VNAP		
Number of Averages	0018,0083	DS		VNAP		
Number of Phase Encoding Steps	0018,0089	IS		VNAP		
Percent Sampling	0018,0093	DS		VNAP		
Photometric Interpretation	0028,0004	CS		VNAP		
Pixel Bandwidth	0018,0095	DS		VNAP		
Repetition Time	0018,0080	DS		VNAP		
Samples per Pixel	0028,0002	US		VNAP		
SAR	0018,1316	DS		VNAP		
Scan Options	0018,0022	CS		VNAP		
Scanning Sequence	0018,0020	CS		VNAP		
Sequence Name	0018,0024	SH		VNAP		
Sequence Variant	0018,0021	CS		VNAP		
Transmit Coil Name	0018,1251	SH		VNAP		
Trigger Window	0018,1094	IS		VNAP		
Variable Flip Angle Flag	0018,1315	CS		VNAP		

Table 148: VOI LUT Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Window Center	0028,1050	DS		VNAP		
Window Center & Width Explanation	0028,1055	LO		VNAP		
Window Width	0028,1051	DS		VNAP		
VOI LUT Sequence	0028,3010	SQ		ANAP		
>LUT Data	0028,3006	US /SS		ALWAYS		
>LUT Descriptor	0028,3002	US /SS		ALWAYS		

Table 149: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Creation Date	0008,0012	DA		VNAP		
Instance Creation Time	0008,0013	TM		VNAP		
SOP Class UID	0008,0016	UI		ALWAYS	AUTO	
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	
Specific Character Set	0008,0005	CS		VNAP		

Table 150: Additional Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Address	0010,1040	LO				
Rescale Intercept	0028,1052	DS				
Rescale Slope	0028,1053	DS				
Rescale Type	0028,1054	LO				
Study Comments (retired)	0032,4000	LT				
Number of Slices	0054,0081	US				
Image Index	0054,1330	US				
Interpretation Status ID (retired)	4008,0212	CS				

11.1.1.4. Multi-frame True Color Secondary Capture Image Storage

Table 151: IOD of Created Multi-frame True Color Secondary Capture Image Storage Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	ALWAYS
Series	General Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	Cine Module	ALWAYS
Equipment	SC Equipment Module	ALWAYS
Image	SC Image Module	ALWAYS
Image	SC Multi-frame Image Module	ALWAYS
Image	SOP Common Module	ALWAYS
	Additional Module	

Table 152: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Ethnic Group	0010,2160	SH		VNAP	MWL	
Patient Comments	0010,4000	LT		VNAP		
Patient ID	0010,0020	LO		ALWAYS	MWL, USER	
Patient's Birth Date	0010,0030	DA		ALWAYS	MWL, USER	
Patient's Name	0010,0010	PN		ALWAYS	MWL, USER	
Patient's Sex	0010,0040	CS		ALWAYS	MWL, USER	

Table 153: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Accession Number	0008,0050	SH		VNAP	MWL, USER	
Name of Physician(s) Reading Study	0008,1060	PN		VNAP		
Referring Physician's Name	0008,0090	PN		VNAP	USER	
Study Date	0008,0020	DA		ALWAYS	AUTO	
Study Description	0008,1030	LO		ALWAYS	USER	
Study ID	0020,0010	SH		ALWAYS	USER	
Study Instance UID	0020,000D	UI		ALWAYS	AUTO, MWL	
Study Time	0008,0030	TM		ALWAYS	AUTO	
Referenced Study Sequence	0008,1110	SQ		VNAP		
>Referenced SOP Class UID	0008,1150	UI		VNAP		
>Referenced SOP Instance UID	0008,1155	UI		VNAP		

Table 154: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Age	0010,1010	AS		VNAP		
Patient's Size	0010,1020	DS		VNAP		
Patient's Weight	0010,1030	DS		VNAP	USER	

Table 155: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Date	0008,0021	DA		ALWAYS	AUTO	
Series Description	0008,103E	LO		ALWAYS	AUTO	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		ALWAYS	AUTO	
Series Time	0008,0031	TM		ALWAYS	AUTO	
Referenced Performed Procedure Step Sequence	0008,1111	SQ		VNAP		
>Referenced SOP Class UID	0008,1150	UI		VNAP		
>Referenced SOP Instance UID	0008,1155	UI		VNAP		
Request Attributes Sequence	0040,0275	SQ		VNAP	MWL	
>Requested Procedure ID	0040,1001	SH		VNAP	MWL	
>Scheduled Procedure Step Description	0040,0007	LO		VNAP	MWL	
>Scheduled Procedure Step ID	0040,0009	SH		VNAP	MWL	
>Scheduled Protocol Code Sequence	0040,0008	SQ		VNAP	MWL	
>>Code Meaning	0008,0104	LO		VNAP	MWL	
>>Code Value	0008,0100	SH		VNAP	MWL	
>>Coding Scheme Designator	0008,0102	SH		VNAP	MWL	

Table 156: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Device Serial Number	0018,1000	LO		ALWAYS	AUTO	
Institution Address	0008,0081	ST		VNAP		
Institution Name	0008,0080	LO		ALWAYS	AUTO	
Manufacturer	0008,0070	LO	Philips Medical System	ALWAYS	AUTO	
Manufacturer's Model Name	0008,1090	LO		VNAP		
Software Version(s)	0018,1020	LO		ALWAYS	AUTO	
Station Name	0008,1010	SH		ALWAYS	AUTO	

Table 157: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Comments	0020,4000	LT		VNAP	AUTO	
Image Type	0008,0008	CS		ALWAYS	AUTO	
Instance Number	0020,0013	IS		ALWAYS	AUTO	
Lossy Image Compression	0028,2110	CS		VNAP		
Patient Orientation	0020,0020	CS		VNAP		

Table 158: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Bits Allocated	0028,0100	US		ALWAYS	AUTO	
Bits Stored	0028,0101	US		ALWAYS	AUTO	
Columns	0028,0011	US		ALWAYS	AUTO	
High Bit	0028,0102	US		ALWAYS	AUTO	
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	
Planar Configuration	0028,0006	US		VNAP		
Rows	0028,0010	US		ALWAYS	AUTO	
Samples per Pixel	0028,0002	US		ALWAYS	AUTO	

Table 159: Cine Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Cine Rate	0018,0040	IS		ANAPCV		
Frame Time	0018,1063	DS		ANAP		
Preferred Playback Sequencing	0018,1244	US		ANAPCV		
Recommended Display Frame Rate	0008,2144	IS		ANAPCV		

Table 160: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Conversion Type	0008,0064	CS		ALWAYS		
Modality	0008,0060	CS		ALWAYS	AUTO	
Secondary Capture Device ID	0018,1010	LO		ALWAYS	AUTO	
Secondary Capture Device Manufacturer	0018,1016	LO		ALWAYS	AUTO	
Secondary Capture Device Manufacturer's Model Name	0018,1018	LO		ALWAYS	AUTO	
Secondary Capture Device Software Version(s)	0018,1019	LO		ALWAYS	AUTO	

Table 161: SC Image Module

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

Table 162: SC Multi-frame Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Burned In Annotation	0028,0301	CS		ALWAYS	AUTO	
Frame Increment Pointer	0028,0009	AT		ALWAYS		
Presentation LUT Shape	2050,0020	CS		VNAP		
Rescale Intercept	0028,1052	DS		VNAP		
Rescale Slope	0028,1053	DS		VNAP		
Rescale Type	0028,1054	LO		VNAP		

Table 163: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Creation Date	0008,0012	DA		VNAP		
Instance Creation Time	0008,0013	TM		VNAP		
SOP Class UID	0008,0016	UI		ALWAYS	AUTO	
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	
Specific Character Set	0008,0005	CS		VNAP		

Table 164: Additional Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Medical Alerts	0010,2000	LO				
Allergies	0010,2110	LO				
Pregnancy Status	0010,21C0	US				
Requesting Physician	0032,1032	PN				
Requesting Service	0032,1033	LO				
Requested Procedure Description	0032,1060	LO				
Special Needs	0038,0050	LO				
Patient State	0038,0500	LO				

11.1.1.5. Nuclear Medicine Image Storage SOP Class

Table 165: IOD of Created Nuclear Medicine Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	ALWAYS
Series	General Series Module	ALWAYS
Frame of Reference	Frame of Reference Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	Multi-Frame Module	ALWAYS
Series	NM/PET Patient Orientation Module	ALWAYS
Image	NM Image Pixel Module	ALWAYS
Image	NM Multi-frame Module	ALWAYS
Image	NM Image Module	ALWAYS
Image	NM Isotope Module	ALWAYS
Image	NM Detector Module	ALWAYS
Image	NM Tomo Acquisition Module	ALWAYS
Image	NM Multi-gated Acquisition Module	ALWAYS
	NM Reconstruction Module	ALWAYS
	VOI LUT Module	ALWAYS
	SOP Common Module	ALWAYS
	Additional Module	ALWAYS

Table 166: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Ethnic Group	0010,2160	SH		VNAP	MWL	
Patient Comments	0010,4000	LT		VNAP		
Patient ID	0010,0020	LO		ALWAYS	MWL, USER	
Patient's Birth Date	0010,0030	DA		ALWAYS	MWL, USER	
Patient's Name	0010,0010	PN		ALWAYS	MWL, USER	
Patient's Sex	0010,0040	CS		ALWAYS	MWL, USER	

Table 167: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Accession Number	0008,0050	SH		VNAP	MWL, USER	
Name of Physician(s) Reading Study	0008,1060	PN		VNAP		
Referring Physician's Name	0008,0090	PN		VNAP	USER	
Study Date	0008,0020	DA		ALWAYS	AUTO	
Study Description	0008,1030	LO		ALWAYS	USER	
Study ID	0020,0010	SH		ALWAYS	USER	
Study Instance UID	0020,000D	UI		ALWAYS	AUTO, MWL	
Study Time	0008,0030	TM		ALWAYS	AUTO	
Referenced Study Sequence	0008,1110	SQ		VNAP		
>Referenced SOP Class UID	0008,1150	UI		VNAP		
>Referenced SOP Instance UID	0008,1155	UI		VNAP		

Table 168: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Age	0010,1010	AS		VNAP		
Patient's Size	0010,1020	DS		VNAP		
Patient's Weight	0010,1030	DS		VNAP	USER	

Table 169: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Body Part Examined	0018,0015	CS		VNAP		
Modality	0008,0060	CS		ALWAYS	AUTO	
Protocol Name	0018,1030	LO		ALWAYS	AUTO	
Series Date	0008,0021	DA		ALWAYS	AUTO	
Series Description	0008,103E	LO		ALWAYS	AUTO	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		ALWAYS	AUTO	
Series Time	0008,0031	TM		ALWAYS	AUTO	
Referenced Performed Procedure Step Sequence	0008,1111	SQ		VNAP		
>Referenced SOP Class UID	0008,1150	UI		VNAP		
>Referenced SOP Instance UID	0008,1155	UI		VNAP		
Performed Procedure Step ID	0040,0253	SH		VNAP	MWL	

Table 170: Frame of Reference Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Frame of Reference UID	0020,0052	UI		ALWAYS	AUTO	

Table 171: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Device Serial Number	0018,1000	LO		ALWAYS	AUTO	
Institution Address	0008,0081	ST		VNAP		
Institution Name	0008,0080	LO		ALWAYS	AUTO	
Manufacturer	0008,0070	LO	Philips Medical System	ALWAYS	AUTO	
Manufacturer's Model Name	0008,1090	LO		VNAP		
Software Version(s)	0018,1020	LO		ALWAYS	AUTO	
Station Name	0008,1010	SH		ALWAYS	AUTO	

Table 172: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Date	0008,0022	DA		ALWAYS	AUTO	
Acquisition Time	0008,0032	TM		ALWAYS	AUTO	
Content Date	0008,0023	DA		ALWAYS	AUTO	
Content Time	0008,0033	TM		ALWAYS	AUTO	
Image Comments	0020,4000	LT		VNAP	AUTO	
Instance Number	0020,0013	IS		ALWAYS	AUTO	

Table 173: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Columns	0028,0011	US		ALWAYS	AUTO	
Largest Image Pixel Value	0028,0107	US /SS		VNAP	AUTO	
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	
Rows	0028,0010	US		ALWAYS	AUTO	
Smallest Image Pixel Value	0028,0106	US /SS		VNAP	AUTO	

Table 174: Multi-Frame Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Frames	0028,0008	IS		ALWAYS	AUTO	

Table 175: NM/PET Patient Orientation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient Gantry Relationship Code Sequence	0054,0414	SQ		ALWAYS	AUTO	
>Code Meaning	0008,0104	LO		ALWAYS	AUTO	
>Code Value	0008,0100	SH		ALWAYS	AUTO	
>Coding Scheme Designator	0008,0102	SH		ALWAYS	AUTO	
Patient Orientation Code Sequence	0054,0410	SQ		ALWAYS	AUTO	
>Patient Orientation Modifier Code Sequence	0054,0412	SQ		ALWAYS	AUTO	
>>Code Meaning	0008,0104	LO		ALWAYS	AUTO	
>>Code Value	0008,0100	SH		ALWAYS	AUTO	
>>Coding Scheme Designator	0008,0102	SH		ALWAYS	AUTO	
>Code Meaning	0008,0104	LO		ALWAYS	AUTO	
>Code Value	0008,0100	SH		ALWAYS	AUTO	
>Coding Scheme Designator	0008,0102	SH		ALWAYS	AUTO	

Table 176: NM Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Bits Allocated	0028,0100	US		ALWAYS	AUTO	
Bits Stored	0028,0101	US		ALWAYS	AUTO	
High Bit	0028,0102	US		ALWAYS	AUTO	
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	
Pixel Spacing	0028,0030	DS		ALWAYS	AUTO	
Samples per Pixel	0028,0002	US		ALWAYS	AUTO	

Table 177: NM Multi-frame Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Detector Vector	0054,0020	US		VNAP		
Energy Window Vector	0054,0010	US		VNAP		
Frame Increment Pointer	0028,0009	AT		ALWAYS	AUTO	
Number of Detectors	0054,0021	US		ALWAYS	AUTO	
Number of Energy Windows	0054,0011	US		ALWAYS	AUTO	
Number of R-R Intervals	0054,0061	US		VNAP		
Number of Rotations	0054,0051	US		ALWAYS	AUTO	
Number of Slices	0054,0081	US		ALWAYS	AUTO	
Number of Time Slots	0054,0071	US		VNAP		
R-R Interval Vector	0054,0060	US		VNAP		
Rotation Vector	0054,0050	US		VNAP		
Slice Vector	0054,0080	US		ALWAYS	AUTO	
Time Slot Vector	0054,0070	US		VNAP		

Table 178: NM Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Termination Condition	0018,0071	CS		VNAP		
Corrected Image	0028,0051	CS		ALWAYS	AUTO	
Counts Accumulated	0018,0070	IS		ALWAYS	AUTO	
Image ID	0054,0400	SH		VNAP		
Image Type	0008,0008	CS		ALWAYS	AUTO	
Lossy Image Compression	0028,2110	CS		VNAP		

Table 179: NM Isotope Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Energy Window Information Sequence	0054,0012	SQ		ALWAYS	AUTO	
>Energy Window Name	0054,0018	SH		VNAP		
>Energy Window Range Sequence	0054,0013	SQ		VNAP		
>>Energy Window Lower Limit	0054,0014	DS		VNAP		
>>Energy Window Upper Limit	0054,0015	DS		VNAP		
Radiopharmaceutical Information Sequence	0054,0016	SQ		ALWAYS	AUTO	
>Radionuclide Total Dose	0018,1074	DS		ALWAYS	AUTO	
>Radiopharmaceutical	0018,0031	LO		VNAP		
>Radiopharmaceutical Start Time	0018,1072	TM		ALWAYS	AUTO	
>Radiopharmaceutical Volume	0018,1071	DS		VNAP		
>Radionuclide Code Sequence	0054,0300	SQ		ALWAYS	AUTO	
>>Code Meaning	0008,0104	LO		ALWAYS	AUTO	
>>Code Value	0008,0100	SH		ALWAYS	AUTO	
>>Coding Scheme Designator	0008,0102	SH		ALWAYS	AUTO	

Table 180: NM Detector Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Detector Information Sequence	0054,0022	SQ		ALWAYS	AUTO	
>Collimator Type	0018,1181	CS	NONE	ALWAYS	AUTO	
>Collimator/grid Name	0018,1180	SH		VNAP		
>Focal Distance	0018,1182	IS		VNAP	AUTO	
>Image Orientation (Patient)	0020,0037	DS		ALWAYS	AUTO	
>Image Position (Patient)	0020,0032	DS		ALWAYS	AUTO	
>View Code Sequence	0054,0220	SQ		VNAP	AUTO	
>>Code Meaning	0008,0104	LO		VNAP	AUTO	
>>Code Value	0008,0100	SH		VNAP	AUTO	
>>Coding Scheme Designator	0008,0102	SH		VNAP	AUTO	

Table 181: NM Tomo Acquisition Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rotation Information Sequence	0054,0052	SQ		VNAP	AUTO	
>Actual Frame Duration	0018,1242	IS		VNAP	AUTO	
>Angular Step	0018,1144	DS		VNAP	AUTO	
>Number of Frames in Rotation	0054,0053	US		VNAP	AUTO	
>Rotation Direction	0018,1140	CS		VNAP	AUTO	
>Scan Arc	0018,1143	DS		VNAP	AUTO	
>Start Angle	0054,0200	DS		VNAP	AUTO	
>Table Height	0018,1130	DS		VNAP	AUTO	
>Table Traverse	0018,1131	DS		VNAP	AUTO	

Table 182: NM Multi-gated Acquisition Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Gated Information Sequence	0054,0062	SQ		VNAP		
>Data Information Sequence	0054,0063	SQ		VNAP		
>>Frame Time	0018,1063	DS		VNAP		
>>Time Slot Information Sequence	0054,0072	SQ		VNAP		
>>>Time Slot Time	0054,0073	DS		ANAPCV		

Table 183: NM Reconstruction Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Slice Thickness	0018,0050	DS		VNAP		
Spacing Between Slices	0018,0088	DS		VNAP		

Table 184: VOI LUT Module

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

Table 185: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Creation Date	0008,0012	DA		VNAP		
Instance Creation Time	0008,0013	TM		VNAP		
SOP Class UID	0008,0016	UI		ALWAYS	AUTO	
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	
Specific Character Set	0008,0005	CS		VNAP		

Table 186: Additional Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Medical Alerts	0010,2000	LO				
Allergies	0010,2110	LO				
Pregnancy Status	0010,21C0	US				
Rescale Slope	0028,1053	DS				
Requesting Physician	0032,1032	PN				
Requesting Service	0032,1033	LO				
Requested Procedure Description	0032,1060	LO				
Special Needs	0038,0050	LO				

11.1.1.6. Positron Emission Tomography Image Storage SOP Class

Table 187: IOD of Created Positron Emission Tomography Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	
Study	General Study Module	
Study	Patient Study Module	
Series	General Series Module	
Frame of Reference	Frame of Reference Module	
Equipment	General Equipment Module	
Image	General Image Module	
Image	Image Plane Module	
Image	Image Pixel Module	
Series	NM/PET Patient Orientation Module	
Series	PET Series Module	
Series	PET Isotope Module	
Image	PET Image Module	
Image	VOI LUT Module	
Image	SOP Common Module	
	Additional Module	

Table 188: Patient Module

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

Table 189: General Study Module

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

Table 190: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Age	0010,1010	AS		VNAP		
Patient's Size	0010,1020	DS		VNAP		
Patient's Weight	0010,1030	DS		VNAP	USER	

Table 191: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS	AUTO	
Operators' Name	0008,1070	PN		VNAP		
Patient Position	0018,5100	CS		ALWAYS	AUTO	
Series Description	0008,103E	LO		ALWAYS	AUTO	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		ALWAYS	AUTO	
Performed Procedure Step ID	0040,0253	SH		VNAP	MWL	
Performed Procedure Step Start Date	0040,0244	DA		VNAP	MWL	
Performed Procedure Step Start Time	0040,0245	TM		VNAP	MWL	

Table 192: Frame of Reference Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Frame of Reference UID	0020,0052	UI		ALWAYS	AUTO	
Position Reference Indicator	0020,1040	LO		VNAP		

Table 193: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Institution Name	0008,0080	LO		ALWAYS	AUTO	
Manufacturer	0008,0070	LO	Philips Medical System	ALWAYS	AUTO	
Manufacturer's Model Name	0008,1090	LO		VNAP		
Software Version(s)	0018,1020	LO		VNAP		
Station Name	0008,1010	SH		ALWAYS	AUTO	

Table 194: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Content Date	0008,0023	DA		ALWAYS	AUTO	
Content Time	0008,0033	TM		ALWAYS	AUTO	
Instance Number	0020,0013	IS		ALWAYS	AUTO	

Table 195: Image Plane Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Orientation (Patient)	0020,0037	DS		ALWAYS	AUTO	
Image Position (Patient)	0020,0032	DS		ALWAYS	AUTO	
Pixel Spacing	0028,0030	DS		ALWAYS	AUTO	
Slice Thickness	0018,0050	DS		ALWAYS	AUTO	

Table 196: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Columns	0028,0011	US		ALWAYS	AUTO	
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	
Rows	0028,0010	US		ALWAYS	AUTO	

Table 197: NM/PET Patient Orientation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient Gantry Relationship Code Sequence	0054,0414	SQ		ALWAYS	AUTO	
>Code Meaning	0008,0104	LO		ALWAYS	AUTO	
>Code Value	0008,0100	SH		ALWAYS	AUTO	
>Coding Scheme Designator	0008,0102	SH		ALWAYS	AUTO	
Patient Orientation Code Sequence	0054,0410	SQ		ALWAYS	AUTO	
>Patient Orientation Modifier Code Sequence	0054,0412	SQ		ALWAYS	AUTO	
>>Code Meaning	0008,0104	LO		ALWAYS	AUTO	
>>Code Value	0008,0100	SH		ALWAYS	AUTO	
>>Coding Scheme Designator	0008,0102	SH		ALWAYS	AUTO	
>Code Meaning	0008,0104	LO		ALWAYS	AUTO	
>Code Value	0008,0100	SH		ALWAYS	AUTO	
>Coding Scheme Designator	0008,0102	SH		ALWAYS	AUTO	

Table 198: PET Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Start Condition	0018,0073	CS		VNAP		
Acquisition Start Condition Data	0018,0074	IS		VNAP		
Acquisition Termination Condition	0018,0071	CS		VNAP		
Acquisition Termination Condition Data	0018,0075	IS		VNAP		
Attenuation Correction Method	0054,1101	LO		ALWAYS	AUTO	
Axial Mash	0054,1201	IS		VNAP		
Coincidence Window Width	0054,1210	DS		VNAP		

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Collimator Type	0018,1181	CS	NONE	ALWAYS	AUTO	
Corrected Image	0028,0051	CS		ALWAYS	AUTO	
Counts Source	0054,1002	CS		ALWAYS	AUTO	
Decay Correction	0054,1102	CS		ALWAYS	AUTO	
Field of View Dimension(s)	0018,1149	IS		ALWAYS	AUTO	
Field of View Shape	0018,1147	CS	CYLINDRICAL RING	ALWAYS	AUTO	
Gantry/Detector Tilt	0018,1120	DS		VNAP		
Number of Slices	0054,0081	US		ALWAYS	AUTO	
Number of Time Slices	0054,0101	US		VNAP	AUTO	
Randoms Correction Method	0054,1100	CS		ALWAYS	AUTO	
Reconstruction Method	0054,1103	LO		ALWAYS	AUTO	
Scatter Correction Method	0054,1105	LO		ALWAYS	AUTO	
Series Date	0008,0021	DA		ALWAYS	AUTO	
Series Time	0008,0031	TM		ALWAYS	AUTO	
Series Type	0054,1000	CS		ALWAYS	AUTO	
Transverse Mash	0054,1202	IS		VNAP		
Type of Detector Motion	0054,0202	CS	NONE	ALWAYS	AUTO	
Units	0054,1001	CS	CNTS	ALWAYS	AUTO	
Energy Window Range Sequence	0054,0013	SQ		VNAP		
>Energy Window Lower Limit	0054,0014	DS		VNAP		
>Energy Window Upper Limit	0054,0015	DS		VNAP		

Table 199: PET Isotope Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Radiopharmaceutical Information Sequence	0054,0016	SQ		ALWAYS	AUTO	
>Radionuclide Half Life	0018,1075	DS		ALWAYS	AUTO	
>Radionuclide Positron Fraction	0018,1076	DS		VNAP		
>Radionuclide Total Dose	0018,1074	DS		ALWAYS	AUTO	
>Radiopharmaceutical	0018,0031	LO		VNAP		
>Radiopharmaceutical Start Time	0018,1072	TM		ALWAYS	AUTO	
>Radiopharmaceutical Volume	0018,1071	DS		VNAP		
>Radionuclide Code Sequence	0054,0300	SQ		ALWAYS	AUTO	
>>Code Meaning	0008,0104	LO		ALWAYS	AUTO	
>>Code Value	0008,0100	SH		ALWAYS	AUTO	
>>Coding Scheme Designator	0008,0102	SH		ALWAYS	AUTO	
>Radiopharmaceutical Code Sequence	0054,0304	SQ		VNAP		
>>Code Meaning	0008,0104	LO		VNAP		
>>Code Value	0008,0100	SH		VNAP		
>>Coding Scheme Designator	0008,0102	SH		VNAP		

Table 200: PET Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Date	0008,0022	DA		ALWAYS	AUTO	
Acquisition Time	0008,0032	TM		ALWAYS	AUTO	
Actual Frame Duration	0018,1242	IS		ALWAYS	AUTO	
Bits Allocated	0028,0100	US		ALWAYS	AUTO	
Bits Stored	0028,0101	US		ALWAYS	AUTO	
Decay Factor	0054,1321	DS		VNAP		
Dose Calibration Factor	0054,1322	DS		VNAP		
Frame Reference Time	0054,1300	DS		ALWAYS	AUTO	
High Bit	0028,0102	US		ALWAYS	AUTO	

Image Index	0054,1330	US		ALWAYS	AUTO	
Image Type	0008,0008	CS		ALWAYS	AUTO	
Intervals Acquired	0018,1083	IS		VNAP		
Intervals Rejected	0018,1084	IS		VNAP		
Lossy Image Compression	0028,2110	CS		VNAP		
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	
Rescale Intercept	0028,1052	DS		ALWAYS	AUTO	
Rescale Slope	0028,1053	DS		ALWAYS	AUTO	
Samples per Pixel	0028,0002	US		ALWAYS	AUTO	
Scatter Fraction Factor	0054,1323	DS		VNAP		
Slice Sensitivity Factor	0054,1320	DS		VNAP		

Table 201: VOI LUT Module

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

Table 202: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Creation Date	0008,0012	DA		VNAP		
Instance Creation Time	0008,0013	TM		VNAP		
Instance Creator UID	0008,0014	UI		VNAP		
SOP Class UID	0008,0016	UI		ALWAYS	AUTO	
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	
Specific Character Set	0008,0005	CS		VNAP		

Table 203: Additional Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Retrieve AE Title	0008,0054	AE				
Modalities in Study	0008,0061	CS				
Contrast/Bolus Route	0018,1040	LO				
Table Height	0018,1130	DS				
Number of Study Related Series	0020,1206	IS				
Number of Study Related Instances	0020,1208	IS				
DateTime	0040,A120	DT				

11.1.1.7. RT Structure Set Storage SOP Class

Table 204: IOD of Created RT Structure Set Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	ALWAYS
Series	RT Series Module	ALWAYS
Structure Set	Structure Set Module	ALWAYS
Structure Set	ROI Contour Module	ALWAYS
Structure Set	SOP Common Module	ALWAYS
	Additional Module	ALWAYS

Table 205: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Ethnic Group	0010,2160	SH		VNAP	MWL	
Other Patient IDs	0010,1000	LO		VNAP	MWL	
Patient Comments	0010,4000	LT		VNAP		
Patient ID	0010,0020	LO		ALWAYS	MWL, USER	
Patient's Birth Date	0010,0030	DA		ALWAYS	MWL, USER	
Patient's Name	0010,0010	PN		ALWAYS	MWL, USER	
Patient's Sex	0010,0040	CS		ALWAYS	MWL, USER	

Table 206: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Accession Number	0008,0050	SH		VNAP	MWL, USER	
Referring Physician's Name	0008,0090	PN		VNAP	USER	
Study Date	0008,0020	DA		ALWAYS	AUTO	
Study Description	0008,1030	LO		ALWAYS	USER	
Study ID	0020,0010	SH		ALWAYS	USER	
Study Instance UID	0020,000D	UI		ALWAYS	AUTO, MWL	
Study Time	0008,0030	TM		ALWAYS	AUTO	
Referenced Study Sequence	0008,1110	SQ		VNAP		
>Referenced SOP Class UID	0008,1150	UI		VNAP		
>Referenced SOP Instance UID	0008,1155	UI		VNAP		

Table 207: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Additional Patient History	0010,21B0	LT		VNAP	MWL	
Patient's Age	0010,1010	AS		VNAP		
Patient's Size	0010,1020	DS		VNAP		
Patient's Weight	0010,1030	DS		VNAP	USER	

Table 208: RT Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS		
Series Description	0008,103E	LO		ALWAYS		
Series Instance UID	0020,000E	UI		ALWAYS		
Series Number	0020,0011	IS		VNAP		
Referenced Performed Procedure Step Sequence	0008,1111	SQ		VNAP		
>Referenced SOP Class UID	0008,1150	UI		VNAP		
>Referenced SOP Instance UID	0008,1155	UI		VNAP		
Request Attributes Sequence	0040,0275	SQ		VNAP		
>Scheduled Procedure Step Description	0040,0007	LO		VNAP		
Performed Procedure Step ID	0040,0253	SH		VNAP		

Table 209: Structure Set Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Structure Set Date	3006,0008	DA		ALWAYS		
Structure Set Label	3006,0002	SH		ALWAYS	AUTO	
Structure Set Name	3006,0004	LO		VNAP		
Structure Set Time	3006,0009	TM		ALWAYS		
Referenced Frame of Reference Sequence	3006,0010	SQ		ALWAYS		
>Frame of Reference UID	0020,0052	UI		ALWAYS		
>RT Referenced Study Sequence	3006,0012	SQ		ALWAYS		
>>RT Referenced Series Sequence	3006,0014	SQ		ALWAYS		
>>>Series Instance UID	0020,000E	UI		ALWAYS		
>>>Contour Image Sequence	3006,0016	SQ		ALWAYS		
>>>>Referenced SOP Class UID	0008,1150	UI		ALWAYS		
>>>>Referenced SOP Instance UID	0008,1155	UI		ALWAYS		
>>Referenced SOP Class UID	0008,1150	UI		ALWAYS		
>>Referenced SOP Instance UID	0008,1155	UI		ALWAYS		
Structure Set ROI Sequence	3006,0020	SQ		ALWAYS		
>Referenced Frame of Reference UID	3006,0024	UI		ALWAYS		
>ROI Name	3006,0026	LO		ALWAYS		
>ROI Number	3006,0022	IS		ALWAYS		

Table 210: ROI Contour Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
ROI Contour Sequence	3006,0039	SQ		ALWAYS		
>Referenced ROI Number	3006,0084	IS		ALWAYS		
>ROI Display Color	3006,002A	IS		ALWAYS		
>Contour Sequence	3006,0040	SQ		ALWAYS		
>>Contour Data	3006,0050	DS		ALWAYS		
>>Contour Geometric Type	3006,0042	CS	CLOSED_PLANAR	ALWAYS		
>>Contour Number	3006,0048	IS		VNAP		
>>Contour Slab Thickness	3006,0044	DS		VNAP		
>>Number of Contour Points	3006,0046	IS		ALWAYS		
>>Contour Image Sequence	3006,0016	SQ		ALWAYS		
>>>Referenced SOP Class UID	0008,1150	UI		ALWAYS		
>>>Referenced SOP Instance UID	0008,1155	UI		ALWAYS		

Table 211: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
SOP Class UID	0008,0016	UI		ALWAYS	AUTO	
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	

Table 212: Additional Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modalities in Study	0008,0061	CS				
Medical Alerts	0010,2000	LO				
Allergies	0010,2110	LO				
Pregnancy Status	0010,21C0	US				
Number of Study Related Series	0020,1206	IS				
Number of Study Related Instances	0020,1208	IS				
Requesting Physician	0032,1032	PN				
Requesting Service	0032,1033	LO				
Requested Procedure Description	0032,1060	LO				
Special Needs	0038,0050	LO				
Patient State	0038,0500	LO				

11.1.1.8. Secondary Capture Image Storage SOP Class

Table 213: IOD of Created Secondary Capture Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	ALWAYS
Series	General Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Equipment	SC Equipment Module	ALWAYS
Image	SC Image Module	ALWAYS
Image	Modality LUT Module	ALWAYS
Image	SOP Common Module	ALWAYS
	Additional Module	ALWAYS

Table 214: Patient Module

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

Table 215: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Accession Number	0008,0050	SH		VNAP	MWL, USER	
Name of Physician(s) Reading Study	0008,1060	PN		VNAP		
Referring Physician's Name	0008,0090	PN		VNAP	USER	
Study Date	0008,0020	DA		ALWAYS	AUTO	
Study Description	0008,1030	LO		ALWAYS	USER	
Study ID	0020,0010	SH		ALWAYS	USER	
Study Instance UID	0020,000D	UI		ALWAYS	AUTO, MWL	
Study Time	0008,0030	TM		ALWAYS	AUTO	
Procedure Code Sequence	0008,1032	SQ		VNAP	MWL	
>Code Meaning	0008,0104	LO		ALWAYS		
>Code Value	0008,0100	SH		ALWAYS		
>Coding Scheme Designator	0008,0102	SH		ALWAYS		

Table 216: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Additional Patient History	0010,21B0	LT		VNAP	MWL	
Patient's Age	0010,1010	AS		VNAP		
Patient's Size	0010,1020	DS		VNAP		
Patient's Weight	0010,1030	DS		VNAP	USER	

Table 217: General Series Module

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

Table 218: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Institution Name	0008,0080	LO		ALWAYS	AUTO	
Manufacturer	0008,0070	LO	Philips Medical System	ALWAYS	AUTO	
Manufacturer's Model Name	0008,1090	LO		VNAP		
Software Version(s)	0018,1020	LO		VNAP		
Station Name	0008,1010	SH		ALWAYS	AUTO	

Table 219: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Burned In Annotation	0028,0301	CS		VNAP		
Image Comments	0020,4000	LT		VNAP	AUTO	
Image Type	0008,0008	CS		ALWAYS	AUTO	
Instance Number	0020,0013	IS		ALWAYS	AUTO	
Lossy Image Compression	0028,2110	CS		VNAP		
Patient Orientation	0020,0020	CS		VNAP		
Presentation LUT Shape	2050,0020	CS		VNAP		

Table 220: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Bits Allocated	0028,0100	US		ALWAYS	AUTO	
Bits Stored	0028,0101	US		ALWAYS	AUTO	
Columns	0028,0011	US		ALWAYS	AUTO	
High Bit	0028,0102	US		ALWAYS	AUTO	
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	
Planar Configuration	0028,0006	US		VNAP		
Rows	0028,0010	US		ALWAYS	AUTO	
Samples per Pixel	0028,0002	US		ALWAYS	AUTO	

Table 221: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Conversion Type	0008,0064	CS	WSD	ALWAYS	AUTO	
Modality	0008,0060	CS		ALWAYS	AUTO	
Secondary Capture Device ID	0018,1010	LO		ALWAYS	AUTO	
Secondary Capture Device Manufacturer	0018,1016	LO		ALWAYS	AUTO	
Secondary Capture Device Manufacturer's Model Name	0018,1018	LO		ALWAYS	AUTO	
Secondary Capture Device Software Version(s)	0018,1019	LO		ALWAYS	AUTO	

Table 222: SC Image Module

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

Table 223: Modality LUT Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rescale Intercept	0028,1052	DS		VNAP		
Rescale Slope	0028,1053	DS		VNAP		
Rescale Type	0028,1054	LO		VNAP		

Table 224: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Creation Date	0008,0012	DA		VNAP		
Instance Creation Time	0008,0013	TM		VNAP		
SOP Class UID	0008,0016	UI		ALWAYS	AUTO	
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	
Specific Character Set	0008,0005	CS		VNAP		

Table 225: Additional Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modalities in Study	0008,0061	CS				
Number of Study Related Series	0020,1206	IS				
Number of Study Related Instances	0020,1208	IS				
Series Type	0054,1000	CS				

11.1.1.9. Spatial Registration Storage

Table 226: IOD of Created Spatial Registration Storage Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	ALWAYS
Series	General Series Module	ALWAYS
Frame of Reference	Frame of Reference Module	ALWAYS
	SOP Common Module	ALWAYS
	Common Instance Reference Module	ALWAYS
Series	Spatial Registration Series Module	ALWAYS
Spatial Registration	Spatial Registration Module	ALWAYS
	Additional Module	ALWAYS

Table 227: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Ethnic Group	0010,2160	SH		VNAP	MWL	
Patient Comments	0010,4000	LT		VNAP		
Patient ID	0010,0020	LO		ALWAYS	MWL, USER	
Patient's Birth Date	0010,0030	DA		ALWAYS	MWL, USER	
Patient's Name	0010,0010	PN		ALWAYS	MWL, USER	
Patient's Sex	0010,0040	CS		ALWAYS	MWL, USER	

Table 228: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Accession Number	0008,0050	SH		VNAP	MWL, USER	
Name of Physician(s) Reading Study	0008,1060	PN		VNAP		
Referring Physician's Name	0008,0090	PN		VNAP	USER	
Study Date	0008,0020	DA		ALWAYS	AUTO	
Study Description	0008,1030	LO		ALWAYS	USER	
Study ID	0020,0010	SH		ALWAYS	USER	
Study Instance UID	0020,000D	UI		ALWAYS	AUTO, MWL	
Study Time	0008,0030	TM		ALWAYS	AUTO	
Referenced Study Sequence	0008,1110	SQ		VNAP		
>Referenced SOP Class UID	0008,1150	UI		ANAP		
>Referenced SOP Instance UID	0008,1155	UI		ANAP		

Table 229: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Age	0010,1010	AS		VNAP		
Patient's Size	0010,1020	DS		VNAP		
Patient's Weight	0010,1030	DS		VNAP	USER	

Table 230: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS	AUTO	
Series Date	0008,0021	DA		ALWAYS	AUTO	
Series Description	0008,103E	LO		ALWAYS	AUTO	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		ALWAYS	AUTO	
Series Time	0008,0031	TM		ALWAYS	AUTO	
Referenced Performed Procedure Step Sequence	0008,1111	SQ		VNAP		
>Referenced SOP Class UID	0008,1150	UI		VNAP		
>Referenced SOP Instance UID	0008,1155	UI		VNAP		
Request Attributes Sequence	0040,0275	SQ		VNAP	MWL	
>Requested Procedure ID	0040,1001	SH		VNAP	MWL	
>Scheduled Procedure Step Description	0040,0007	LO		VNAP	MWL	
>Scheduled Procedure Step ID	0040,0009	SH		VNAP	MWL	
>Scheduled Protocol Code Sequence	0040,0008	SQ		VNAP		
>>Code Meaning	0008,0104	LO		ALWAYS		
>>Code Value	0008,0100	SH		ALWAYS		
>>Coding Scheme Designator	0008,0102	SH		ALWAYS		
Performed Procedure Step ID	0040,0253	SH		VNAP	MWL	

Table 231: Frame of Reference Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Frame of Reference UID	0020,0052	UI		ALWAYS	AUTO	
Position Reference Indicator	0020,1040	LO		VNAP		

Table 232: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		ANAPCV		
SOP Class UID	0008,0016	UI		ANAP		
SOP Instance UID	0008,0018	UI		ANAP		

Table 233: Common Instance Reference Module

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

Table 234: Spatial Registration Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS		

Table 235: Spatial Registration Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Content Date	0008,0023	DA		ALWAYS		
Content Time	0008,0033	TM		ALWAYS		
Registration Sequence	0070,0308	SQ		ALWAYS		
>Frame of Reference UID	0020,0052	UI		ANAP		
>Matrix Registration Sequence	0070,0309	SQ		ALWAYS		
>>Matrix Sequence	0070,030A	SQ		ALWAYS		
>>>Frame of Reference Transformation Matrix	3006,00C6	DS		ALWAYS		
>>>Frame of Reference Transformation Matrix Type	0070,030C	CS		ALWAYS		
>>Registration Type Code Sequence	0070,030D	SQ		ALWAYS		
>>>Code Value	0008,0100	SH		ALWAYS		
Content Creator's Name	0070,0084	PN		VNAP		
Content Description	0070,0081	LO		VNAP		
Content Label	0070,0080	CS		ALWAYS		
Instance Number	0020,0013	IS		ALWAYS		

Table 236: Additional Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Medical Alerts	0010,2000	LO				
Allergies	0010,2110	LO				
Pregnancy Status	0010,21C0	US				
Requesting Physician	0032,1032	PN				
Requesting Service	0032,1033	LO				
Requested Procedure Description	0032,1060	LO				
Special Needs	0038,0050	LO				
Patient State	0038,0500	LO				

11.1.2. Usage of Attributes from Received IOD

Not applicable.

11.1.3. Attribute Mapping

Not applicable.

11.1.4. Coerced/Modified fields

Not applicable.

11.2. Data Dictionary of Private Attributes

Not applicable.

11.3. Coded Terminology and Templates

Not applicable.

11.3.1. Context Groups

Not applicable.

11.3.2. Template Specifications

Not applicable.

11.3.3. Private code definitions

Not applicable.

11.4. Grayscale Image consistency

Not applicable.

11.5. Standard Extended/Specialized/Private SOPs

Not applicable.

11.6. Private Transfer Syntaxes

Not applicable.

12. ANNEXES OF APPLICATION "SPECT"

12.1. IOD Contents

12.1.1. Created SOP Instance

This section specifies each created IOD by this application.

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

Abbreviations used in the IOD tables for the column "Presence of Module" are:

ALWAYS	The module is always present
CONDITIONAL	The module is used under specified condition

Abbreviations used in the Module table for the column "Presence of Value" are:

ALWAYS	The attribute is always present with a value
EMPTY	The attribute is always present without any value (attribute sent zero length)
VNAP	The attribute is always present and its Value is Not Always Present (attribute sent zero length if no value is present)
ANAP	The attribute is present under specified condition – if present then it will always have a value
ANAPCV	The attribute is present under specified condition – if present then its Value is Not Always Present (attribute sent zero length if condition applies and no value is present)
ANAPEV	The attribute is present under specified condition – if present then it will not have any value

The abbreviations used in the Module table for the column "Source" are:

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

12.1.1.1. List of created SOP Classes

Table 237: List of created SOP Classes

SOP Class Name	SOP Class UID
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7
Multi-frame Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2

12.1.1.2. Multi-frame True Color Secondary Capture Image Storage

Table 238: IOD of Created Multi-frame True Color Secondary Capture Image Storage Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Patient	Patient Medical Module	CONDITIONAL
Study	General Study Module	ALWAYS
Series	General Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	Cine Module	ALWAYS
Equipment	SC Equipment Module	ALWAYS
Image	SC Image Module	ALWAYS
Image	SC Multi-frame Image Module	ALWAYS
Image	SOP Common Module	ALWAYS
Image	Private Attributes in SC IOD	CONDITIONAL

Table 239: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Ethnic Group	0010,2160	SH		ANAP	COPY	
Other Patient IDs	0010,1000	LO		ANAP	COPY	
Patient Comments	0010,4000	LT		ANAP	COPY	
Patient ID	0010,0020	LO		VNAP	COPY	
Patient's Birth Date	0010,0030	DA		VNAP	COPY	
Patient's Birth Time	0010,0032	TM		ANAP	COPY	
Patient's Name	0010,0010	PN		VNAP	COPY	
Patient's Sex	0010,0040	CS		ANAP	COPY	

Table 240: Patient Medical Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Medical Alerts	0010,2000	LO		ALWAYS	COPY	
Allergies	0010,2110	LO		ALWAYS	COPY	
Additional Patient History	0010,21B0	LT		ALWAYS	COPY	
Pregnancy Status	0010,21C0	US		ALWAYS	COPY	
Special Needs	0038,0050	LO		ALWAYS	COPY	
Patient State	0038,0500	LO		ALWAYS	COPY	

Table 241: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Accession Number	0008,0050	SH		VNAP	COPY	
Name of Physician(s) Reading Study	0008,1060	PN		ANAP	COPY	
Referring Physician's Name	0008,0090	PN		VNAP	COPY	
Study Date	0008,0020	DA		ALWAYS	COPY	
Study Description	0008,1030	LO		ANAP	COPY	
Study ID	0020,0010	SH		VNAP	COPY	
Study Instance UID	0020,000D	UI		ALWAYS	COPY	
Study Time	0008,0030	TM		ALWAYS	COPY	
Procedure Code Sequence	0008,1032	SQ		ANAP	COPY	
>Code Meaning	0008,0104	LO		ANAP	COPY	
>Code Value	0008,0100	SH		ANAP	COPY	

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	
Referenced Study Sequence	0008,1110	SQ		ANAP	COPY	
>Referenced SOP Class UID	0008,1150	UI		ANAP	COPY	
>Referenced SOP Instance UID	0008,1155	UI		ANAP	COPY	

Table 242: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient Position	0018,5100	CS		ANAPCV	COPY	
Series Date	0008,0021	DA		ALWAYS	AUTO	
Series Description	0008,103E	LO		ANAP	USER	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		VNAP	AUTO	
Series Time	0008,0031	TM		ALWAYS	AUTO	
Referenced Performed Procedure Step Sequence	0008,1111	SQ		ANAPCV		
>Referenced SOP Class UID	0008,1150	UI		ALWAYS		
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS		
Request Attributes Sequence	0040,0275	SQ		ALWAYS	COPY	
>Requested Procedure ID	0040,1001	SH		ANAP	COPY	
>Scheduled Procedure Step Description	0040,0007	LO		ANAP	COPY	
>Scheduled Procedure Step ID	0040,0009	SH		ANAP	COPY	
>Scheduled Protocol Code Sequence	0040,0008	SQ		ANAP	COPY	
>>Code Meaning	0008,0104	LO		ANAP	COPY	
>>Code Value	0008,0100	SH		ANAP	COPY	
>>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	
Performed Procedure Step Description	0040,0254	LO		ANAP	COPY	
Performed Procedure Step ID	0040,0253	SH		ANAP	COPY	
Performed Procedure Step Start Date	0040,0244	DA		ANAP	COPY	
Performed Procedure Step Start Time	0040,0245	TM		ANAP	COPY	
Performed Protocol Code Sequence	0040,0260	SQ		ANAP	COPY	
>Code Meaning	0008,0104	LO		ANAP	COPY	
>Code Value	0008,0100	SH		ANAP	COPY	
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	

Table 243: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Device Serial Number	0018,1000	LO		ANAP	COPY	
Institution Address	0008,0081	ST		ANAP	COPY	
Institution Name	0008,0080	LO		ANAP	COPY	
Institutional Department Name	0008,1040	LO		ANAP	COPY	
Manufacturer	0008,0070	LO	Philips Medical System	VNAP	FIXED	
Manufacturer's Model Name	0008,1090	LO	EBW NM	ANAP	FIXED	
Software Version(s)	0018,1020	LO	Value 1: 1.0	ANAP	FIXED	
Station Name	0008,1010	SH		ANAP	COPY	

Table 244: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Comments	0020,4000	LT		ANAPCV		
Image Type	0008,0008	CS	Value 1: DERIVED, Value 2: SECONDARY	ALWAYS	FIXED	
Instance Number	0020,0013	IS		VNAP	AUTO	
Patient Orientation	0020,0020	CS		EMPTY	FIXED	

Table 245: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Bits Allocated	0028,0100	US	8	ALWAYS	FIXED	
Bits Stored	0028,0101	US	8	ALWAYS	FIXED	
Columns	0028,0011	US		ALWAYS	USER	
High Bit	0028,0102	US	7	ALWAYS	FIXED	
Largest Image Pixel Value	0028,0107	US /SS		ALWAYS	AUTO	
Photometric Interpretation	0028,0004	CS	RGB	ALWAYS	IMPLICIT	
Pixel Aspect Ratio	0028,0034	IS		ALWAYS	AUTO	
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	
Pixel Representation	0028,0103	US	0	ALWAYS	FIXED	
Planar Configuration	0028,0006	US	0	ALWAYS	FIXED	
Rows	0028,0010	US		ALWAYS	USER	
Samples per Pixel	0028,0002	US	3	ALWAYS	FIXED	
Smallest Image Pixel Value	0028,0106	US /SS		ALWAYS	AUTO	

Table 246: Cine Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Cine Rate	0018,0040	IS		ALWAYS	AUTO	
Frame Time	0018,1063	DS		ALWAYS	AUTO	
Preferred Playback Sequencing	0018,1244	US	0	ALWAYS	FIXED	

Table 247: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Conversion Type	0008,0064	CS	WSD	ALWAYS	FIXED	
Modality	0008,0060	CS		ALWAYS	COPY	
Secondary Capture Device ID	0018,1010	LO		ANAP	AUTO	
Secondary Capture Device Manufacturer	0018,1016	LO	Philips Medical Systems	ALWAYS	FIXED	
Secondary Capture Device Manufacturer's Model Name	0018,1018	LO	EBW	ANAP	FIXED	
Secondary Capture Device Software Version(s)	0018,1019	LO	Value 1: 1.0	ANAP	FIXED	

Table 248: SC Image Module

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

Table 249: SC Multi-frame Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Burned In Annotation	0028,0301	CS		ALWAYS	AUTO	
Frame Increment Pointer	0028,0009	AT		ALWAYS	AUTO	

Table 250: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Creation Date	0008,0012	DA		ALWAYS	AUTO	
Instance Creation Time	0008,0013	TM		ALWAYS	AUTO	
Instance Number	0020,0013	IS		ALWAYS	AUTO	
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.7.4	ALWAYS	FIXED	
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	
Specific Character Set	0008,0005	CS	ISO_IR 100	ALWAYS	FIXED	

Table 251: Private Attributes in SC Image IOD

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Private Creator Group 2001	2001,0010	LO	Philips Imaging DD 001	ALWAYS	AUTO	
Examination Source	2001,1063	CS		ALWAYS	AUTO	

12.1.1.3. Nuclear Medicine Image Storage SOP Class

Table 252: IOD of Created Nuclear Medicine Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Patient	Patient Medical Module	CONDITIONAL
Study	General Study Module	ALWAYS
Study	Patient Study Module	ALWAYS
Series	General Series Module	ALWAYS
Frame of Reference	Frame of Reference Module	CONDITIONAL
Equipment	General Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	Multi-Frame Module	ALWAYS
Image	Acquisition Context Module	CONDITIONAL
Series	NM/PET Patient Orientation Module	ALWAYS
Image	NM Image Pixel Module	ALWAYS
Image	NM Multi-frame Module	ALWAYS
Image	NM Image Module	ALWAYS
Image	NM Isotope Module	ALWAYS
Image	NM Detector Module	ALWAYS
Image	NM Tomo Acquisition Module	CONDITIONAL
Image	NM Multi-gated Acquisition Module	CONDITIONAL
Image	NM Phase Module	CONDITIONAL
Image	NM Reconstruction Module	ALWAYS
Image	SOP Common Module	ALWAYS
Image	NM Real World Value Mapping Module	CONDITIONAL
Image	Private Attributes in NM Image IOD	CONDITIONAL

Table 253: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Ethnic Group	0010,2160	SH		ANAP	COPY	
Other Patient IDs	0010,1000	LO		ANAP	COPY	
Patient Comments	0010,4000	LT		ANAP	COPY	* See Note below
Patient ID	0010,0020	LO		VNAP	COPY	
Patient's Birth Date	0010,0030	DA		VNAP	COPY	
Patient's Birth Time	0010,0032	TM		ANAP	COPY	
Patient's Name	0010,0010	PN		VNAP	COPY	
Patient's Sex	0010,0040	CS		VNAP	COPY	

** Note: Odd length strings for DICOM type LT and ST are padded with a '.' in the end to make the length even. This is done to cover for a known bug in the underlying third party DICOM implementation.*

Table 254: Patient Medical Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Medical Alerts	0010,2000	LO		ALWAYS	COPY	
Allergies	0010,2110	LO		ALWAYS	COPY	
Additional Patient History	0010,21B0	LT		ALWAYS	COPY	
Pregnancy Status	0010,21C0	US		ALWAYS	COPY	
Special Needs	0038,0050	LO		ALWAYS	COPY	
Patient State	0038,0500	LO		ALWAYS	COPY	

Table 255: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Accession Number	0008,0050	SH		VNAP	COPY	
Referring Physician's Name	0008,0090	PN		VNAP	COPY	
Study Date	0008,0020	DA		ALWAYS	COPY	
Study Description	0008,1030	LO		ANAP	COPY	
Study ID	0020,0010	SH		VNAP	COPY	
Study Instance UID	0020,000D	UI		ALWAYS	COPY	
Study Time	0008,0030	TM		ALWAYS	COPY	
Procedure Code Sequence	0008,1032	SQ		ANAP	COPY	
>Code Meaning	0008,0104	LO		ANAP	COPY	
>Code Value	0008,0100	SH		ANAP	COPY	
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	
Referenced Study Sequence	0008,1110	SQ		ANAP	COPY	
>Referenced SOP Class UID	0008,1150	UI		ANAP	FIXED	
>Referenced SOP Instance UID	0008,1155	UI		ANAP	COPY	

Table 256: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Additional Patient History	0010,21B0	LT		ANAP	COPY	* See *Note* below
Patient's Age	0010,1010	AS		VNAP	COPY	
Patient's Size	0010,1020	DS		ANAP	COPY	
Patient's Weight	0010,1030	DS		ANAP	COPY	

** Note: Odd length strings for DICOM type LT and ST are padded with a '.' in the end to make the length even. This is done to cover for a known bug in the underlying third party DICOM implementation.*

Table 257: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Body Part Examined	0018,0015	CS		ANAP	COPY	
Largest Pixel Value in Series	0028,0109	US /SS		ANAP	AUTO	
Modality	0008,0060	CS	NM	ALWAYS	FIXED	
Performing Physician's Name	0008,1050	PN		ANAP	COPY	
Protocol Name	0018,1030	LO		ANAP	COPY	
Series Date	0008,0021	DA		ALWAYS	AUTO	
Series Description	0008,103E	LO		ANAP	AUTO	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		VNAP	AUTO	
Series Time	0008,0031	TM		ALWAYS	AUTO	
Smallest Pixel Value in Series	0028,0108	US /SS		ANAP	AUTO	
Referenced Performed Procedure Step Sequence	0008,1111	SQ		ANAP	COPY	
>Referenced SOP Class UID	0008,1150	UI		ANAP	FIXED	
>Referenced SOP Instance UID	0008,1155	UI		ANAP	COPY	
Request Attributes Sequence	0040,0275	SQ		ALWAYS	COPY	** See *Note* below
>Requested Procedure ID	0040,1001	SH		ANAP	COPY	
>Scheduled Procedure Step Description	0040,0007	LO		ANAP	COPY	
>Scheduled Procedure Step ID	0040,0009	SH		ANAP	COPY	
>Scheduled Protocol Code Sequence	0040,0008	SQ		ANAP	COPY	
>>Code Meaning	0008,0104	LO		ANAP	COPY	
>>Code Value	0008,0100	SH		ANAP	COPY	
>>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	
Performed Procedure Step Description	0040,0254	LO		ANAP	COPY	
Performed Procedure Step ID	0040,0253	SH		ANAP	COPY	
Performed Procedure Step Start Date	0040,0244	DA		ANAP	COPY	
Performed Procedure Step Start Time	0040,0245	TM		ANAP	COPY	
Performed Protocol Code Sequence	0040,0260	SQ		ANAP	COPY	
>Code Meaning	0008,0104	LO		ANAP	COPY	
>Code Value	0008,0100	SH		ANAP	COPY	
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	

*** Note: The attribute Request Attributes Sequence (0040, 0275) would ALWAYS be present in the NM IOD for all acquisitions that are started using a worklist entry.*

Table 258: Frame of Reference Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Frame of Reference UID	0020,0052	UI		ALWAYS	COPY	Copied from CT series
Position Reference Indicator	0020,1040	LO		EMPTY		

Table 259: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Device Serial Number	0018,1000	LO		ANAP	COPY	
Institution Name	0008,0080	LO		ANAP	COPY	
Manufacturer	0008,0070	LO		VNAP	COPY	
Manufacturer's Model Name	0008,1090	LO	EBW NM	ANAP	FIXED	
Software Version(s)	0018,1020	LO	Value 1: 1.0	ANAP	FIXED	
Spatial Resolution	0018,1050	DS		ANAP	COPY	
Station Name	0008,1010	SH		ANAP	COPY	

Table 260: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Date	0008,0022	DA		ALWAYS	COPY	
Acquisition Number	0020,0012	IS		ANAP	COPY	
Acquisition Time	0008,0032	TM		ALWAYS	COPY	
Content Date	0008,0023	DA		ALWAYS	AUTO	
Content Time	0008,0033	TM		ALWAYS	AUTO	
Images in Acquisition	0020,1002	IS	0	ALWAYS	FIXED	
Instance Number	0020,0013	IS		VNAP	AUTO	
Quality Control Image	0028,0300	CS		VNAP	IMPLICIT	

Table 261: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Columns	0028,0011	US		ALWAYS	USER	
Largest Image Pixel Value	0028,0107	US /SS		ALWAYS	AUTO	
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	
Pixel Representation	0028,0103	US		ALWAYS	FIXED	
Rows	0028,0010	US		ALWAYS	USER	
Smallest Image Pixel Value	0028,0106	US /SS		ALWAYS	AUTO	

Table 262: Multi-Frame Module

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

Table 263: Acquisition Context Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Context Sequence	0040,0555	SQ		ANAP	COPY	
>Concept Code Sequence	0040,A168	SQ		ANAP	COPY	
>>Code Meaning	0008,0104	LO		ALWAYS		
>>Code Value	0008,0100	SH		ALWAYS		
>>Coding Scheme Designator	0008,0102	SH		ALWAYS		
>Concept Name Code Sequence	0040,A043	SQ		ANAP	COPY	
>>Code Meaning	0008,0104	LO	Patient State	ALWAYS		
>>Code Value	0008,0100	SH	10905	ALWAYS		
>>Coding Scheme Designator	0008,0102	SH	DCM	ALWAYS		

Table 264: NM/PET Patient Orientation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient Gantry Relationship Code Sequence	0054,0414	SQ		ANAP	COPY	*** See *Note* below
>Code Meaning	0008,0104	LO		VNAP	COPY	
>Code Value	0008,0100	SH		VNAP	COPY	
>Coding Scheme Designator	0008,0102	SH		VNAP	COPY	
Patient Orientation Code Sequence	0054,0410	SQ		ANAP	COPY	*** See *Note* below
>Patient Orientation Modifier Code Sequence	0054,0412	SQ		ANAP	COPY	
>>Code Meaning	0008,0104	LO		ANAP	COPY	
>>Code Value	0008,0100	SH		ANAP	COPY	
>>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	
>Code Meaning	0008,0104	LO		VNAP	COPY	
>Code Value	0008,0100	SH		VNAP	COPY	
>Coding Scheme Designator	0008,0102	SH		VNAP	COPY	

**** Note : When values of attribute Patient Position from the camera client UI is selected as "Other", then the following sequence attributes are not present to maintain interoperability with legacy Philips NM workstations: Patient Orientation Code Sequence (0054,0410) and Patient Gantry relationship Code Sequence(0054,0414).*

Table 265: NM Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Bits Allocated	0028,0100	US	16	ALWAYS	FIXED	
Bits Stored	0028,0101	US	16	ALWAYS	FIXED	
High Bit	0028,0102	US	15	ALWAYS	FIXED	
Photometric Interpretation	0028,0004	CS	MONOCHROME2	ALWAYS	FIXED	
Pixel Spacing	0028,0030	DS		ALWAYS	COPY	
Samples per Pixel	0028,0002	US	1	ALWAYS	FIXED	

Table 266: NM Multi-frame Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Angular View Vector	0054,0090	US		ANAP	AUTO	
Detector Vector	0054,0020	US		ANAP	AUTO	
Energy Window Vector	0054,0010	US		ANAP	AUTO	
Number of Detectors	0054,0021	US		ALWAYS	COPY	
Number of Energy Windows	0054,0011	US		ALWAYS	COPY	
Number of Phases	0054,0031	US		ANAP	IMPLICIT , USER	
Number of R-R Intervals	0054,0061	US		ANAP	COPY	
Number of Rotations	0054,0051	US		ANAP	COPY	
Number of Slices	0054,0081	US		ANAP	AUTO	
Number of Time Slots	0054,0071	US		ANAP	COPY	
Phase Vector	0054,0030	US		ANAP	AUTO	
R-R Interval Vector	0054,0060	US		ANAP	AUTO	
Rotation Vector	0054,0050	US		ANAP	AUTO	
Slice Vector	0054,0080	US		ANAP	AUTO	
Time Slice Vector	0054,0100	US		ANAP	AUTO	
Time Slot Vector	0054,0070	US		ANAP	AUTO	

Table 267: NM Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Termination Condition	0018,0071	CS		ANAPCV	IMPLICIT	
Actual Frame Duration	0018,1242	IS		ANAP	COPY	
Corrected Image	0028,0051	CS		ANAPCV	IMPLICIT	
Count Rate	0018,1243	IS		ANAPCV	COPY	
Counts Accumulated	0018,0070	IS		VNAP	AUTO	
Image ID	0054,0400	SH		ANAPCV	USER	
Image Type	0008,0008	CS		ALWAYS	IMPLICIT	
Scan Length	0018,1302	IS		ANAPCV	COPY	
Scan Velocity	0018,1300	DS		ANAPCV	COPY	
Table Height	0018,1130	DS		ANAPCV	COPY	**** See Note below
Table Traverse	0018,1131	DS		ANAPCV	COPY	
Trigger Source or Type	0018,1061	LO		ANAPCV	COPY	
Whole Body Technique	0018,1301	CS		ANAPCV	IMPLICIT	

***** Note: The value of attribute, Table Height (0018,1130) should be ignored because, it is a preset unit less position value (the value is NOT a distance) of the table height device in the gantry.*

Table 268: NM Isotope Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Energy Window Information Sequence	0054,0012	SQ		ALWAYS	COPY	
>Energy Window Name	0054,0018	SH		ALWAYS	COPY	
>Energy Window Range Sequence	0054,0013	SQ		ALWAYS	COPY	
>>Energy Window Lower Limit	0054,0014	DS		ALWAYS	COPY	
>>Energy Window Upper Limit	0054,0015	DS		ALWAYS	COPY	
Intervention Drug Information Sequence	0018,0026	SQ		ANAP	COPY	
>Intervention Drug Dose	0018,0028	DS		ANAP	FIXED	
>Intervention Drug Start Time	0018,0035	TM		ANAP	COPY	
>Intervention Drug Stop Time	0018,0027	TM	0.0	ANAP	COPY	
Radiopharmaceutical Information Sequence	0054,0016	SQ		VNAP	COPY	
>Radionuclide Total Dose	0018,1074	DS		ANAP	COPY	
>Radiopharmaceutical	0018,0031	LO		ANAP	COPY	
>Radiopharmaceutical Start Time	0018,1072	TM		ANAP	COPY	
>Radiopharmaceutical Stop Time	0018,1073	TM		EMPTY	FIXED	
>Radiopharmaceutical Volume	0018,1071	DS	0.0	ANAP	COPY	
>Radionuclide Code Sequence	0054,0300	SQ		ALWAYS	COPY	
>>Code Meaning	0008,0104	LO		ALWAYS	COPY	
>>Code Value	0008,0100	SH		ALWAYS	COPY	
>>Coding Scheme Designator	0008,0102	SH		ALWAYS	COPY	
>Radiopharmaceutical Code Sequence	0054,0304	SQ		ANAP	COPY	
>>Code Meaning	0008,0104	LO		ANAP	COPY	
>>Code Value	0008,0100	SH		ANAP	COPY	
>>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	

Table 269: NM Detector Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Detector Information Sequence	0054,0022	SQ		ALWAYS	IMPLICIT	
>Center of Rotation Offset	0018,1145	DS	0.0	ANAP	FIXED	
>Collimator Type	0018,1181	CS		VNAP	COPY	
>Collimator/grid Name	0018,1180	SH		ALWAYS	COPY	
>Field of View Dimension(s)	0018,1149	IS		ANAP	COPY	
>Field of View Shape	0018,1147	CS	RECTANGLE	ANAP	FIXED	
>Focal Distance	0018,1182	IS	0	ANAP	FIXED	
>Gantry/Detector Tilt	0018,1120	DS		ANAP	COPY	
>Image Orientation (Patient)	0020,0037	DS		ANAP	IMPLICIT	
>Image Position (Patient)	0020,0032	DS		ANAP	IMPLICIT	
>Radial Position	0018,1142	DS		ANAP	AUTO	
>Start Angle	0054,0200	DS		ANAP	COPY	
>X Focus Center	0018,1183	DS	0.0	ANAP	FIXED	
>Y Focus Center	0018,1184	DS	0.0	ANAP	FIXED	
>Zoom Center	0028,0032	DS	0.0	ANAP	FIXED	
>Zoom Factor	0028,0031	DS	0.0	ANAP	COPY	
>View Code Sequence	0054,0220	SQ		ANAP	IMPLICIT	
>>View Modifier Code Sequence	0054,0222	SQ		ANAPCV		
>>>Code Meaning	0008,0104	LO		ANAP	COPY	
>>>Code Value	0008,0100	SH		ANAP	COPY	
>>>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	
>>Code Meaning	0008,0104	LO		ANAP	IMPLICIT	
>>Code Value	0008,0100	SH		ANAP	IMPLICIT	
>>Coding Scheme Designator	0008,0102	SH		ANAP	IMPLICIT	

Table 270: NM Tomo Acquisition Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Type of Detector Motion	0054,0202	CS		ANAP	COPY	
Rotation Information Sequence	0054,0052	SQ		ANAP	COPY	
>Actual Frame Duration	0018,1242	IS		ANAP	COPY	
>Angular Step	0018,1144	DS		ANAP	COPY	
>Number of Frames in Rotation	0054,0053	US		ANAP	COPY	
>Radial Position	0018,1142	DS		ANAP	COPY	
>Rotation Direction	0018,1140	CS		ANAP	COPY	
>Scan Arc	0018,1143	DS		ANAP	COPY	
>Start Angle	0054,0200	DS		ANAP	COPY	
>Table Height	0018,1130	DS		ANAP	COPY	**** See *Note* below
>Table Traverse	0018,1131	DS		ANAP	COPY	

***** Note: The value of attribute, Table Height (0018,1130) should be ignored because, it is a preset unit less position value (the value is NOT a distance) of the table height device in the gantry.*

Table 271: NM Multi-gated Acquisition Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Beat Rejection Flag	0018,1080	CS		ANAP	COPY	
Heart Rate	0018,1088	IS		ANAP	COPY	
PVC Rejection	0018,1085	LO		ANAP	COPY	
Skip Beats	0018,1086	IS		ANAP	COPY	
Gated Information Sequence	0054,0062	SQ		ANAP	IMPLICIT	
>Trigger Time	0018,1060	DS	0.0	ANAP	FIXED	
>Data Information Sequence	0054,0063	SQ		ANAPCV	IMPLICIT	
>>Frame Time	0018,1063	DS		ANAP	IMPLICIT , USER	
>>High R-R Value	0018,1082	IS		ANAP	AUTO	
>>Intervals Acquired	0018,1083	IS		ANAP	AUTO	
>>Intervals Rejected	0018,1084	IS		ANAP	AUTO	
>>Low R-R Value	0018,1081	IS		ANAP	AUTO	
>>Nominal Interval	0018,1062	IS		ANAP	AUTO	
>>Time Slot Information Sequence	0054,0072	SQ		ANAP	IMPLICIT	
>>>Time Slot Time	0054,0073	DS		ANAP	IMPLICIT	

Table 272: NM Phase Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Phase Information Sequence	0054,0032	SQ		ANAP	IMPLICIT	
>Actual Frame Duration	0018,1242	IS		ANAP	AUTO, USER	
>Number of Frames in Phase	0054,0033	US		ANAP	USER	
>Number of Triggers in Phase	0054,0211	US	0	ANAP	FIXED	
>Pause Between Frames	0054,0038	IS	0	ANAP	FIXED	
>Phase Delay	0054,0036	IS	0	ANAP	FIXED	

Table 273: NM Reconstruction Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Convolution Kernel	0018,1210	SH		ANAP	IMPLICIT	***** *See Note below*
Slice Progression Direction	0054,0500	CS		ANAP	AUTO	
Slice Thickness	0018,0050	DS		ANAP	CONFIG, IMPLICIT	
Spacing Between Slices	0018,0088	DS		ANAP	AUTO	

***** *Note: The value is based on the zoom attribute entered by the user.*

Table 274: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Creation Date	0008,0012	DA		ALWAYS	AUTO	
Instance Creation Time	0008,0013	TM		ALWAYS	AUTO	
Instance Creator UID	0008,0014	UI		ALWAYS	CONFIG	
Instance Number	0020,0013	IS		ALWAYS	AUTO	
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.20	ALWAYS	FIXED	
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	
Specific Character Set	0008,0005	CS	ISO_IR 100	ALWAYS	FIXED	

Table 275: NM Real World Value Mapping Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Real World Value Mapping Sequence	0040,9096	SQ				
>Real World Value Last Value Mapped	0040,9211	US /SS		ALWAYS	AUTO	
>Real World Value First Value Mapped	0040,9216	US /SS		ALWAYS	AUTO	
>Real World Value Intercept	0040,9224	FD		ALWAYS	FIXED	
>Real World Value Slope	0040,9225	FD		ALWAYS	AUTO	

Table 276: Private Attributes in NM Image IOD

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Current Segment	7051,0010	US		ANAP		Current TB SPECT segment number.
Number of Segments	7051,1001	US		ANAP		Total number of TB SPECT segments
Segment Start Position	7051,1002	FL		ANAP		TB SPECT segment longitudinal (z) start position in gantry coordinates (mm).
Segment Stop Position	7051,1003	FL		ANAP		TB SPECT segment longitudinal (z) stop position in gantry coordinates (mm).
Rel. COR offset - X dir.	7051,1004	FL		ANAP		Relative offset from COR in horizontal direction in gantry coordinates (mm).
Rel. COR offset - Z dir.	7051,1005	FL		ANAP		Relative offset from COR in vertical direction in gantry coordinates (mm).
Current Rotation Number	7051,1006	US		ANAP		Current Back-to-Back SPECT rotation number.
Number of SPECT Rotations	7051,1007	US		ANAP		Total number of back-to-back SPECT rotations.
Alignment Translations	7051,1010	DS		ANAP		3-D translation vector for alignment (mm) (SPECT Hybrid Camera alignment calibration or application - like Syntegra generated).
Alignment Rotations	7051,1011	DS		ANAP		3-D rotation vector for alignment (degrees) (SPECT Hybrid Camera alignment calibration or Syntegra generated).
Alignment Timestamp	7051,1012	DS		ANAP		timestamp for alignment (timestamp when the Hybrid SPECT camera alignment calibration was generated, or 0 for Syntegra generated).
Series Instance UID	7051,1015	UI		ANAP		Series Instance UID of the CT Series corresponding to the NM images for a Hybrid study.
Manual Adjustments Translation	7051,1021	DS		ANAP		3-D translation vector for alignment adjustments made on AC Map page (mm).

Manual Adjustments Rotation	7051,1022	DS		ANAP		3-D rotation vector for alignment adjustments made on AC Map page (degrees).
Image Position Patient CT	7051,1023	DS		ANAP		The Attenuation MAP's Image position patient values relative to origin of the coordinate system of the CT data.
Image Orientation Patient CT	7051,1024	DS		ANAP		The Attenuation MAP's Image orientation patient values in the coordinate system of the CT data.
Recon Filter Type	7051,1025	LO		ANAP		Type of filter used for SPECT reconstruction.
Recon Cutoff	7051,1026	DS		ANAP		Cutoff value for SPECT reconstruction filter.
Recon Order	7051,1027	DS		ANAP		Order for SPECT reconstruction filter.
Recon Iterations	7051,1028	IS		ANAP		Number of iterations used for SPECT reconstruction (only applicable for iterative SPECT reconstruction methods).
Recon Subset	7051,1029	IS		ANAP		Number of subsets used for SPECT reconstruction (only applicable for OSEM reconstruction methods).
Technologist Name	7051,1030	LO		ANAP		Name of technologist who performed SPECT reconstruction.

12.1.1.4. Secondary Capture Image Storage SOP Class

Table 277: IOD of Created Secondary Capture Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Patient	Patient Medical Module	CONDITIONAL
Study	General Study Module	ALWAYS
Series	General Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Equipment	SC Equipment Module	ALWAYS
Image	SC Image Module	ALWAYS
Image	VOI LUT Module	CONDITIONAL
Image	SOP Common Module	ALWAYS
Image	Private Attributes of SC Image IOD	CONDITIONAL

Table 278: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Ethnic Group	0010,2160	SH		ANAP	COPY	
Other Patient IDs	0010,1000	LO		ANAP	COPY	
Patient Comments	0010,4000	LT		ANAP	COPY	
Patient ID	0010,0020	LO		VNAP	COPY	
Patient's Birth Date	0010,0030	DA		VNAP	COPY	
Patient's Birth Time	0010,0032	TM		ANAP	COPY	
Patient's Name	0010,0010	PN		VNAP	COPY	
Patient's Sex	0010,0040	CS		VNAP	COPY	

Table 279: Patient Medical Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Medical Alerts	0010,2000	LO		ALWAYS	COPY	
Allergies	0010,2110	LO		ALWAYS	COPY	
Additional Patient History	0010,21B0	LT		ALWAYS	COPY	
Pregnancy Status	0010,21C0	US		ALWAYS	COPY	
Special Needs	0038,0050	LO		ALWAYS	COPY	
Patient State	0038,0500	LO		ALWAYS	COPY	

Table 280: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Accession Number	0008,0050	SH		VNAP	COPY	
Name of Physician(s) Reading Study	0008,1060	PN		ANAP	COPY	
Referring Physician's Name	0008,0090	PN		VNAP	COPY	
Study Date	0008,0020	DA		ALWAYS	COPY	
Study Description	0008,1030	LO		ANAP	COPY	
Study ID	0020,0010	SH		VNAP	COPY	
Study Instance UID	0020,000D	UI		ALWAYS	COPY	
Study Time	0008,0030	TM		ALWAYS	COPY	
Procedure Code Sequence	0008,1032	SQ		ANAP	COPY	
>Code Meaning	0008,0104	LO		ANAP	COPY	
>Code Value	0008,0100	SH		ANAP	COPY	
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	
Referenced Study Sequence	0008,1110	SQ		ANAP	COPY	
>Referenced SOP Class UID	0008,1150	UI		ANAP	COPY	
>Referenced SOP Instance UID	0008,1155	UI		ANAP	COPY	

Table 281: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient Position	0018,5100	CS		ANAPCV	COPY	
Series Date	0008,0021	DA		ALWAYS	AUTO	
Series Description	0008,103E	LO		ANAP	USER	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		VNAP	AUTO	
Series Time	0008,0031	TM		ALWAYS	AUTO	
Referenced Performed Procedure Step Sequence	0008,1111	SQ		ANAPCV	COPY	
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	COPY	
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	COPY	
Request Attributes Sequence	0040,0275	SQ		ALWAYS	COPY	
>Requested Procedure ID	0040,1001	SH		ALWAYS	COPY	

>Scheduled Procedure Step Description	0040,0007	LO		ANAP	COPY	
>Scheduled Procedure Step ID	0040,0009	SH		ALWAYS	COPY	
>Scheduled Protocol Code Sequence	0040,0008	SQ		ANAP	COPY	
>>Code Meaning	0008,0104	LO		ANAP	COPY	
>>Code Value	0008,0100	SH		ANAP	COPY	
>>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	
Performed Procedure Step Description	0040,0254	LO		ANAP	COPY	
Performed Procedure Step ID	0040,0253	SH		ANAP	COPY	
Performed Procedure Step Start Date	0040,0244	DA		ANAP	COPY	
Performed Procedure Step Start Time	0040,0245	TM		ANAP	COPY	
Performed Protocol Code Sequence	0040,0260	SQ		ANAP	COPY	
>Code Meaning	0008,0104	LO		ANAP	COPY	
>Code Value	0008,0100	SH		ANAP	COPY	
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	

Table 282: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Device Serial Number	0018,1000	LO		ANAP	COPY	
Institution Address	0008,0081	ST		ANAP	COPY	
Institution Name	0008,0080	LO		ANAP	COPY	
Institutional Department Name	0008,1040	LO		ANAP	COPY	
Manufacturer	0008,0070	LO	Philips Medical System	VNAP	FIXED	
Manufacturer's Model Name	0008,1090	LO	EBW NM	ANAP	FIXED	
Software Version(s)	0018,1020	LO	Value 1: 1.0	ANAP	FIXED	
Station Name	0008,1010	SH		ANAP	COPY	

Table 283: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Comments	0020,4000	LT		ANAPCV		
Image Type	0008,0008	CS	Value 1: DERIVED, Value 2: SECONDARY	ALWAYS	FIXED	
Instance Number	0020,0013	IS		VNAP	AUTO	
Patient Orientation	0020,0020	CS		EMPTY	FIXED	
Presentation LUT Shape	2050,0020	CS	IDENTITY	ANAPCV		Attribute only present for MONOCHROME2 images (not for RGB).

Table 284: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Bits Allocated	0028,0100	US	8	ALWAYS	FIXED	
Bits Stored	0028,0101	US	8	ALWAYS	FIXED	
Columns	0028,0011	US		ALWAYS	USER	
High Bit	0028,0102	US	7	ALWAYS	FIXED	
Largest Image Pixel Value	0028,0107	US /SS		ALWAYS	AUTO	
Photometric Interpretation	0028,0004	CS	MONOCHROME2, RGB	ALWAYS	IMPLICIT	
Pixel Aspect Ratio	0028,0034	IS		ALWAYS	AUTO	
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	
Pixel Representation	0028,0103	US	0	ALWAYS	FIXED	

Planar Configuration	0028,0006	US	0	ALWAYS	FIXED	Attribute is only present for RGB images.
Rows	0028,0010	US		ALWAYS	USER	
Samples per Pixel	0028,0002	US	1, 3	ALWAYS	FIXED	Value = "1" for MONOCHROME2, value = "3" for RGB.
Smallest Image Pixel Value	0028,0106	US /SS		ALWAYS	AUTO	

Table 285: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Conversion Type	0008,0064	CS	WSD	ALWAYS	FIXED	
Modality	0008,0060	CS	NM	ALWAYS	FIXED	
Secondary Capture Device ID	0018,1010	LO		ANAP	AUTO	
Secondary Capture Device Manufacturer	0018,1016	LO	Philips Medical Systems	ALWAYS	FIXED	
Secondary Capture Device Manufacturer's Model Name	0018,1018	LO	EBW NM	ANAP	FIXED	
Secondary Capture Device Software Version(s)	0018,1019	LO	Value 1: 1.0	ANAP	FIXED	

Table 286: SC Image Module

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

Table 287: VOI LUT Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Window Center	0028,1050	DS		ANAP	AUTO	Only present for MONOCHROME 2 images
Window Width	0028,1051	DS		ANAP	AUTO	Only present for MONOCHROME 2 images

Table 288: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Creation Date	0008,0012	DA		ALWAYS	AUTO	
Instance Creation Time	0008,0013	TM		ALWAYS	AUTO	
Instance Number	0020,0013	IS		ALWAYS	AUTO	
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.7	ALWAYS	FIXED	
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	
Specific Character Set	0008,0005	CS	ISO_IR 100	ALWAYS	FIXED	

Table 289: Private Attributes in SC IOD

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Private Creator Group 1001	1001,0010	LO		ALWAYS	AUTO	
Created SC	1001,1012	SH		ALWAYS	AUTO	Added for created SC Image
Private Creator Group 2001	2001,0010	LO		ALWAYS	AUTO	
Examination Source	2001,1063	CS		ALWAYS	AUTO	

12.1.1.5. Multi-frame Grayscale Byte SC Image Storage SOP Class

Table 290: IOD of Created Multi-frame Grayscale Byte SC Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Patient	Patient Medical Module	CONDTIONAL
Study	General Study Module	ALWAYS
Series	General Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	Cine Module	ALWAYS
Image	Multi-Frame Module	ALWAYS
Equipment	SC Equipment Module	ALWAYS
Image	SC Image Module	ALWAYS
Image	SC Multi-frame Image Module	ALWAYS
Image	VOI LUT Module	ALWAYS
Image	SOP Common Module	ALWAYS
Image	Private Attributes of SC image IOD	CONDITIONAL

Table 291: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Ethnic Group	0010,2160	SH		ANAP	COPY	
Other Patient IDs	0010,1000	LO		ANAP	COPY	
Patient Comments	0010,4000	LT		ANAP	COPY	
Patient ID	0010,0020	LO		VNAP	COPY	
Patient's Birth Date	0010,0030	DA		VNAP	COPY	
Patient's Birth Time	0010,0032	TM		ANAP	COPY	
Patient's Name	0010,0010	PN		VNAP	COPY	
Patient's Sex	0010,0040	CS		ANAP	COPY	

Table 292: Patient Medical Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Medical Alerts	0010,2000	LO		ALWAYS	COPY	
Allergies	0010,2110	LO		ALWAYS	COPY	
Additional Patient History	0010,21B0	LT		ALWAYS	COPY	
Pregnancy Status	0010,21C0	US		ALWAYS	COPY	
Special Needs	0038,0050	LO		ALWAYS	COPY	
Patient State	0038,0500	LO		ALWAYS	COPY	

Table 293: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Accession Number	0008,0050	SH		VNAP	COPY	
Name of Physician(s) Reading Study	0008,1060	PN		ANAP	COPY	
Referring Physician's Name	0008,0090	PN		VNAP	COPY	
Study Date	0008,0020	DA		ALWAYS	COPY	
Study Description	0008,1030	LO		ANAP	COPY	
Study ID	0020,0010	SH		VNAP	COPY	
Study Instance UID	0020,000D	UI		ALWAYS	COPY	
Study Time	0008,0030	TM		ALWAYS	COPY	
Procedure Code Sequence	0008,1032	SQ		ANAP	COPY	

>Code Meaning	0008,0104	LO		ANAP	COPY	
>Code Value	0008,0100	SH		ANAP	COPY	
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	
Referenced Study Sequence	0008,1110	SQ		ANAP	COPY	
>Referenced SOP Class UID	0008,1150	UI		ANAP	COPY	
>Referenced SOP Instance UID	0008,1155	UI		ANAP	COPY	

Table 294: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient Position	0018,5100	CS		ANAPCV	COPY	
Series Date	0008,0021	DA		ALWAYS	AUTO	
Series Description	0008,103E	LO		ANAP	USER	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		VNAP	AUTO	
Series Time	0008,0031	TM		ALWAYS	AUTO	
Referenced Performed Procedure Step Sequence	0008,1111	SQ		ANAPCV		
>Referenced SOP Class UID	0008,1150	UI		ALWAYS		
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS		
Request Attributes Sequence	0040,0275	SQ		ALWAYS	COPY	
>Requested Procedure ID	0040,1001	SH		ANAP	COPY	
>Scheduled Procedure Step Description	0040,0007	LO		ANAP	COPY	
>Scheduled Procedure Step ID	0040,0009	SH		ANAP	COPY	
>Scheduled Protocol Code Sequence	0040,0008	SQ		ANAP	COPY	
>>Code Meaning	0008,0104	LO		ANAP	COPY	
>>Code Value	0008,0100	SH		ANAP	COPY	
>>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	
Performed Procedure Step Description	0040,0254	LO		ANAP	COPY	
Performed Procedure Step ID	0040,0253	SH		ANAP	COPY	
Performed Procedure Step Start Date	0040,0244	DA		ANAP	COPY	
Performed Procedure Step Start Time	0040,0245	TM		ANAP	COPY	
Performed Protocol Code Sequence	0040,0260	SQ		ANAP	COPY	
>Code Meaning	0008,0104	LO		ANAP	COPY	
>Code Value	0008,0100	SH		ANAP	COPY	
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	

Table 295: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Device Serial Number	0018,1000	LO		ANAP	COPY	
Institution Address	0008,0081	ST		ANAP	COPY	
Institution Name	0008,0080	LO		ANAP	COPY	
Institutional Department Name	0008,1040	LO		ANAP	COPY	
Manufacturer	0008,0070	LO	Philips Medical System	VNAP	FIXED	
Manufacturer's Model Name	0008,1090	LO	EBW NM	ANAP	FIXED	
Software Version(s)	0018,1020	LO	Value 1: 1.0	ANAP	FIXED	
Station Name	0008,1010	SH		ANAP	COPY	

Table 296: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Comments	0020,4000	LT		ANAPCV		

Image Type	0008,0008	CS	Value 1: DERIVED, Value 2: SECONDARY	ALWAYS	FIXED	
Instance Number	0020,0013	IS		VNAP	AUTO	
Patient Orientation	0020,0020	CS		EMPTY	FIXED	

Table 297: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Bits Allocated	0028,0100	US	8	ALWAYS	FIXED	
Bits Stored	0028,0101	US	8	ALWAYS	FIXED	
Columns	0028,0011	US		ALWAYS	USER	
High Bit	0028,0102	US	7	ALWAYS	FIXED	
Largest Image Pixel Value	0028,0107	US /SS		ALWAYS	AUTO	
Photometric Interpretation	0028,0004	CS	MONOCHROME2	ALWAYS	IMPLICIT	
Pixel Aspect Ratio	0028,0034	IS		ALWAYS	AUTO	
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	
Pixel Representation	0028,0103	US	0	ALWAYS	FIXED	
Rows	0028,0010	US		ALWAYS	USER	
Samples per Pixel	0028,0002	US	1	ALWAYS	FIXED	
Smallest Image Pixel Value	0028,0106	US /SS		ALWAYS	AUTO	

Table 298: Cine Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Cine Rate	0018,0040	IS		ALWAYS	AUTO	
Frame Time	0018,1063	DS		ALWAYS	AUTO	
Preferred Playback Sequencing	0018,1244	US		ALWAYS	FIXED	

Table 299: Multi-Frame Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Frames	0028,0008	IS		ALWAYS	IMPLICIT	

Table 300: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Conversion Type	0008,0064	CS	WSD	ALWAYS	FIXED	
Modality	0008,0060	CS	NM	ALWAYS	FIXED	
Secondary Capture Device ID	0018,1010	LO		ANAP	AUTO	
Secondary Capture Device Manufacturer	0018,1016	LO	Philips Medical Systems	ALWAYS	FIXED	
Secondary Capture Device Manufacturer's Model Name	0018,1018	LO	EBW NM	ANAP	FIXED	
Secondary Capture Device Software Version(s)	0018,1019	LO	Value 1: 1.0	ANAP	FIXED	

Table 301: SC Image Module

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

Table 302: SC Multi-frame Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Burned In Annotation	0028,0301	CS		ALWAYS	AUTO	
Frame Increment Pointer	0028,0009	AT		ALWAYS	AUTO	
Presentation LUT Shape	2050,0020	CS	IDENTITY - output is in P-Values.	ANAP	AUTO	

Table 303: VOI LUT Module

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

Table 304: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Creation Date	0008,0012	DA		ALWAYS	AUTO	
Instance Creation Time	0008,0013	TM		ALWAYS	AUTO	
Instance Number	0020,0013	IS		ALWAYS	AUTO	
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.7.4	ALWAYS	FIXED	
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	
Specific Character Set	0008,0005	CS	ISO_IR 100	ALWAYS	FIXED	

Table 305: Private Attributes in SC IOD

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Private Creator Group 2001	2001,0010	LO	Philips Imaging DD 001			
Examination Source	2001,1063	CS				

12.1.2. Usage of Attributes from Received IOD

Not applicable.

12.1.3. Attribute Mapping

Not applicable.

12.1.4. Coerced/Modified fields

Not applicable.

12.2. Data Dictionary of Private Attributes

Not applicable.

12.3. Coded Terminology and Templates

Not applicable.

12.3.1. Context Groups

Not applicable.

12.3.2. Template Specifications

Not applicable.

12.3.3. Private code definitions

Not applicable.

12.4. Grayscale Image consistency

Not applicable.

12.5. Standard Extended/Specialized/Private SOPs

Not applicable.

12.6. Private Transfer Syntaxes

Not applicable.