

# DICOM

## Conformance Statement

### ViewForum R 6.3



**Issued by:**

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## 1. DICOM CONFORMANCE STATEMENT OVERVIEW

The ViewForum Release 6.3 system is a comprehensive range of hardware and software modules that allow for tailored clinical solutions. The software applications are categorized in packages, for instance the Volume package for CT/MR images. It is also possible to calculate the volume of a segmented 3D object. The hardware consists of a PC Windows workstation.

The ViewForum R6.3 provides the following DICOM data exchange features:

- It receives images sent to it by 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 a remote system to query the ViewForum R6.3 database and to retrieve images from it.
- It allows the operator to print images stored in the database on a DICOM printer.
- It is able to read and write DICOM CD-RW disks.
- It is able to read and write DICOM DVD-RW disks.

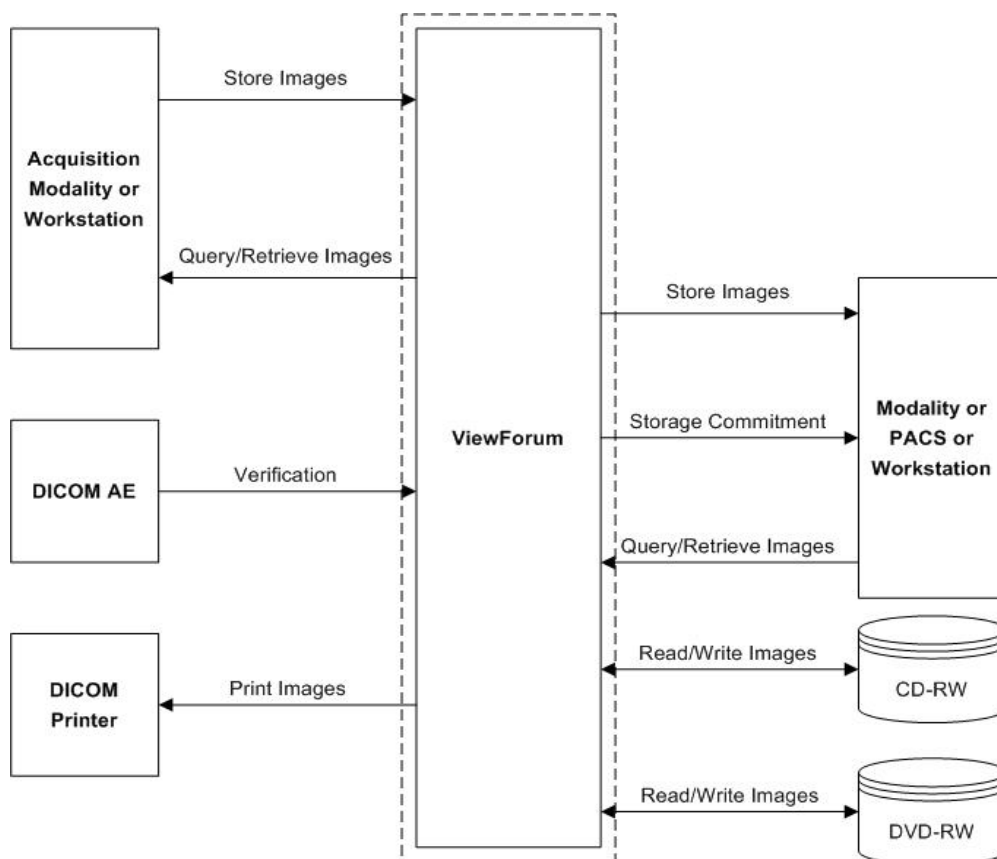


Figure 1: ViewForum R6.3 in a DICOM Network

Table 1: Network Services

SOP Class		User of Service (SCU)	Provider of Service (SCP)
Name	UID		
<b>Other</b>			
Verification SOP Class	1.2.840.10008.1.1	No	Yes
<b>Print Management</b>			
Presentation LUT SOP Class	1.2.840.10008.5.1.1.23	Yes	No
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
<b>Query/Retrieve</b>			
Patient Root Query/Retrieve Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.1.1	Yes	Yes
Patient Root Query/Retrieve Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.1.2	Yes	Yes
Study Root Query/Retrieve Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	Yes	Yes
Study Root Query/Retrieve Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Yes	Yes
<b>Transfer</b>			
3D Object new Storage (Private)	1.3.46.670589.5.0.2.1	Yes	Yes
3D Volume Storage new SOP Class (Private)	1.3.46.670589.5.0.1.1	Yes	Yes
Cardio Image Storage new SOP Class (Private)	1.3.46.670589.5.0.8.1	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
CT Synthetic Image Storage (Private)	1.3.46.670589.5.0.9	Yes	Yes
CX Synthetic Image Storage (Private)	1.3.46.670589.5.0.12	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
Enhanced MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.1	No	Yes
Gyrosan MR Series Data (private)	1.3.46.670589.11.0.0.12.2	No	Yes
Gyrosan MR Spectrum (Private)	1.3.46.670589.11.0.0.12.1	No	Yes
MR Cardio Analysis new Storage (Private)	1.3.46.670589.5.0.11.1	Yes	Yes
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Yes	Yes
MR Synthetic Image Storage (Private)	1.3.46.670589.5.0.10	Yes	Yes
Perfusion (Private)	1.3.46.670589.5.0.13	Yes	Yes
Perfusion Image Storage (Private)	1.3.46.670589.5.0.14	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

SOP Class		User of Service (SCU)	Provider of Service (SCP)
Name	UID		
Specialized PMS X-Ray Image Store	1.3.46.670589.2.3.1.1	Yes	Yes
Surface Storage new (Private)	1.3.46.670589.5.0.3.1	Yes	Yes
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	Yes	Yes
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	Yes	Yes
XA reconstructed X-ray SOP Class (private)	1.3.46.670589.2.4.1.1	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
<b>Workflow Management</b>			
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Yes	No

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

A table of Supported Media Storage Application Profiles (with roles) is provided

**Table 2: Media Services**

Media Storage Application Profile	Write Files (FSC or FSU)	Read Files (FSR)
<b>Compact Disk – Recordable</b>		
General Purpose CD-R Interchange	YES/YES	YES
CT/MR Studies on CD-R	YES/YES	YES
<b>DVD</b>		
CT/MR Studies on DVD Media	YES/YES	YES
General Purpose DVD Interchange with JPEG	YES/YES	YES
<b>USB</b>		
General Purpose USB Media Interchange with JPEG	YES/YES	YES

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## 3. INTRODUCTION

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

### 3.1. Revision History

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

**Table 3: Revision History**

Document Version	Date of Issue	Author	Description
00	14 August 2007	PMS CTO C&S IC2	First Release version
01	23 August 2007	PMS CTO C&S IC2	Removed N-EVENT-REPORT tables from Printer Section.
02	14 February 2008	PII Services	Support for Gyroscan SOP classes as SCP only Reference PR 12905 Raw data SOP Class and MR Spectroscopy SOP Class are removed. Reference IO Specifications, 2007-07-13, XPS071-051181

### 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

DICOM definitions, terms and abbreviations are used throughout this Conformance Statement. For a description of these, see NEMA PS 3.3 and PS 3.4. The word Philips in this document refers to Philips Medical Systems.

The following acronyms and abbreviations are used in this document.

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
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. 17<sup>th</sup> Street, Suite 1847 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 2007) plus all the supplements and correction items that have been approved as Final Text.

## 4. NETWORKING

### 4.1. Implementation model

The implementation model consists of three sections:

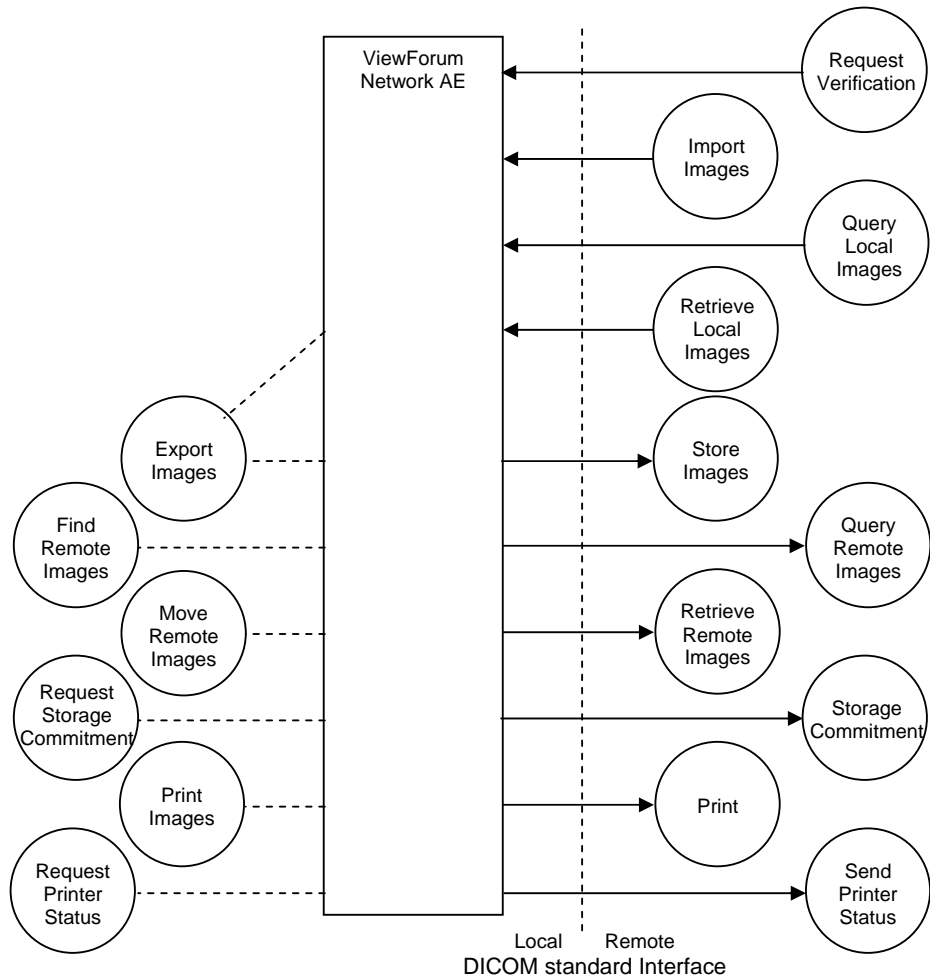
- The application data flow diagram, specifying the relationship between the Application Entities and the “external world” or Real-World Activities,
- A functional description of each Application Entity, and
- The sequencing constraints among them.

#### 4.1.1. Application Data Flow

The ViewForum R6.3 system consists of one single Application Entity only: the ViewForum Application Entity (ViewForum Network AE).

Figure below shows the Networking application data flow as a functional overview of the ViewForum Network AE. As depicted in the Figure, the ViewForum Network AE incorporates the following functionality.

- After RWA Request Verification, the ViewForum Network AE as SCP provides standard Verification Service Class functionality to the requesting SCU.
- After RWA Import Images, the ViewForum Network AE as SCP provides standard Storage Service Class functionality to the requesting SCU.
- After RWA Query Local Images/Retrieve Local Images, the ViewForum Network AE 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 ViewForum Network AE 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 ViewForum Network AE as SCU uses the remote SCP Query/Retrieve Service Class functionality to query remote images.
- After operator RWA Move Remote Images, the ViewForum Network AE as SCU uses the remote SCP Query/Retrieve Service Class functionality to retrieve remote images.
- After operator RWA Request Storage Commitment, the ViewForum Network AE as SCU uses the remote SCP Storage Commitment Service Class functionality to commit remote images.
- After operator RWA Print Images, the ViewForum Network AE as SCU uses the remote Print Management Service Class to print local images.
- After operator RWA Request Printer Status, the ViewForum Network AE 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. This describes in general terms the functions to be performed by the AE, and the DICOM services used to accomplish these functions. In this sense, "DICOM services" refers not only to DICOM Service Classes, but also to lower level DICOM services, such as Association Services.

**4.1.2.1. Functional Definition of ViewForum Network AE**

The ViewForum Network AE is the one and only Application Entity within ViewForum R6.3. It includes the following service classes.

**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 ViewForum Network AE.

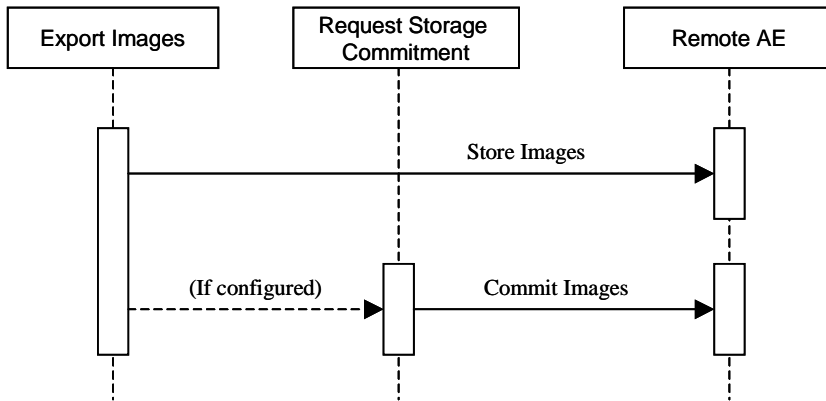


Figure 3: RWA Sequencing for Export Images

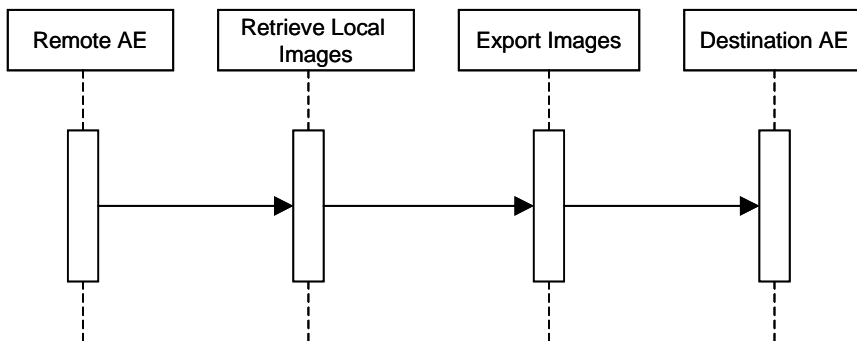


Figure 4: RWA Sequencing for Retrieve Local Images

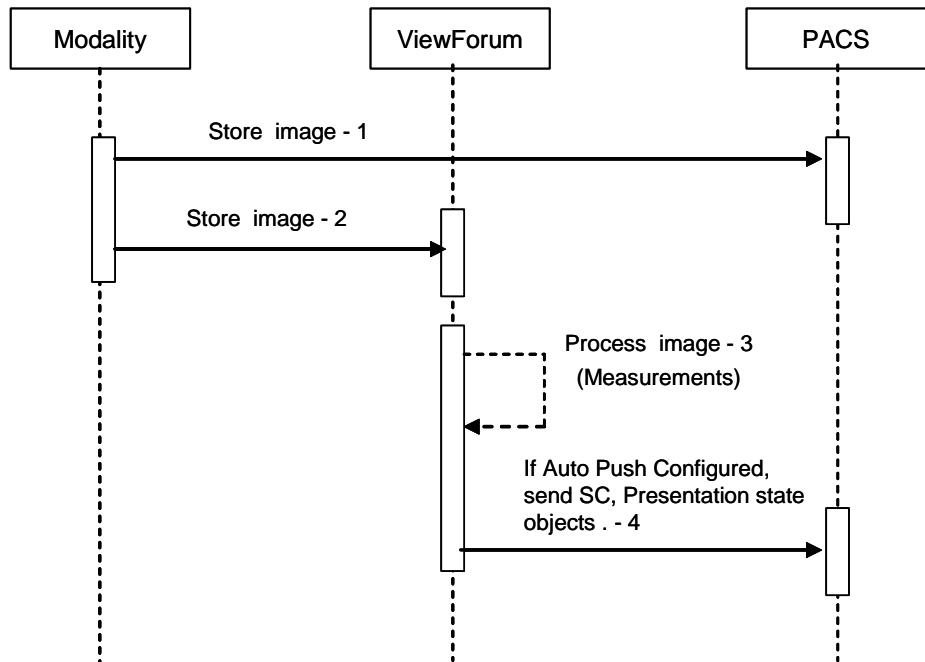


Figure 5: RWA Sequencing for Auto Push feature of ViewForum



## Sequencing of Real World Activity of Auto Push feature of the ViewForum R6.3

1. Modality exports images of Patient A to PACS for storage using DICOM Storage service
2. Modality exports images of Patient A to ViewForum using DICOM storage service
3. ViewForum processes the images of Patient A for measurement and analysis. If Auto Push Configured, ViewForum exports the new data (Secondary capture images, Presentation state objects) of Patient A to PACS, when clinical user closes the study of the patient A or when ViewForum finishes the background processing of the images for Patient A

If the receiving PACS do not support the Presentation State Objects, then the Auto Push will not send the Presentation State Objects to the PACS. Also not by sending new copies of the images with overlays.

## 4.2. AE Specifications

The next 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. ViewForum Network AE

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

#### 4.2.1.1. SOP Classes

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

**Table 4: SOP Classes for ViewForum Network AE**

SOP Class Name	SOP Class UID	SCU	SCP
3D Object new Storage (Private)	1.3.46.670589.5.0.2.1	Yes	Yes
3D Volume Storage new SOP Class (Private)	1.3.46.670589.5.0.1.1	Yes	Yes
Cardio Image Storage new SOP Class (Private)	1.3.46.670589.5.0.8.1	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
CT Synthetic Image Storage (Private)	1.3.46.670589.5.0.9	Yes	Yes
CX Synthetic Image Storage (Private)	1.3.46.670589.5.0.12	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
Enhanced MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.1	No	Yes
Gyroscan MR Series Data (private)	1.3.46.670589.11.0.0.12.2	No	Yes
Gyroscan MR Spectrum (Private)	1.3.46.670589.11.0.0.12.1	No	Yes
MR Cardio Analysis new Storage (Private)	1.3.46.670589.5.0.11.1	Yes	Yes
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Yes	Yes
MR Synthetic Image Storage (Private)	1.3.46.670589.5.0.10	Yes	Yes
Patient Root Query/Retrieve Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.1.1	Yes	Yes
Patient Root Query/Retrieve Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.1.2	Yes	Yes
Perfusion (Private)	1.3.46.670589.5.0.13	Yes	Yes
Perfusion Image Storage (Private)	1.3.46.670589.5.0.14	Yes	Yes
Presentation LUT SOP Class	1.2.840.10008.5.1.1.23	Yes	No
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
Specialized PMS X-Ray Image Store	1.3.46.670589.2.3.1.1	Yes	Yes
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Yes	No
Study Root Query/Retrieve Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	Yes	Yes
Study Root Query/Retrieve Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Yes	Yes
Surface Storage new (Private)	1.3.46.670589.5.0.3.1	Yes	Yes
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	Yes	Yes
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	Yes	Yes
Verification SOP Class	1.2.840.10008.1.1	Yes	Yes
XA reconstructed X-ray SOP Class (private)	1.3.46.670589.2.4.1.1	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
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

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

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

**4.2.1.2. Association Policies**

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

**4.2.1.2.1. General**

The DICOM standard application context has specified.

**Table 5: DICOM Application Context**

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.

**Table 6: Number of Associations as an Association Initiator for ViewForum Network AE**

Maximum number of simultaneous associations	3
---	---

**Table 7: Number of Associations as an Association Acceptor for ViewForum Network AE**

Maximum number of simultaneous associations	9
---	---

**4.2.1.2.3. Asynchronous Nature**

If the implementation supports negotiation of multiple outstanding transactions this is stated here, along with the maximum number of outstanding transactions supported.

**Table 8: Asynchronous Nature as an Association Initiator for ViewForum Network AE**

Maximum number of outstanding asynchronous transactions	ViewForum does not support asynchronous operations, and will not perform asynchronous window negotiation
---	--

**4.2.1.2.4. Implementation Identifying Information**

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

**Table 9: DICOM Implementation Class and Version for ViewForum Network AE**

Implementation Class UID	1.3.46.670589.5.2.23
--------------------------	----------------------

Implementation Version Name	ViewForum R6.3
-----------------------------	----------------

**4.2.1.2.5. Communication Failure Handling**

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

**Table 10: Communication Failure Behavior**

Exception	Behavior
ARTIM Timeout	The association is closed and information is logged.

**4.2.1.3. Association Initiation Policy**

This describes the conditions under which the AE will initiate an association.

The behavior of the AE during association rejection is summarized in next table

**Table 11: DICOM Association Rejection Handling**

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

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

**Table 12: DICOM Association Abort Handling**

Source	Reason/Diagnosis	Behavior
0 – DICOM UL service-user	0 – reason-not-specified	The user will be informed. The information is logged
2 – DICOM UL service-provider	0 – reason-not-specified	The user will be informed. The information is logged

Source	Reason/Diagnosis	Behavior
	1 – unrecognized-PDU	The user will be informed. The information is logged
	2 – unexpected-PDU	The user will be informed. The information is logged
	4 – unrecognized-PDU parameter	The user will be informed. The information is logged
	5 – unexpected-PDU parameter	The user will be informed. The information is logged
	6 – invalid-PDU-parameter value	The user will be informed. The information is logged

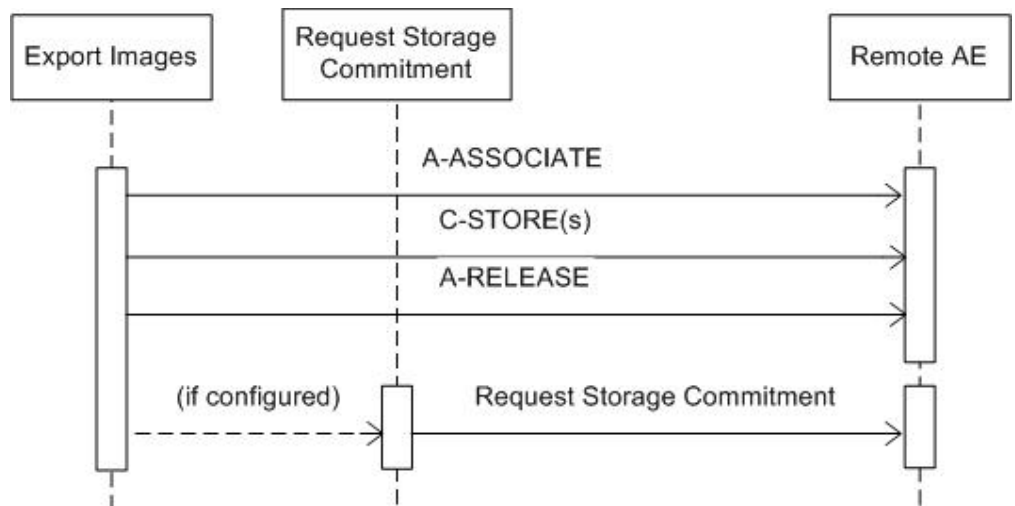
The behavior of the AE for sending an association abort is summarized in next table.

**Table 13: DICOM Association Abort Policies**

Source	Reason/Diagnosis	Behavior
0 – DICOM UL service-user	0 – reason-not-specified	The user will be informed. The information is logged
2 – DICOM UL service-provider	0 – reason-not-specified	The user will be informed. The information is logged
	1 – unrecognized-PDU	The user will be informed. The information is logged
	2 – unexpected-PDU	The user will be informed. The information is logged
	4 – unrecognized-PDU parameter	The user will be informed. The information is logged
	5 – unexpected-PDU parameter	The user will be informed. The information is logged
	6 – invalid-PDU-parameter value	The user will be informed. The information is logged

**4.2.1.3.1. (Real-World) Activity – Image Export**

**4.2.1.3.1.1. Description and Sequencing of Activities**



**Figure 6: (Real World) Activity - Image Export**

The RWA Export Images involves the storage of images from the local ViewForum R6.3 database to a remote system.

There are two ways for the ViewForum Network AE to initiate Export Images.

- The operator is able to copy the images selected in a patient folder from the local ViewForum R6.3 database to another database by means of the copy tool in the ViewForum R6.3 data-handling tool. For each selected patient ViewForum R6.3 initiates an association to the selected peer entity, and uses it to send C-STORE requests and receive the associated C-STORE responses. The association is released when all selected images in the selected folder have been transmitted. ViewForum R6.3 handles operator copy requests one after another.
- A remote application copies images from the local ViewForum R6.3 database to another database by sending a C-MOVE request to ViewForum R6.3. For each received retrieve request ViewForum R6.3 initiates an association to the requested retrieve/move destination, and uses it to send C-STORE requests and receive associated C-STORE responses. The association is released when all instances, i.e. images and presentation states as selected by the retrieve request identifier, have been stored. ViewForum R6.3 is able to simultaneously handle C-MOVE requests.

Along with the image data the ViewForum Network AE shall also export presentation state data. If the SCP supports the Grayscale Softcopy Presentation State storage SOP class then the applicable presentation state data will be transferred as such, otherwise the presentation state data will be merged with the image data before export.

Please refer to section Coerced/Modified fields, for more information on presentation state storage.

If configured, the ViewForum Network AE shall also try and initiate a storage commitment of the stored image (after releasing the storage association). See section RWA Request Storage Commitment for a detailed specification of the storage commitment. The figure above shows the sequence of events after the operator or remote application initiates the RWA Export Images.

**4.2.1.3.1.2. Proposed Presentation Contexts**

**Table 14: 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		
3D Object new Storage (Private)	1.3.46.670589.5.0.2.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
3D Volume Storage new SOP Class (Private)	1.3.46.670589.5.0.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Cardio Image Storage new SOP Class (Private)	1.3.46.670589.5.0.8.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Computed Radiography	1.2.840.10008.5.1.4.1.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
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 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 Synthetic Image Storage (Private)	1.3.46.670589.5.0.9	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
CX Synthetic Image Storage (Private)	1.3.46.670589.5.0.12	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Digital 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		
MR Cardio Analysis new Storage (Private)	1.3.46.670589.5.0.11.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
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		
MR Synthetic Image Storage (Private)	1.3.46.670589.5.0.10	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Perfusion (Private)	1.3.46.670589.5.0.13	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Perfusion Image Storage (Private)	1.3.46.670589.5.0.14	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Specialized PMS X-Ray Image Store	1.3.46.670589.2.3.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Surface Storage new (Private)	1.3.46.670589.5.0.3.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
Ultrasound Multi-frame Image Storage SOP	1.2.840.10008.5.1.4.1.1.3.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
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		
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		
XA reconstructed X-ray SOP Class (private)	1.3.46.670589.2.4.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

Note: For performance reasons Transfer syntax ELE is preferred.

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 the ViewForum Network AE for Export Images are defined in above Table.

No Extended Negotiations supported by ViewForum Network AE for Image Export Service class.

#### 4.2.1.3.1.3. SOP Specific Conformance for Storage SOP Classes

Important remarks about the exported images:

- In case the remote system does not support modality specific image storage SOP class, the ViewForum Network AE will convert the images (if configured to do so) and send them via the Secondary Capture image storage SOP class. These Secondary Capture images and additional information (like graphics, text and important attribute information) are burnt-in (if configured). The original bit depth of the Secondary Capture image is kept. Note: only standard DICOM images can be converted, private SOP classes cannot be converted.
- In case of color images, all color-coding schemes are sent as they were received.
- Attributes e.g. Study Date and Study Time will be added to images to be exported (if not yet present). This is done because there are imaging systems relying on the existence of these attributes.
- On the export of an imported image the ViewForum adds private attributes to the image.
- The exported ViewForum R6.3 images do not contain Instance Number if the original images received from modalities do not contain this attribute or provide information in other attributes for ViewForum R6.3 to generate it.
- Exported CT/MR images relate Scanogram and Slice images in the following way: Attribute 'Referenced Image Sequence' is present in the slice images and points to the related Scanogram image. Note that Attribute 'Frame of Reference UID' in the Scanogram (Localiser image) and related image slices are not guaranteed to be equal; this depends on the source of the images.
- For Secondary Capture images only one Window Width and Window Centre value is exported.



### Use of optional, private and retired attributes

The transmitted Storage SOP instances may include all optional elements specified in the DICOM standard, depending on the source of the images.

The transmitted Storage SOP instances may contain Retired and Private data elements, depending on the source of the images and of the ViewForum R6.3 configuration.

When exporting images the ViewForum Network AE can convert the transfer syntax according to the following table.

**Table 15: Transfer Syntax Conversion**

Syntax	Source	ILE	ELE	EBE	JPEG Baseline
Destination					
ILE		+	+	+	-
ELE		+	+	+	-
EBE		+	+	+	-
JPEG Baseline	*	+	+	+	-

Note:

JPEG Baseline is only supported for images with Photometric Interpretation of YBR\_FULL\_422.

As ViewForum R6.3 internally stores the images in uncompressed format, the image data shall be compressed to JPEG (RGB to YBR\_FULL\_422) before export.

\* Note that JPEG Baseline transfer syntax may NOT be configured for SCU systems that are capable of handling storage of monochrome images too.

The store response status is saved in the log file; a user error will be displayed in the GUI.

The ViewForum Network AE will stop the transfer of the images and release the association as soon as it receives an unsuccessful store response status. In case that a remote application requested the transfer (by means of a C-MOVE request), a move response with status unsuccessful is sent to the retrieve requestor.

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors.

**Table 16: C-STORE-RQ Status Response**

Service Status	Code	Further Meaning	Description
Success	0000	Storage is complete	Continues with next store until completed thereafter the store job is marked as completed and the association is released.
Refused	A7xx	Out of Resources	The store job fails and the association is released. The reason is logged and reported to the user
Error	A9xx	Data set does not match SOP class	The store job fails and the association is released. The reason is logged and reported to the user
	Cxxx	Cannot understand	The store job fails and the association is released. The reason is logged and reported to the user
Warning	B000	Coercion of Data Elements	Continues with next store until completed thereafter the store job is marked as completed and the association is released.

Service Status	Code	Further Meaning	Description
	B006	Elements discarded	Continues with next store until completed thereafter the store job is marked as completed and the association is released.
	B007	Data set does not match SOP class	Continues with next store until completed thereafter the store job is marked as completed and the association is released.

**Table 17: DICOM Command Communication Failure Behavior**

Exception	Behavior
ARTIM Time-out	The store job fails in case of association setup. The reason is logged and reported to the user.
Reply Time-out	The store job fails and association is aborted The reason is logged and reported to the user
Association Time-out SCU	The association is released.
Association aborted	The store job fails. The reason is logged and reported to the user.

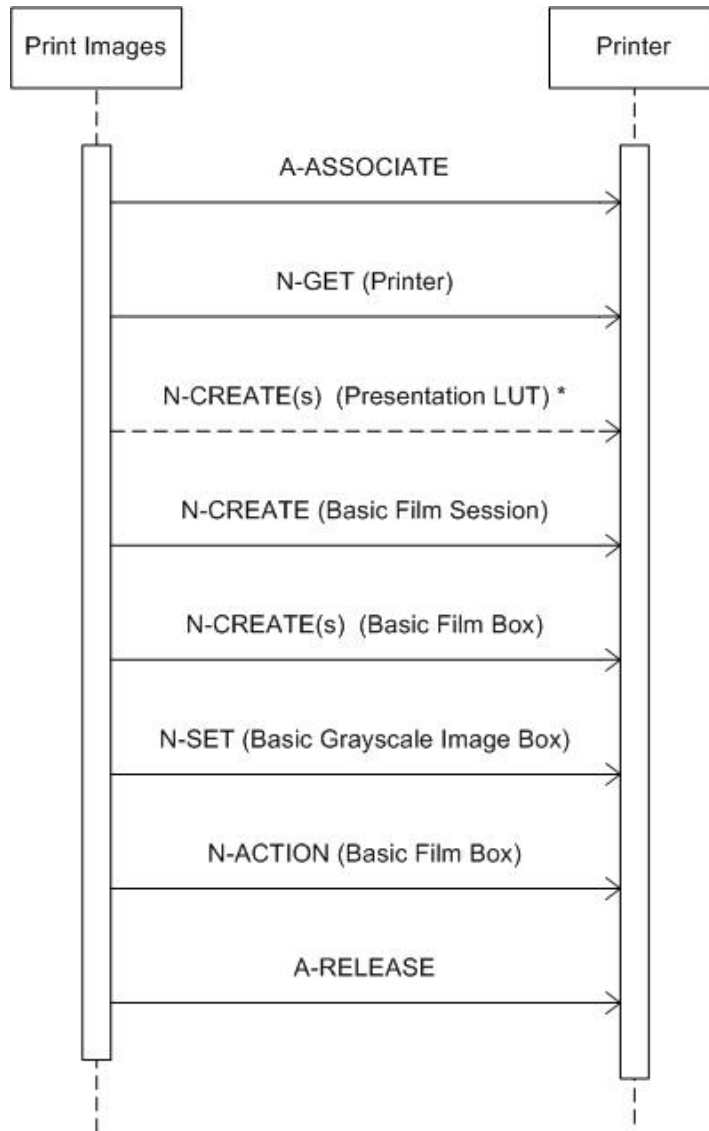
#### **4.2.1.3.2. (Real-World) Activity – Print Management as SCU**

##### **4.2.1.3.2.1. Description and Sequencing of Activities**

The RWA Print Images involves the printing of images by sending the selected images to a Print Management SCP (i.e. printer).

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), the ViewForum Network AE shall initiate an association to the selected printer and use it to send the print job.

ViewForum R6.3 also has an option for print preview.



**Figure 7: (Real World) Activity - Print Management As SCU**

Note that the Presentation LUT SOP class is only supported for Grayscale image printing

**4.2.1.3.2.2. Proposed Presentation Contexts**

**Table 18: 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		
Presentation LUT SOP Class	1.2.840.10008.5.1.1.23	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		
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		

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 the ViewForum Network AE for Print Images are defined in above table.

No extended negotiations supported by ViewForum Network AE for Print Management SOP class.

This section specifies each IOD created (including private IODs).

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

**4.2.1.3.2.3. SOP Specific Conformance for Presentation LUT SOP Class**

The ViewForum R6.3 conforms to the Presentation LUT SOP Class.  
The following DIMSE service element is supported:

**N-CREATE**

The following table lists the supported attributes for the N-CREATE DIMSE

**4.2.1.3.2.3.1. Dataset Specific Conformance for Presentation LUT SOP Class N-CREATE SCU**

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors

**Table 19: Presentation LUT Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Presentation LUT Shape	2050,0020	CS	IDENTITY	ALWAYS	AUTO	

**Table 20: N-CREATE-RQ Status Response**

Service Status	Code	Further Meaning	Description
Success	0000	Presentation LUT successfully created	The print job continues.
Warning	B605	Requested Min Density or Max Density outside of printer's operating range. The printer will use its respective minimum or maximum density value instead.	The print job continues and the warning is logged.

**Table 21: DICOM Command Communication Failure Behavior**

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

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

The ViewForum R6.3 conforms to the Basic Color Image SOP class.  
The following DIMSE service element is supported

##### 4.2.1.3.2.4.1. Dataset Specific Conformance for Basic Color Image Box N-SET SCU

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors

**Table 22: Image Box Pixel Presentation Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Position	2020,0010	US		ALWAYS	AUTO	
Polarity	2020,0020	CS		ALWAYS	AUTO	
Basic Color Image Sequence	2020,0111	SQ		ALWAYS	AUTO	
>Samples per Pixel	0028,0002	US	3	ALWAYS	AUTO	
>Photometric Interpretation	0028,0004	CS	RGB	ALWAYS	AUTO	
>Planar Configuration	0028,0006	US	0x0001, 0x0000	ALWAYS	IMPLICIT	
>Rows	0028,0010	US		ALWAYS	IMPLICIT	
>Columns	0028,0011	US		ALWAYS	IMPLICIT	
>Bits Allocated	0028,0100	US	8	ALWAYS	AUTO	
>Bits Stored	0028,0101	US	8	ALWAYS	AUTO	
>High Bit	0028,0102	US	7	ALWAYS	AUTO	
>Pixel Representation	0028,0103	US	0x0000	ALWAYS	IMPLICIT	
>Pixel Data	7FE0,0010	OW/OB		ALWAYS	AUTO	

**Table 23: N-SET-RQ Status Response**

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

**Table 24: DICOM Command Communication Failure Behavior**

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

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

The ViewForum R6.3 provides standard conformance to this SOP class.

##### 4.2.1.3.2.5.1. Dataset Specific Conformance for Basic Film Box N-ACTION SCU

**Table 25: N-ACTION-RQ Status Response**

Service Status	Further Meaning	Error Code	Behavior
Success	Film accepted for printing	0000	The print job continues.
Warning	Film Box SOP Instance Hierarchy does not contain Image Box SOP Instances	B603	The print job continues and the warning is logged and reported to the user.
	Image Size is larger than Image Box Size – The Image has been de-magnified	B604	The print job continues and the warning is logged and reported to the user.
	Image Size is larger than Image Box Size – The Image has been cropped to fit	B609	The print job continues and the warning is logged and reported to the user.
Failure	Image Size or combined Print Image Size is larger than Image Box Size – The Image or combined Print Image has been decimated to fit	B60A	The print job continues and the warning is logged and reported to the user.
	Unable to create Print Job SOP Instance – Print Queue is full	C602	The print job is marked as failed and the reason is logged and reported to the user.
	Image Size is larger than Image Box Size	C603	The print job is marked as failed and the reason is logged and reported to the user.
	Combined Print Image Size is larger than Image Box Size	C613	The print job is marked as failed and the reason is logged and reported to the user.

**Table 26: DICOM Command Communication Failure Behavior**

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

##### 4.2.1.3.2.5.2. Dataset Specific Conformance for Basic Film Box N-CREATE SCU

**Table 27: N-CREATE-RQ Status Response**

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

**Table 28: DICOM Command Communication Failure Behavior**

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

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

The ViewForum R6.3 provides standard conformance to this SOP class.

##### 4.2.1.3.2.6.1. Dataset Specific Conformance for Basic Film Session N-CREATE SCU

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors

**Table 29: N-CREATE-RQ Status Response**

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

**Table 30: DICOM Command Communication Failure Behavior**

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

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

The ViewForum R6.3 provides standard conformance to this SOP class.

##### 4.2.1.3.2.7.1. Dataset Specific Conformance for Printer SOP Class of the Basic Color Print Management Meta SOP Class



Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors

**Table 31: DICOM Command Communication Failure Behavior**

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

#### 4.2.1.3.2.7.2. Dataset Specific Conformance for Printer N-GET SCU

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors

**Table 32: N-GET-RQ Status Response**

Service Status	Further Meaning	Error Code	Behavior
Success	Successful operation	0000	The print job continues.
Warning	(any warning)	xxxx	The print job continues and the warning is logged.
Failure	(any failure)	xxxx	The print job is marked as failed, the reason is logged and reported to the user.

**Table 33: DICOM Command Communication Failure Behavior**

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

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

The ViewForum R6.3 provides standard conformance to this SOP class.

#### 4.2.1.3.2.8.1. Dataset Specific Conformance for Basic Film Box N-ACTION SCU

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors

**Table 34: N-ACTION-RQ Status Response**

Service Status	Further Meaning	Error Code	Behavior
Success	Film accepted for printing	0000	The print job continues.
Warning	Film Box SOP Instance Hierarchy does not contain Image Box SOP Instances	B603	The print job continues and the warning is logged and reported to the user.
	Image Size is larger than Image Box Size – The Image has been de-magnified	B604	The print job continues and the warning is logged and reported to the user.

Service Status	Further Meaning	Error Code	Behavior
	Image Size is larger than Image Box Size – The Image has been cropped to fit	B609	The print job continues and the warning is logged and reported to the user.
	Image Size or combined Print Image Size is larger than Image Box Size – The Image or combined Print Image has been decimated to fit	B60A	The print job continues and the warning is logged and reported to the user.
Failure	Unable to create Print Job SOP Instance – Print Queue is full	C602	The print job is marked as failed and the reason is logged and reported to the user.
	Image Size is larger than Image Box Size	C603	The print job is marked as failed and the reason is logged and reported to the user.
	Combined Print Image Size is larger than Image Box Size	C613	The print job is marked as failed and the reason is logged and reported to the user.

**Table 35: DICOM Command Communication Failure Behavior**

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

**4.2.1.3.2.8.2. Dataset Specific Conformance for Basic Film Box N-CREATE SCU**

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors

**Table 36: Basic Film Box Relationship Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Referenced Film Session Sequence	2010,0500	SQ		ALWAYS	AUTO	
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	
Referenced Presentation LUT Sequence	2050,0500	SQ		ANAP	AUTO	
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	

**Table 37: Basic Film Box Presentation Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Display Format	2010,0010	ST	CUSTOM, STANDARD	ALWAYS	AUTO	
Film Orientation	2010,0040	CS	LANDSCAPE, PORTRAIT	ALWAYS	CONFIG	
Film Size ID	2010,0050	CS	A, 10INX12IN, 10INX14IN, 11INX14IN, 11INX17IN, 14INX14IN, 14INX17IN, 24CMX24CM, 24CMX30CM, 8INX10IN, 8_5INX11IN, A3, A4	ALWAYS	CONFIG	
Magnification Type	2010,0060	CS		ANAPEV	AUTO	
Min Density	2010,0120	US		ANAPEV	AUTO	
Max Density	2010,0130	US		VNAP	CONFIG	
Trim	2010,0140	CS	NO, YES	ANAPEV	AUTO	

Configuration Information	2010,0150	ST	L	ANAPEV	AUTO	
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**Table 38: Basic Film Box Relationship Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Referenced Film Session Sequence	2010,0500	SQ		ALWAYS	AUTO	
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	
Referenced Presentation LUT Sequence	2050,0500	SQ		ANAP	AUTO	
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	

**Table 39: N-CREATE-RQ Status Response**

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

**Table 40: DICOM Command Communication Failure Behavior**

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

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

The ViewForum R6.3 provides standard conformance to this SOP class.

**4.2.1.3.2.9.1. Dataset Specific Conformance for Basic Film Session N-CREATE SCU**

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors

**Table 41: Basic Film Session Presentation Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Copies	2000,0010	IS	1 to 99	ALWAYS	USER	
Print Priority	2000,0020	CS	HIGH	ALWAYS	USER	
Medium Type	2000,0030	CS	BLUE FILM, CLEAR FILM, PAPER	ANAPEV	IMPLICIT	
Film Destination	2000,0040	CS	MAGAZINE, PROCESSOR	ANAPEV	USER	
Film Session Label	2000,0050	LO	Philips Medical Systems	ALWAYS	COPY	

**Table 42: N-CREATE-RQ Status Response**

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

**Table 43: DICOM Command Communication Failure Behavior**

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

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

The ViewForum R6.3 provides standard conformance to this SOP class.

##### 4.2.1.3.2.10.1. Dataset Specific Conformance for Basic Grayscale Image Box N-SET SCU

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors

**Table 44: Image Box Pixel Presentation Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Position	2020,0010	US		ALWAYS	AUTO	
Polarity	2020,0020	CS		ALWAYS	AUTO	
Basic Grayscale Image Sequence	2020,0110	SQ		ALWAYS	AUTO	
>Samples per Pixel	0028,0002	US	1	ALWAYS	AUTO	
>Photometric Interpretation	0028,0004	CS	MONOCHROME2	ALWAYS	AUTO	
>Rows	0028,0010	US		ALWAYS	IMPLICIT	
>Columns	0028,0011	US		ALWAYS	IMPLICIT	
>Bits Allocated	0028,0100	US	16, 8	ALWAYS	AUTO	
>Bits Stored	0028,0101	US	12, 8	ALWAYS	IMPLICIT	
>High Bit	0028,0102	US	11, 7	ALWAYS	AUTO	
>Pixel Representation	0028,0103	US	0x0000	ALWAYS	AUTO	
>Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	

**Table 45: N-SET-RQ Status Response**

Service Status	Further Meaning	Error Code	Behavior
Success	Image successfully stored in Image Box	0000	The print job continues.
Warning	Image Size is larger than Image Box Size – The Image has been de-magnified	B604	The print job continues and the warning is logged and reported to the user.
	Requested Min Density or Max Density outside of Printer's operating Range	B605	The print job continues and the warning is logged and reported to the user.

Service Status	Further Meaning	Error Code	Behavior
	Image Size is larger than Image Box Size – The Image has been cropped to fit	B609	The print job continues and the warning is logged and reported to the user.
	Image Size or combined Print Image Size is larger than Image Box Size – The Image or combined Print Image has been decimated to fit	B60A	The print job continues and the warning is logged and reported to the user.
Error	Image Size is larger than Image Box Size	C603	The print job is marked as failed and the reason is logged and reported to the user
	Insufficient Memory in Printer to store the Image	C605	The print job is marked as failed and the reason is logged and reported to the user
	Combined Print Image Size is larger than Image Box Size	C613	The print job is marked as failed and the reason is logged and reported to the user

**Table 46: DICOM Command Communication Failure Behavior**

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

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

The ViewForum R6.3 provides standard conformance to this SOP class.

**4.2.1.3.2.11.1. Dataset Specific Conformance for Printer SOP Class of the Basic Grayscale Print Management Meta SOP Class**

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors

**Table 47: Printer Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Printer Status Info	2110,0020	CS		ALWAYS	AUTO	

**Table 48: DICOM Command Communication Failure Behavior**

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

**4.2.1.3.2.11.2. Dataset Specific Conformance for Printer N-GET SCU**

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors.

**Table 49: Printer Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Printer Status	2110,0010	CS		ALWAYS	AUTO	
Printer Status Info	2110,0020	CS		ALWAYS	AUTO	

**Table 50: N-GET-RQ Status Response**

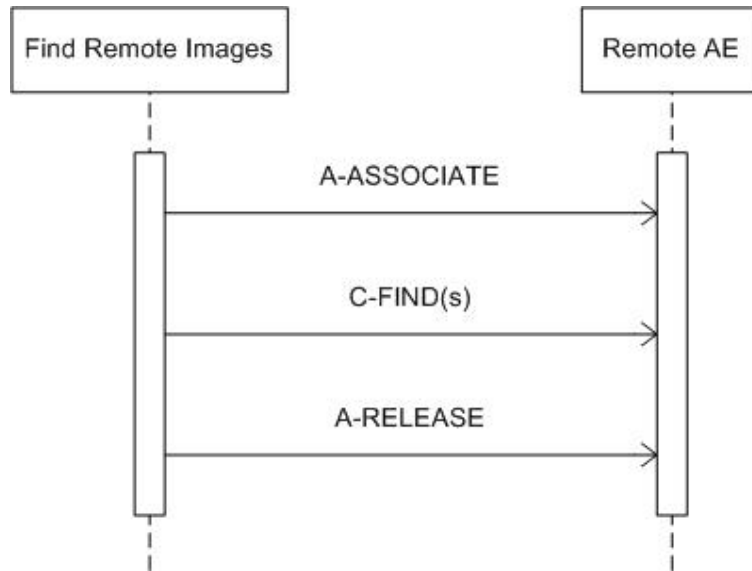
Service Status	Further Meaning	Error Code	Behavior
Success	Successful operation	0000	The print job continues.
Warning	(any warning)	xxxx	The print job continues and the warning is logged.
Failure	(any failure)	xxxx	The print job is marked as failed, the reason is logged and reported to the user.

**Table 51: DICOM Command Communication Failure Behavior**

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

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

**4.2.1.3.3.1. Description and Sequencing of Activities**



**Figure 8: (Real World) Activity - FIND As SCU**

The RWA Find Remote Images involves the query of a remote system to find matching images in the remote database.

The operator queries a remote database by means of the query tool in the ViewForum R6.3 data handling facility. The ViewForum Network AE initiates an association to the selected peer entity and uses it to send Query (C-FIND) requests (and receive the

associated responses). The association is released when the execution of the query completes (the Q/R dialog on the GUI is closed).

**4.2.1.3.3.2. Proposed Presentation Contexts**

**Table 52: 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		
Patient Root Query/Retrieve Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Study Root Query/Retrieve 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		

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 the ViewForum Network AE for Find Remote Images are defined in above table.

*Note: For performance reasons the ELE transfer syntax is preferred.*

No extended negotiations supported by the ViewForum Network AE for FIND SOP class.

**4.2.1.3.3.3. SOP Specific Conformance for Patient Root Query/Retrieve Information Model - FIND SOP Class**

The ViewForum R6.3 provides standard conformance to this SOP class. The ViewForum Network AE will not generate queries containing optional keys and it will not generate relational queries.

Do note that the query results screen will display all patients that have an empty patient ID as one patient entry.

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors

**4.2.1.3.3.3.1. Dataset Specific Conformance for ViewForum R 6.1 Patient Root Q/R CF SCU**

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors

**Table 53: Supported Query Keys for**

Attribute Name	Tag	VR	Type Of Matching	Comment
Query/Retrieve Level	0008,0052	CS	Single Value	
<b>Q/R Patient level</b>				
Patient ID	0010,0020	LO	Universal, Wildcard	

Attribute Name	Tag	VR	Type Of Matching	Comment
Patient's Name	0010,0010	PN	Universal, Wildcard	
Patient's Birth Date	0010,0030	DA	Universal, Wildcard	
Patient's Sex	0010,0040	CS	Universal, Wildcard	
<b>Q/R Study level (Patient Root)</b>				
Patient ID	0010,0020	LO	Single Value	
Study Instance UID	0020,000D	UI		
Study Date	0008,0020	DA	Universal, Wildcard	
Study Time	0008,0030	TM	Universal, Wildcard	
Accession Number	0008,0050	SH	Universal, Wildcard	
Modalities in Study	0008,0061	CS	Universal, Wildcard	
Referring Physician's Name	0008,0090	PN	Universal, Wildcard	
Study Description	0008,1030	LO	Universal, Wildcard	
Study ID	0020,0010	SH	Universal, Wildcard	
<b>Q/R Series level</b>				
Patient ID	0010,0020	LO	Single Value	
Study Instance UID	0020,000D	UI	Single Value	
Series Instance UID	0020,000E	UI		
Modality	0008,0060	CS		
Series Number	0020,0011	IS		
Body Part Examined	0018,0015	CS		
Protocol Name	0018,1030	LO		
Performed Procedure Step Start Date	0040,0244	DA	Universal, Wildcard	
Performed Procedure Step ID	0040,0253	SH	Universal, Wildcard	
<b>Q/R Image level</b>				
Patient ID	0010,0020	LO	Single Value	
Study Instance UID	0020,000D	UI	Single Value	
Series Instance UID	0020,000E	UI	Single Value	
SOP Instance UID	0008,0018	UI		
Instance Number	0020,0013	IS		
SOP Class UID	0008,0016	UI		
Content Date	0008,0023	DA	Universal, Wildcard	
Content Time	0008,0033	TM	Universal, Wildcard	

**Table 54: C-FIND-RQ Status Response**

Service Status	Further Meaning	Error Code	Behavior
Success	Matching is complete	0000	The find results are displayed.
Refused	Out of Resources	A700	No find results are displayed. The reason is logged.
Failed	Identifier does not match SOP class	A900	No find results are displayed. The reason is logged.
	Unable to process	Cxxx	No find results are displayed. The reason is logged.
Cancel	Matching terminated due to Cancel Request	FE00	No find results are displayed. The reason is logged.
Pending	Matches are continuing – Current match is supplied and any optional keys were supported in the same manner as required keys	FF00	The find command continues.
	Matches are continuing – Warning that one or more optional keys were not supported for existence and/or matching for this identifier	FF01	The find command continues.



**Table 55: DICOM Command Communication Failure Behavior**

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

#### 4.2.1.3.3.4. SOP Specific Conformance for Study Root Query/Retrieve Information Model - FIND SOP Class

The ViewForum R6.3 provides standard conformance to this SOP class.  
The ViewForum Network AE will not generate queries containing optional keys and it will not generate relational queries.

##### 4.2.1.3.3.4.1. Dataset Specific Conformance for ViewForum R 6.1 Study Root Q/R CF SCU

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors.

**Table 56: Supported Query Keys for**

Attribute Name	Tag	VR	Type Of Matching	Comment
Query/Retrieve Level	0008,0052	CS	Single Value	
<b>Q/R Study level (Study Root)</b>				
Patient's Name	0010,0010	PN	Universal, Wildcard	
Patient ID	0010,0020	LO	Universal, Wildcard	
Study ID	0020,0010	SH	Universal, Wildcard	
Study Instance UID	0020,000D	UI	Universal, Wildcard	
Study Date	0008,0020	DA	Universal, Wildcard	
Study Time	0008,0030	TM	Universal, Wildcard	
Accession Number	0008,0050	SH	Universal, Wildcard	
Modalities in Study	0008,0061	CS	Universal, Wildcard	
Referring Physician's Name	0008,0090	PN	Universal, Wildcard	
Study Description	0008,1030	LO	Universal, Wildcard	
<b>Q/R Series level</b>				
Study Instance UID	0020,000D	UI	Single Value	
Series Instance UID	0020,000E	UI	Universal, Wildcard	
Modality	0008,0060	CS	Universal, Wildcard	
Series Number	0020,0011	IS	Universal, Wildcard	
Body Part Examined	0018,0015	CS	Universal, Wildcard	
Protocol Name	0018,1030	LO	Universal, Wildcard	
Performed Procedure Step Start Date	0040,0244	DA	Universal, Wildcard	
Performed Procedure Step ID	0040,0253	SH	Universal, Wildcard	
<b>Q/R Image level</b>				
Study Instance UID	0020,000D	UI	Single Value	
Series Instance UID	0020,000E	UI	Single Value	
SOP Instance UID	0008,0018	UI		
Instance Number	0020,0013	IS		
SOP Class UID	0008,0016	UI		
Content Date	0008,0023	DA	Universal, Wildcard	
Content Time	0008,0033	TM	Universal, Wildcard	

**Table 57: C-FIND-RQ Status Response**

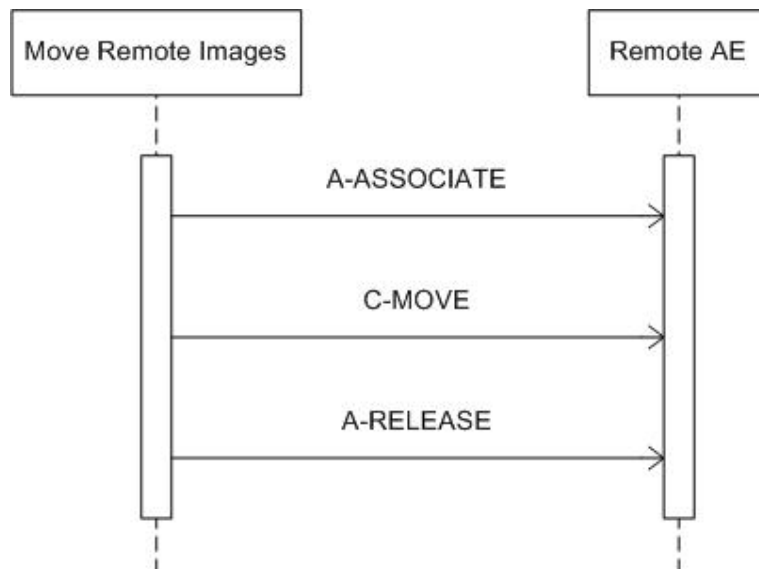
Service Status	Further Meaning	Error Code	Behavior
Success	Matching is complete	0000	The find results are displayed.
Refused	Out of Resources	A700	No find results are displayed. The reason is logged.
Failed	Identifier does not match SOP class	A900	No find results are displayed. The reason is logged.
	Unable to process	Cxxx	No find results are displayed. The reason is logged.
Cancel	Matching terminated due to Cancel Request	FE00	No find results are displayed. The reason is logged.
Pending	Matches are continuing – Current match is supplied and any optional keys were supported in the same manner as required keys	FF00	The find command continues.
	Matches are continuing – Warning that one or more optional keys were not supported for existence and/or matching for this identifier	FF01	The find command continues.

**Table 58: DICOM Command Communication Failure Behavior**

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

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

**4.2.1.3.4.1. Description and Sequencing of Activities**



**Figure 9: (Real World) Activity - MOVE As SCU**

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 ViewForum R6.3 data handling facility. The ViewForum Network AE 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).

**4.2.1.3.4.2. Proposed Presentation Contexts**

**Table 59: 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		
Patient Root Query/Retrieve Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Study Root Query/Retrieve Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

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 the ViewForum Network AE for Move Remote Images are defined in the above table.

No extended negotiations are supported by the ViewForum Network AE for the MOVE SOP

**4.2.1.3.4.3. SOP Specific Conformance for Patient Root Query/Retrieve Information Model - MOVE SOP Class**

The ViewForum R6.3 provides standard conformance to this SOP class.

**4.2.1.3.4.3.1. Dataset Specific Conformance for ViewForum R 6.1 Patient Root Q/R CM SCU**

Following are the details regarding the specific conformance, including response behavior to all status codes, both from application level and communication errors.

**Table 60: Identifiers for MOVE SCU**

Attribute Name	Tag	VR	Comment
<b>Patient Root Information Model</b>			
Query/Retrieve Level	0008,0052	CS	

Attribute Name	Tag	VR	Comment
<b>Patient level</b>			
Patient ID	0010,0020	LO	
<b>Study level</b>			
Patient ID	0010,0020	LO	
Study Instance UID	0020,000D	UI	
<b>Series level</b>			
Patient ID	0010,0020	LO	
Study Instance UID	0020,000D	UI	
Series Instance UID	0020,000E	UI	
<b>Image level</b>			
SOP Instance UID	0008,0018	UI	
Patient ID	0010,0020	LO	
Study Instance UID	0020,000D	UI	
Series Instance UID	0020,000E	UI	

**Table 61: C-MOVE-RQ Status Response**

Service Status	Code	Further Meaning	Description
Success	0000	Sub-operations complete-No Failures	The move job is marked as completed. The association is released.
Refused	A701	Out of Resources-Unable to calculate number of matches	The move job is marked as failed. The association is released. The reason is logged and reported o the user.
	A702	Out of Resources – Unable to perform sub-operations	The move job is marked as failed. The association is released. The reason is logged and reported o the user.
	A801	Move Destination unknown	The move job is marked as failed. The association is released. The reason is logged and reported o the user.
Failed	A900	Identifier does not match SOP class	The move job is marked as failed. The association is released. The reason is logged and reported o the user.
	Cxxx	Unable to process	The move job is marked as failed. The association is released. The reason is logged and reported o the user.
Cancel	FE00	Sub-operations terminated due to Cancel Indication	The move job is marked as failed. The association is released. The reason is logged and reported o the user.
Warning	B000	Sub-operations complete – One or more Failures	The move job is marked as completed. The association is released.
Pending	FF00	Sub-operations are continuing.	The move job continues.

**Table 62: DICOM Command Communication Failure Behavior**

Exception	Behavior
ARTIM Time-out	The move job fails in case of association setup. The reason is logged and reported o the user.
Reply Time-out	The move job fails and the association is aborted. The reason is logged and reported to the user.
Association Time-out SCU	N/A
Association aborted	The move job fails. The reason is logged and reported to the user.

#### 4.2.1.3.4.4. SOP Specific Conformance for Study Root Query/Retrieve Information Model - MOVE SOP Class

The ViewForum R6.3 provides standard conformance to this SOP class.

##### 4.2.1.3.4.4.1. Dataset Specific Conformance for ViewForum R 6.1 Study Root Q/R CM SCU

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors

**Table 63: Identifiers for MOVE SCU**

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

**Table 64: C-MOVE-RQ Status Response**

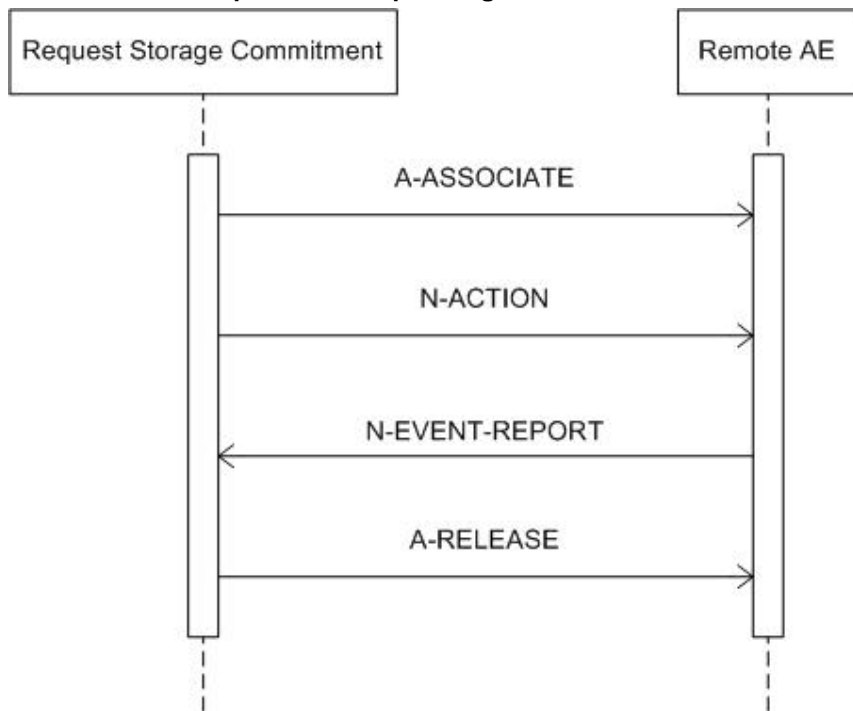
Service Status	Code	Further Meaning	Description
Success	0000	Sub-operations complete-No Failures	The move job is marked as completed. The association is released.
Refused	A701	Out of Resources-Unable to calculate number of matches	The move job is marked as failed. The association is released. The reason is logged and reported o the user.
	A702	Out of Resources – Unable to perform sub-operations	The move job is marked as failed. The association is released. The reason is logged and reported o the user.
	A801	Move Destination unknown	The move job is marked as failed. The association is released. The reason is logged and reported o the user.
Failed	A900	Identifier does not match SOP class	The move job is marked as failed. The association is released. The reason is logged and reported o the user.
	Cxxx	Unable to process	The move job is marked as failed. The association is released. The reason is logged and reported o the user.
Cancel	FE00	Sub-operations terminated due to Cancel Indication	The move job is marked as failed. The association is released. The reason is logged and reported o the user.
Warning	B000	Sub-operations complete – One or more Failures	The move job is marked as completed. The association is released.
Pending	FF00	Sub-operations are continuing.	The move job continues.

**Table 65: DICOM Command Communication Failure Behavior**

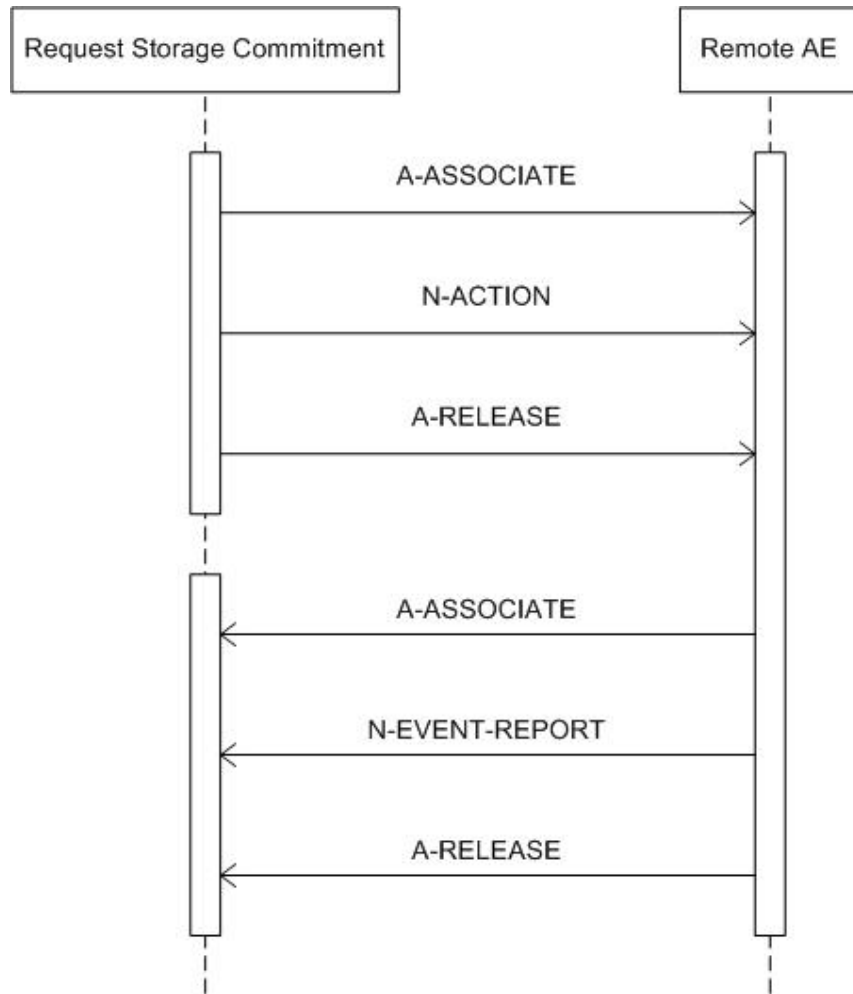
Exception	Behavior
ARTIM Time-out	The move job fails in case of association setup. The reason is logged and reported to the user.
Reply Time-out	The move job fails and the association is aborted. The reason is logged and reported to the user.
Association Time-out SCU	N/A
Association aborted	The move job fails. The reason is logged and reported to the user.

**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**



**Figure 10: (Real World) Activity - Storage Commitment Push Model AS SCU**



**Figure 11: Sequencing of Asynchronous RWA Request Storage Commitment**

The RWA Request Storage Commitment involves the storage commitment of images on a remote system.

If configured, Storage Commitment will be initiated in a new association after closing the association of the related image storage (C-STORE). This new association will be open until the remote archive sends a storage commitment report (synchronous) or when the configured maximum time is passed. When this maximum configured period is passed, it is the responsibility of the remote archive to setup a new association with ViewForum R6.3 and send the storage commitment report (asynchronous)

**4.2.1.3.5.2. Proposed Presentation Contexts**

**Table 66: 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		

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 the ViewForum Network AE for Request Storage Commitment are defined in the above table.

No extended negotiations are supported by the ViewForum Network AE for Storage Commitment Service Class

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

ViewForum R6.3 conforms to the standard Storage Commitment model

**4.2.1.3.5.3.1. Dataset Specific Conformance for Storage Commitment Push Model N-ACTION SCU**

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors

**Table 67: N-ACTION-RQ Status Response**

Service Status	Code	Further Meaning	Description
Success	0000	Operation complete	Continues with waiting for storage commitment.
Failure	xxxx	(any failure)	The reason is logged.

**Table 68: DICOM Command Communication Failure Behavior**

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

**4.2.1.3.5.3.2. Dataset Specific Conformance for Storage Commitment Push Model N-EVENT-REPORT SCP**

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors.



**Table 69: N-EVENT-REPORT-RSP Status Response**

Service Status	Code	Further Meaning	Description
Success	0000	Operation complete	Continues with waiting for storage commitment.
Failure	xxxx	(any failure)	The reason is logged.

**Table 70: DICOM Command Communication Failure Behavior**

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

**4.2.1.4. Association Acceptance Policy**

This describes the conditions under which the AE will initiate an association.

The behavior of the AE during association rejection is summarized in next table  
This describes the conditions under which the AE will initiate an association.

The behavior of the AE during association rejection is summarized in next table

ViewForum R6.3 shall accept Associations for the following purposes:

- To allow remote applications to store images in the ViewForum R6.3 database (i.e. image import).
- To allow remote applications to query the View Forum R6.3 database.
- To allow remote applications to retrieve images from the ViewForum R6.3 database
- To allow remote applications to verify application level communication with ViewForum R6.3

The ViewForum Network AE shall reject association requests from unknown applications, i.e. applications that offer an unknown “calling AE title”. An application is known if – and only if – it is defined during configuration of the ViewForum system. The ViewForum Network AE shall reject association requests from applications that do not address the ViewForum Network AE, i.e. applications that offer a wrong “called AE title”.

The ViewForum Network AE title is defined during configuration of the ViewForum system.

**Table 71: DICOM Association Rejection Handling**

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

Result	Source	Reason/Diagnosis	Behavior
		2 – local-limit-exceeded	The user will be informed. The information is logged

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

**Table 72: DICOM Association Abort Handling**

Source	Reason/Diagnosis	Behavior
0 – DICOM UL service-user	0 – reason-not-specified	The user will be informed. The information is logged
2 – DICOM UL service-provider	0 – reason-not-specified	The user will be informed. The information is logged
	1 – unrecognized-PDU	The user will be informed. The information is logged
	2 – unexpected-PDU	The user will be informed. The information is logged
	4 – unrecognized-PDU parameter	The user will be informed. The information is logged
	5 – unexpected-PDU parameter	The user will be informed. The information is logged
	6 – invalid-PDU-parameter value	The user will be informed. The information is logged

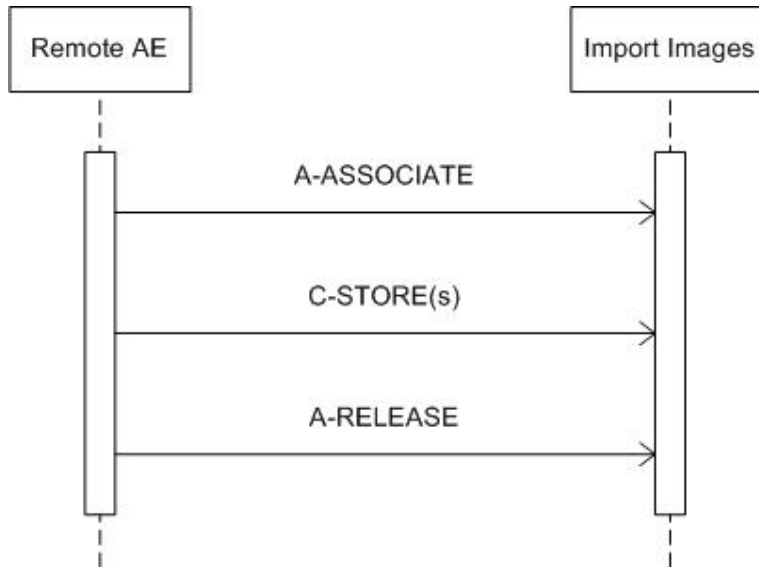
The behavior of the AE for sending an association abort is summarized in next table.

**Table 73: DICOM Association Abort Policies**

Source	Reason/Diagnosis	Behavior
0 – DICOM UL service-user	0 – reason-not-specified	The user will be informed. The information is logged
2 – DICOM UL service-provider	0 – reason-not-specified	The user will be informed. The information is logged
	1 – unrecognized-PDU	The user will be informed. The information is logged
	2 – unexpected-PDU	The user will be informed. The information is logged
	4 – unrecognized-PDU parameter	The user will be informed. The information is logged
	5 – unexpected-PDU parameter	The user will be informed. The information is logged
	6 – invalid-PDU-parameter value	The user will be informed. The information is logged

**4.2.1.4.1. (Real-World) Activity – Image Import**

**4.2.1.4.1.1. Description and Sequencing of Activities**



**Figure 12: (Real World) Activity - Image Import**

The ViewForum Network AE shall accept associations from systems that wish to store images in the ViewForum R6.3 database using the C-STORE command.

**4.2.1.4.1.2. Accepted Presentation Contexts**

**Table 74: 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		
3D Object new Storage (Private)	1.3.46.670589.5.0.2.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
3D Volume Storage new SOP Class (Private)	1.3.46.670589.5.0.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Cardio Image Storage new SOP Class (Private)	1.3.46.670589.5.0.8.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
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 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 Synthetic Image Storage (Private)	1.3.46.670589.5.0.9	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
CX Synthetic Image	1.3.46.670589.5.0.12	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		
Storage (Private)		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Digital 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		
Enhanced MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.1	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		
Gyrosan MR Serie Data (private)	1.3.46.670589.11.0.0.12.2	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		
Gyrosan MR Spectrum (Private)	1.3.46.670589.11.0.0.12.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
MR Cardio Analysis new Storage (Private)	1.3.46.670589.5.0.11.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
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		
MR Synthetic Image Storage (Private)	1.3.46.670589.5.0.10	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Perfusion (Private)	1.3.46.670589.5.0.13	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Perfusion Image Storage (Private)	1.3.46.670589.5.0.14	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Specialized PMS X-Ray Image Store	1.3.46.670589.2.3.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Surface Storage new (Private)	1.3.46.670589.5.0.3.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
Ultrasound Multi-frame Image Storage SOP	1.2.840.10008.5.1.4.1.1.3.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

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		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
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		
XA reconstructed X-ray SOP Class (private)	1.3.46.670589.2.4.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

Note: For performance reasons Transfer syntax ELE is preferred.

The ViewForum Network AE shall be able to accept the presentation contexts as specified in the above table.

No extended negotiations are supported by the ViewForum Network AE

**4.2.1.4.1.3. SOP Specific Conformance for Storage SOP Classes**

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

The behavior of an Application Entity SOP class is summarized as shown in next Table. The standard as well as the manufacturer specific status codes and their corresponding behavior is specified.

**Table 75: C-STORE-RSP Status Response**

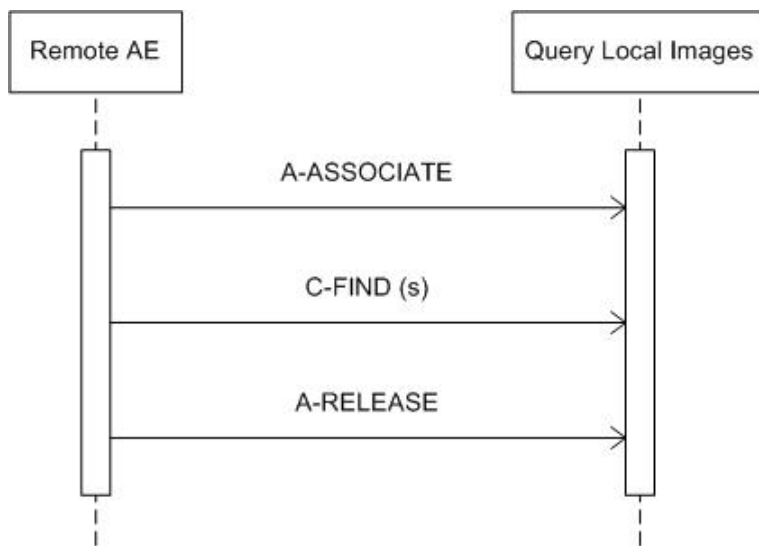
Service Status	Code	Further Meaning	Description
Success	0000	Storage is complete	The image(s) will be stored in the ViewForum R6.3 database
Refused	A700	Out of Resources	The ViewForum R6.3 database is full. ViewForum R6.3 shall send a notification, log the condition and abort association.
Error	A900	Data set does not match the SOP class	The SOP class of the image(s) does not match the negotiated abstract syntax. ViewForum R6.3 shall send a notification. Log the condition and abort the association.
	C000	Cannot understand	The image(s) cannot be parsed. ViewForum R6.3 shall send a notification, log the condition, and abort the association.
Warning	B000	Coercion of Data Elements	NA
	B006	Elements discarded	NA
	B007	Data set does not match SOP class	NA

**Table 76: DICOM Command Communication Failure Behavior**

Exception	Behavior
ARTIM Time-out	The store job fails in case of association setup. The reason is logged.
Reply Time-out	The store job fails and association is aborted The reason is logged
Association Time-out SCU	The association is released.
Association aborted	The store job fails. The reason is logged.

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

**4.2.1.4.2.1. Description and Sequencing of Activities**



**Figure 13: (Real World) Activity - FIND As SCP**

The ViewForum Network AE shall accept associations from systems that wish to query the ViewForum R6.3 database using the C-FIND command.

**4.2.1.4.2.2. Accepted Presentation Contexts**

**Table 77: Acceptable Presentation Contexts for (Real-World) Activity – FIND As SCP**

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Patient Root Query/Retrieve Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Study Root Query/Retrieve	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		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Information Model - FIND SOP Class		Implicit VR Little Endian	1.2.840.10008.1.2		

The ViewForum Network AE shall be able to accept the presentation contexts as specified in the above table.

The ViewForum Network AE shall accept all contexts in the intersection of the proposed and acceptable Presentation Contexts. This means that the ViewForum Network AE accepts multiple proposed Presentation Contexts with the same SOP class but different Transfer Syntaxes.

There is no check for duplicate contexts, and these will therefore be accepted.

No extended negotiations supported by the ViewForum Network AE

**4.2.1.4.2.3. SOP Specific Conformance for Patient Root Query/Retrieve Information Model - FIND SOP Class**

The ViewForum Network AE provides standard conformance to the Query/Retrieve service class. Relational queries are not supported. The ViewForum Network AE shall handle simultaneous C-FIND requests.

The ViewForum R6.3 database distinguishes two patients with the same Patient ID but different Patient's Name or Patient's Birth Date. However, the DICOM Query/Retrieve service class has Patient ID as a unique key at Patient level, and thus two patients with the same Patient ID cannot be distinguished via a standard DICOM Query.

When querying optional keys, the ViewForum R6.3 will respond successfully for available keys if queried for **universal matching**; otherwise it will respond with warning.

Note that when querying optional keys with **non-universal matching**, the ViewForum R6.3 will return information using universal matching for those keys

**4.2.1.4.2.3.1. Dataset Specific Conformance for ViewForum R 6.1 Patient Root Q/R CF SCP**

The following query keys will be supported by ViewForum R6.3.

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors.

**Table 78: Matching Keys for Patient Root Q/R as SCP**

Attribute Name	Tag	VR	Type Of Matching	Comment
Query/Retrieve Level	0008,0052	CS		
<b>Q/R Image level</b>				
SOP Instance UID	0008,0018	UI		
Patient ID	0010,0020	LO		
Study Instance UID	0020,000D	UI		
Series Instance UID	0020,000E	UI		
Instance Number	0020,0013	IS		



Attribute Name	Tag	VR	Type Of Matching	Comment
<b>Q/R Patient level</b>				
Patient ID	0010,0020	LO		
Patient's Name	0010,0010	PN		
<b>Q/R Series level</b>				
Patient ID	0010,0020	LO		
Study Instance UID	0020,000D	UI		
Series Instance UID	0020,000E	UI		
Modality	0008,0060	CS		
Series Number	0020,0011	IS		
Specific Character Set	0008,0005	CS		
<b>Q/R Study level (Patient Root)</b>				
Patient ID	0010,0020	LO		
Study Instance UID	0020,000D	UI		
Study Date	0008,0020	DA		
Study Time	0008,0030	TM		
Accession Number	0008,0050	SH		
Study ID	0020,0010	SH		

**Table 79: C-FIND-RSP Status Response**

Service Status	Code	Further Meaning	Description
Success	0000	Matching is complete	The C-FIND request handling is completed, no more C-FIND responses are sent.
Refused	A700	Out of Resources	N/A
Failed	A900	Identifier does not match SOP class	N/A
	C000	Unable to process	The C-FIND request cannot be parsed. ViewForum R6.3 logs the reason.
Cancel	FE00	Matching terminated due to Cancel Request	The C-FIND request is canceled, no more C-FIND responses are sent.
Pending	FF00	Matches are continuing – Current match is supplied and any optional keys were supported in the same manner as required keys	The C-FIND responses are continuing.
	FF01	Matches are continuing – Warning that one or more optional keys were not supported for existence and/or matching for this identifier	The C-FIND responses are continuing.

**Table 80: DICOM Command Communication Failure Behavior**

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

**4.2.1.4.2.4. SOP Specific Conformance for Study Root Query/Retrieve Information Model - FIND SOP Class**

The ViewForum Network AE provides standard conformance to the Query/Retrieve service class. Relational queries are not supported. The ViewForum Network AE shall handle simultaneous C-FIND requests.

The ViewForum R6.3 database distinguishes two patients with the same Patient ID but different Patient's Name or Patient's Birth Date. However, the DICOM Query/Retrieve service class has Patient ID as a unique key at Patient level, and thus two patients with the same Patient ID cannot be distinguished via a standard DICOM Query.

When querying optional keys, the ViewForum R6.3 will respond successfully for available keys if queried for **universal matching**; otherwise it will respond with warning.

Note that when querying optional keys with **non-universal matching**, the ViewForum R6.3 will return information using universal matching for those keys.

**4.2.1.4.2.4.1. Dataset Specific Conformance for ViewForum R 6.1 Study Root Q/R CF SCP**

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors

**Table 81: Matching Keys for Study Root Q/R as SCP**

Attribute Name	Tag	VR	Type Of Matching	Comment
Query/Retrieve Level	0008,0052	CS		
<b>Q/R Image level</b>				
SOP Instance UID	0008,0018	UI		
Study Instance UID	0020,000D	UI		
Series Instance UID	0020,000E	UI		
Instance Number	0020,0013	IS		
<b>Q/R Series level</b>				
Study Instance UID	0020,000D	UI		
Series Instance UID	0020,000E	UI		
Modality	0008,0060	CS		
Series Number	0020,0011	IS		
<b>Q/R Study level (Study Root)</b>				
Study Instance UID	0020,000D	UI		
Study Date	0008,0020	DA		
Study Time	0008,0030	TM		
Accession Number	0008,0050	SH		
Patient's Name	0010,0010	PN		
Patient ID	0010,0020	LO		
Study ID	0020,0010	SH		
Specific Character Set	0008,0005	CS		

**Table 82: C-FIND-RSP Status Response**

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

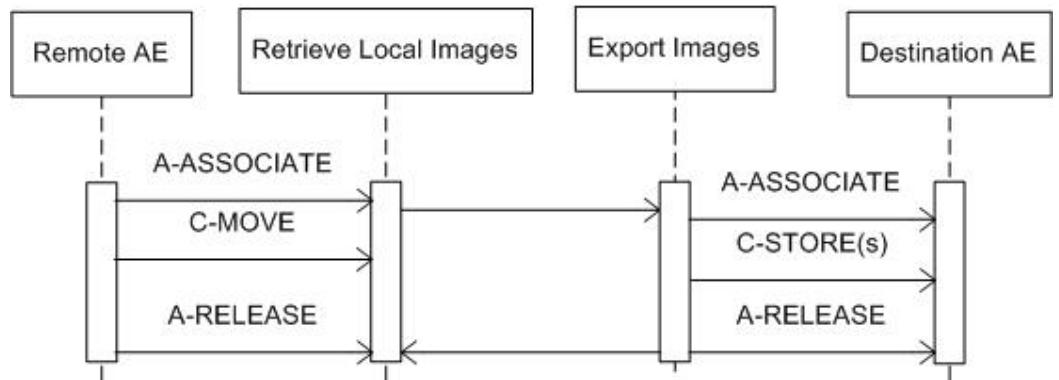
Service Status	Code	Further Meaning	Description
	C000	Unable to process	The C-FIND request cannot be parsed. ViewForum R6.3 logs the reason.
Cancel	FE00	Matching terminated due to Cancel Request	The C-FIND request is canceled, no more C-FIND responses are sent.
Pending	FF00	Matches are continuing – Current match is supplied and any optional keys were supported in the same manner as required keys	The C-FIND responses are continuing.
	FF01	Matches are continuing – Warning that one or more optional keys were not supported for existence and/or matching for this identifier	The C-FIND responses are continuing.

**Table 83: DICOM Command Communication Failure Behavior**

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

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

**4.2.1.4.3.1. Description and Sequencing of Activities**



**Figure 14: (Real World) Activity - MOVE As SCP**

The ViewForum Network AE shall accept associations from systems that wish to retrieve images from the View Forum R6.3 database using the C-MOVE command.

After RWA Retrieve Local Images the RWA Export Images is started.

#### 4.2.1.4.3.2. Accepted Presentation Contexts

**Table 84: Acceptable Presentation Contexts for (Real-World) Activity – MOVE As SCP**

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Patient Root Query/Retrieve Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Study Root Query/Retrieve 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		

The ViewForum Network AE shall be able to accept the presentation contexts as specified in the above table.

The ViewForum Network AE shall accept all contexts in the intersection of the proposed and acceptable Presentation Contexts. This means that the ViewForum Network AE accepts multiple proposed Presentation Contexts with the same SOP class but different Transfer Syntaxes.

There is no check for duplicate contexts, and these will therefore be accepted.

No extended negotiations supported by the ViewForum Network AE

#### 4.2.1.4.3.3. SOP Specific Conformance for Patient Root Query/Retrieve Information Model - MOVE SOP Class

The ViewForum R6.3 provides standard conformance to MOVE SOP class as an SCP

##### 4.2.1.4.3.3.1. Dataset Specific Conformance for ViewForum R 6.1 Patient Root Q/R CM SCP

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors

**Table 85: Identifiers for MOVE SCP**

Attribute Name	Tag	VR	Comment
<b>Patient Root Information Model</b>			
Query/Retrieve Level	0008,0052	CS	
SOP Instance UID	0008,0018	UI	
Patient ID	0010,0020	LO	
Series Instance UID	0020,000E	UI	
Study Instance UID	0020,000D	UI	

**Table 86: C-MOVE-RSP Status Response**

Service Status	Code	Further Meaning	Description
Success	0000	Sub-operations complete – No Failures	The C-MOVE command has been completed.

Service Status	Code	Further Meaning	Description
Refused	A701	Out of Resources – Unable to calculate number of matches	N/A
	A702	Out of Resources – Unable to perform Sub-operations	N/A
Failed	A801	Move Destination unknown	No C-STORE command will be sent. ViewForum R6.3 logs the reason.
	A900	Identifier does not match SOP class	N/A
Cancel	C000	Unable to process	The C-MOVE request cannot be parsed. No Store Command will be sent. ViewForum R6.3 logs the reason.
Warning	FE00	Sub-operations terminated due to Cancel Indication	The C-MOVE request is canceled, no more C-MOVE responses are sent.
Pending	B000	Sub-operations complete – One or more Failures	N/A

**Table 87: DICOM Command Communication Failure Behavior**

Exception	Behavior
ARTIM Time-out	The move job fails in case of association setup. The reason is logged.
Reply Time-out	The move job fails and association is aborted. The reason is logged.
Association Time-out SCU	The association is released.
Association aborted	The move job fails. The reason is logged.

**4.2.1.4.3.4. SOP Specific Conformance for Study Root Query/Retrieve Information Model - MOVE SOP Class**

The ViewForum R6.3 provides standard conformance to FIND SOP class as an SCP.

**4.2.1.4.3.4.1. Dataset Specific Conformance for ViewForum R 6.1 Study Root Q/R CM SCP**

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors

**Table 88: Identifiers for MOVE SCP**

Attribute Name	Tag	VR	Comment
<b>Study Root Information Model</b>			
Query/Retrieve Level	0008,0052	CS	
SOP Instance UID	0008,0018	UI	
Series Instance UID	0020,000E	UI	
Study Instance UID	0020,000D	UI	

**Table 89: C-MOVE-RSP Status Response**

Service Status	Code	Further Meaning	Description
Success	0000	Sub-operations complete – No Failures	The C-MOVE command has been completed.

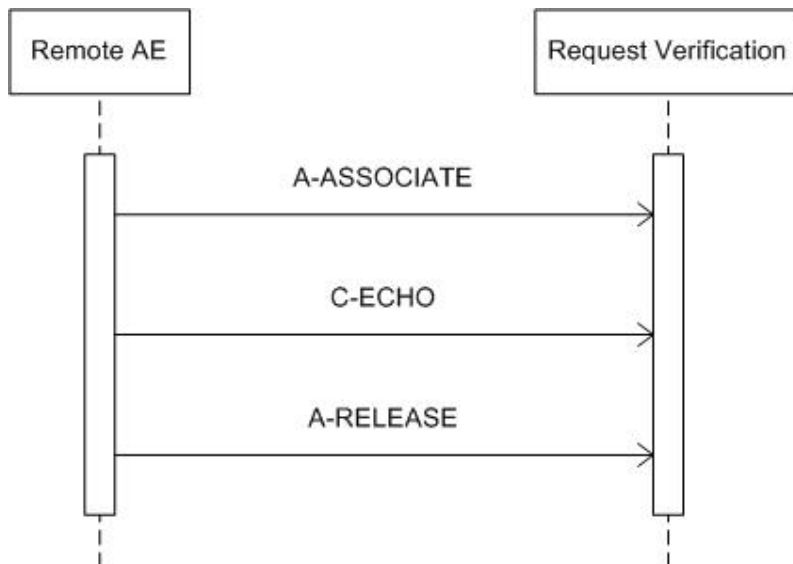
Service Status	Code	Further Meaning	Description
Refused	A701	Out of Resources – Unable to calculate number of matches	N/A
	A702	Out of Resources – Unable to perform Sub-operations	N/A
Failed	A801	Move Destination unknown	No C-STORE command will be sent. ViewForum R6.3 logs the reason.
	A900	Identifier does not match SOP class	N/A
Cancel	C000	Unable to process	The C-MOVE request cannot be parsed. No Store Command will be sent. ViewForum R6.3 logs the reason.
Warning	FE00	Sub-operations terminated due to Cancel Indication	The C-MOVE request is canceled, no more C-MOVE responses are sent.
Pending	B000	Sub-operations complete – One or more Failures	N/A

**Table 90: DICOM Command Communication Failure Behavior**

Exception	Behavior
ARTIM Time-out	The move job fails in case of association setup. The reason is logged.
Reply Time-out	The move job fails and association is aborted. The reason is logged.
Association Time-out SCU	The association is released.
Association aborted	The move job fails. The reason is logged.

**4.2.1.4.4. (Real-World) Activity – Verification as SCP**

**4.2.1.4.4.1. Description and Sequencing of Activities**



**Figure 15: (Real World) Activity - Verification as SCP**

The ViewForum Network AE shall accept associations from systems that wish to verify application level communication using the C-ECHO command.

**4.2.1.4.4.2. Accepted Presentation Contexts**

**Table 91: Acceptable Presentation Contexts for (Real-World) Activity – Verification as SCP**

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

The ViewForum Network AE shall be able to accept the presentation contexts as specified in the above table.

For performance reasons the ELE transfer syntax is preferred and shall be chosen in case multiple Transfer Syntaxes are proposed in the Association Negotiation.

The ViewForum Network AE shall accept all contexts in the intersection of the proposed and acceptable Presentation Contexts. This means that the View Forum Network accepts multiple proposed Presentation Contexts with the same SOP class but different Transfer Syntaxes.

There is no check for duplicate contexts, and these will therefore be accepted.

No extended negotiations supported by ViewForum Network AE

**4.2.1.4.4.3. SOP Specific Conformance for Verification SOP Class**

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

The behavior of an Application Entity SOP class is summarized as shown in next Table. The standard as well as the manufacturer specific status codes and their corresponding behavior is specified.

**4.2.1.4.4.3.1. Dataset Specific Conformance for Verification C-ECHO SCP**

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors.

**Table 92: C-ECHO-RSP Status Response**

Service Status	Code	Further Meaning	Description
Success	0000	Confirmation	Confirm the verification request

**Table 93: DICOM Command Communication Failure Behavior**

Exception	Behavior
ARTIM Time-out	The verification request fails. The reason is logged.

Exception	Behavior
Reply Time-out	The verification request fails and association is aborted The reason is logged
Association Time-out SCU	The association is released.
Association aborted	The verification request fails. The reason is logged.



## 4.3. Network Interfaces

### 4.3.1. Physical Network Interfaces

The ViewForum R6.3 system provides DICOM V3.0 TCP/IP Network Communication Support as defined by the part 8 of the DICOM Standard. ViewForum R6.3 system uses DICOM V3.0 TCP/IP Network Communication installed on the Platform where ViewForum Network AE DICOM Application Entity is running on.

Supported physical media include:

IEEE 802.3-1995 (Fast Ethernet) 100Base-TX

IEEE 802.3-1995 10Base-TX

IEEE 802.3 1000BASE-X (Fiber Optic Gigabit Ethernet)

### 4.3.2. Additional Protocols

NA

## 4.4. Configuration

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

### 4.4.1. AE Title/Presentation Address Mapping

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

Local AE Titles

The local AE title mapping and configuration are specified.

**Table 94: AE Title Configuration Table**

Application Entity	Default AE Title	Default TCP/IP Port
ViewForum Network AE		3010 *

\* Note: Not Configurable

#### 4.4.1.1. Remote AE Title/Presentation Address Mapping

Details about the configuring remote host names are provided here

##### 4.4.1.1.1. Remote Associate Initiators

All relevant remote applications able to setup a DICOM association towards ViewForum R6.3 must be configured at ViewForum R6.3 configuration time. The Customer Support Engineer must provide the following information for each remote application:

- The Application Entity Title.
- The SOP classes and transfer syntaxes for which ViewForum R6.3 accepts associations.

##### 4.4.1.1.2. Remote Associate Acceptors

The following information must be provided for all relevant remote applications that are able to accept DICOM associations from ViewForum R6.3:

- The Application Entity Title.
- The host name/IP address on which the remote application resides.
- The port number at which the remote application accepts association requests.

#### 4.4.2. Parameters

The configuration parameters are given in Table below, categorized in the following sections:

- General Parameters of ViewForum Network AE.
- Local Configurable Parameters of the ViewForum Network AE.
- Remote Configurable Parameters of the ViewForum Network AE.
- General Print Parameters.
- Printer Specific Print Parameters.

**Table 95: Configuration Parameters table**

Parameter	Configurable	Default Value
<b>General Parameters of ViewForum Network AE</b>		
Time-out waiting for acceptance or rejection Response to an Association Open Request. (Application Level timeout)	No	-
General DIMSE level time-out values	No	-
Time-out waiting for response to TCP/IP connect request. (Low-level timeout)	No	-
Time-out waiting for acceptance of a TCP/IP message over the network. (Low-level timeout)	No	-
Time-out for waiting for data between TCP/IP packets. (Low-level timeout)	No	-
Any changes to default TCP/IP settings, such as configurable stack parameters.	No	-
<b>Local Configurable Parameters of the ViewForum Network AE</b>		
Size constraint in maximum object size (see note)	No	-
Maximum PDU size the AE can receive	Yes	32768
Maximum PDU size the AE can send	No	-
AE specific DIMSE level time-out values	No	-
Number of simultaneous associations by Service and/or SOP class	No	-
SOP class support	Yes	none
Transfer Syntax support <sup>1</sup>	Yes	ELE
<b>Remote Configurable Parameters of the ViewForum Network AE</b>		
Size constraint in maximum object size (see note)	No	-
Maximum PDU size the AE can receive	Yes	32768
Maximum PDU size the AE can send	No	-
AE specific DIMSE level time-out values	No	-
Number of simultaneous associations by Service and/or SOP class	No	-
SOP class support	Yes	none
Transfer Syntax support	Yes	ELE
Storage Commitment request must be sent after Storage request	Yes	not
Storage Commitment time-out (synchronous to asynchronous)	Yes	20 seconds
Automatic conversion of images of SOP classes not supported by remote systems into Secondary Capture Image Storage SOP instances	Yes	convert to SC
Export of pure DICOM images (i.e. only the standard DICOM attributes as defined in the related IOD) or extended DICOM images (with additional Standard DICOM, Private and Retired attributes)	Yes	allow all attributes
Support of overlays for DICOM node not supporting Presentation State objects <sup>2</sup>	Yes	enabled
Support of overlays for DICOM node supporting Presentation State objects <sup>2</sup>	Yes	disabled
Support of overlays for CD <sup>2</sup>	Yes	disabled
<b>General Print Parameters</b>		
The DICOM printers that may be selected by the operator	Yes	none

Parameter	Configurable	Default Value
<b>Printer Specific Print Parameters <sup>3</sup></b>		
Medium type	Yes	all available
Film size ID (i.e. Media size)	Yes	all available
Resolution (300 / 600 dpi)	Yes	300
Color model (8 / 16 bits color)	Yes	8
Min Density	Yes	0
Max Density	Yes	0

*Note 1: The JPEG Baseline transfer syntax is only supported for RGB and YBR\_FULL\_422 images; therefore JPEG Baseline may NOT be configured for systems that are capable of handling storage of monochrome images too.*

*Note 2: The ViewForum R6.3 Copy-tool can override the configured setting of overlay support.*

Support of overlays for CD <sup>2</sup>

*Note 3: These print parameters can be selected from choice lists. These choice lists are defined via so-called prototypes for each type of printer and print medium. These prototypes are also configurable.*

## 5. MEDIA INTERCHANGE

### 5.1. Implementation Model

The implementation model shall identify the DICOM Application Entities in a specific implementation and relate the Application Entities to Real-World Activities.

#### 5.1.1. Application Data Flow Diagram

The ViewForum R6.3 system consists of one single application entity only: the ViewForum R6.3 Application Entity (ViewForum Network AE).

The figure below shows the Media Interchange Application Data Flow as a functional overview of the ViewForum Network AE for CD-R and DVD.

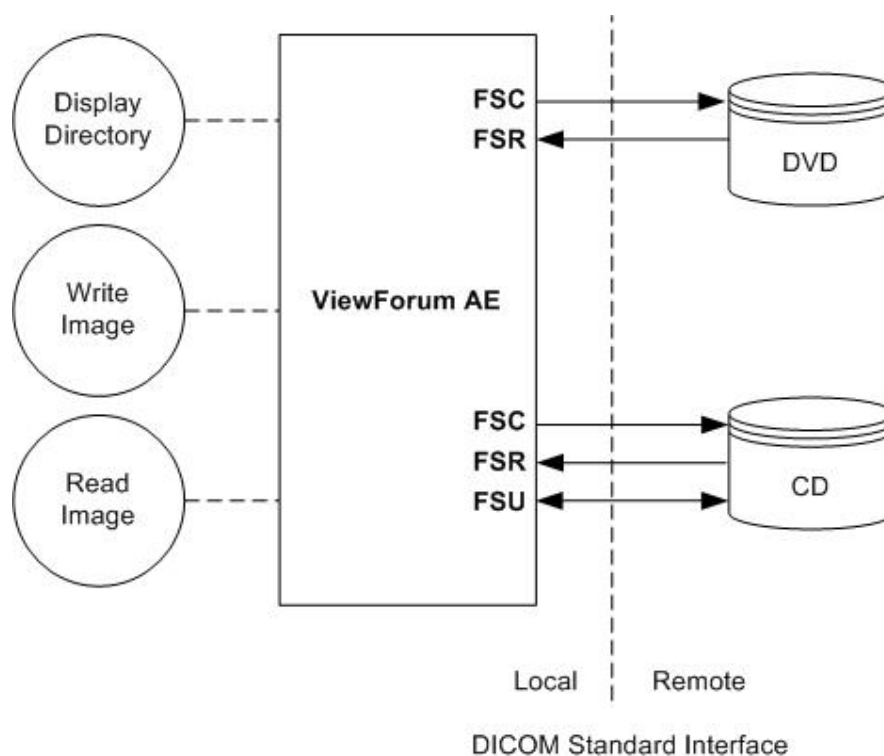


Figure 16: Media Interchange Application Data Flow Diagram

Table 96: Media Services table

Media Storage Application	Write Files (FSC / FSU)	Read Files (FSR)
General Purpose CD-R	YES / YES	YES
General Purpose DVD-JPEG	YES / NO	YES

The ViewForum Network AE will act as a FSR, for CD-R and DVD, when reading the directory of the medium. The ViewForum Network AE will act as a FSC / FSU for a CD-R and as FSC for DVD, when writing the selected images in a patient folder onto the medium.

ViewForum supports the media profiles as shows in the Table below:

**Table 97: Media Profiles supported by ViewForum**

Application Profile	CD	DVD+RW / DVD+R
General Purpose	STD-GEN-CD	STD-GEN-DVD

The system proposes the transfer syntaxes mentioned in Table below.

**Table 98: Transfer Syntaxes of DVD / CD supported by ViewForum**

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List (note)	UID List		
See Note	See Note	ILE ELE EBE	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

*Note: any of the standard image storage and private SOP classes mentioned before. The preferred transfer syntax is ELE.*

ViewForum supports images with Lossy image compression via JPEG as described as shows in the Table below.

**Table 99: JPEG coding supported by ViewForum**

DICOM Transfer Syntax UID	JPEG coding process	JPEG description
1.2.840.10008.1.2.4.50	1	Lossy, Baseline (JPEG 8 Bit Image Compression)

*Note: Lossy Compression is only supported for images with photometric interpretation RGB and YBR\_FULL\_422 and therefore ViewForum supports this only for Ultrasound Images.*

### 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 ViewForum Network AE is the one and only application entity within ViewForum R6.3. It includes the following service class.

#### Media Storage Service Class for CD and DVD

The ViewForum Network AE can perform the CD-R Media Storage service as SCU, with capabilities for:

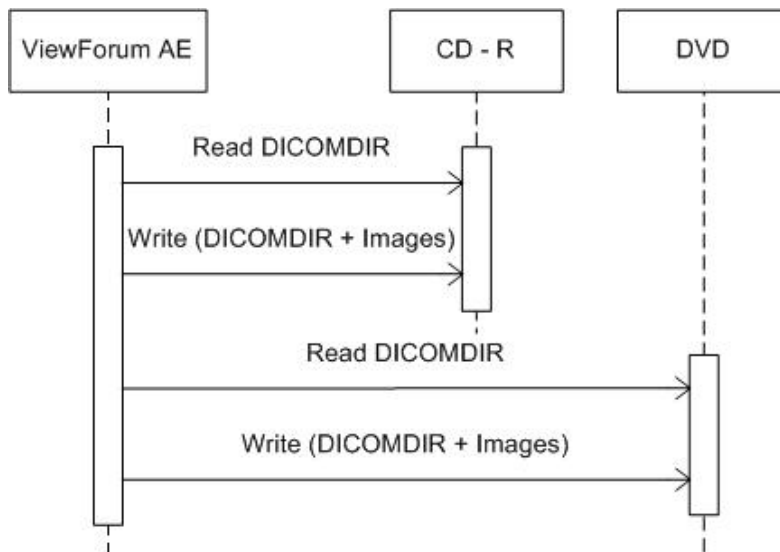
RWA Display Directory (as FSR),  
RWA Write Images (as FSC / FSU), and  
RWA Read Images (as FSR).

For DVD the ViewForum AE can perform the Media Storage service as SCU, with capabilities for:

RWA Display Directory (as FSR),  
RWA Write Images (as FSC), and  
RWA Read Images (as FSR).

### 5.1.3. Sequencing of Real World Activities

Whenever a CD or DVD has to be written the ViewForum Network AE first tries to read the DICOMDIR. The ViewForum Network AE will compile the updated DICOMDIR and any required DICOM images into a CD or DVD session image; this CD or DVD session image will be written to CD or DVD.



### 5.1.4. File Meta Information for Implementation Class and Version

This section shall be used to list the values assigned to the File Meta Information attributes (ref. [DICOM] PS 3.10) that pertain to the Implementation Class and Version.

The Implementation Class UID and the Implementation Version Name in the File Meta Header are as specified for networking.

**Table 100: DICOM Implementation Class and Version for ViewForum Network AE**

File Meta Information Version	00, 01
Implementation Class UID	1.3.46.670589.5.2.23
Implementation Version Name	ViewForum R6.3

## 5.2. AE Specifications

The next section in the DICOM Conformance Statement is a set of Application Entity specifications. There shall be one such specification for each Application Entity type.

### 5.2.1. ViewForum Network AE - Specification

The ViewForum Network AE provides Standard Conformance to the DICOM Media Storage Service and File Format ([DICOM] PS 3.10), the Media Storage Application Profiles STD-GEN-CD ([DICOM] PS 3.11) and the Media Storage Application Profiles STD-GEN-DVD-JPEG ([DICOM] PS 3.12) for Reading and Writing.

ViewForum supports multi-patient and multi-session CD-R / DVD disks, both for Reading and Writing.

Supported media by ViewForum are:  
**for CD:** CD R / CD RW with the profile: STD-GEN-CD and  
**for DVD:** DVD+R and DVD+RW with the profile: STD-GEN-DVD-JPEG and the Transfer Syntax ELE uncompressed.

DVD-R and DVD-RW can be read but are not supported for writing.

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

**Table 101: JPEG coding supported by ViewForum**

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

Only adding on instances is supported for the FSU, deleting is not supported

#### 5.2.1.1. File Meta Information for the ViewForum Network AE

This section shall contain 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

#### 5.2.1.2. Real-World Activities

The first sentence in this section shall state the roles and Media Storage Service Class options supported by the ViewForum Network AE.

##### 5.2.1.2.1. Display Directory

When a database open action is initiated on the CD-R or DVD then the ViewForum Network AE acts as an FSR using the interchange option to read the DICOMDIR of the CD-R or DVD medium.

This will result in an overview of the patients, studies, series and images on the ViewForum R6.3 screen.

##### 5.2.1.2.1.1. Media Storage Application Profile

The ViewForum Network AE supports the RWA Display Directory for the STD-GEN-CD and the STD-GEN-DVD-JPEG Application Profile.

##### 5.2.1.2.1.1.1. Options

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

### **5.3. Augmented and Private Application Profiles**

This section shall be used for the description of augmented and private Application Profiles.

#### **5.3.1. Augmented Application Profiles**

None

#### **5.3.2. Private Application Profiles**

None

### **5.4. Media Configuration**

None



## 6. SUPPORT OF CHARACTER SETS

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

**Table 102: Supported DICOM Character Sets of ViewForum**

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

## 7. SECURITY

### 7.1. Security Profiles

#### 7.1.1. Attribute Confidentiality Profiles

##### 7.1.1.1. The Basic Application Level Confidentiality Profile

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. The terms used to describe the replacement value can be read as below

Empty            The attribute will have a value of zero length.

**Table 103: Basic Application Level Confidentiality Profile Attributes**

Attribute Name	Tag	VR	Replacement Value
Patient's Name	0010,0010	PN	Empty
Patient's Birth Date	0010,0030	DA	Empty
Patient's Sex	0010,0040	CS	Empty
Patient's Age	0010,1010	AS	Empty
Patient ID	0010,0020	LO	After anonymizing, when an image is written into a CD/DVD, the Patient ID in the DIRECTORY RECORD: 0 (PATIENT) will have a unique ID and in the image, the Patient Module will have empty value for the Patient ID.
Referring Physician's Name	0008,0090	PN	Empty
Performing Physician's Name	0008,1050	PN	Empty
Institution Name	0008,0080	LO	Empty
Study ID	0020, 0010	SH	Empty
Accession Number	0008,0050	SH	Empty

### 7.2. Association Level Security

Any calling AE title and/or IP address may open an association shall be specified here.

### 7.3. Application Level Security

The ViewForum R6.3 supports the HIPAA Audit trail profile.

The ViewForum can create audit messages according to the IHE Basic Security Integration Profile [IHE] to audit activities, to detect non-compliant behavior in the enterprise, and to facilitate detection of improper creation, access, modification and deletion of Protected Health Information (PHI).

These messages may contain information that identifies the patient

## 8. ANNEXES OF APPLICATION "IVE (APPLICATION)"

### 8.1. IOD Contents

#### 8.1.1. Created SOP Instance

This section specifies each IOD created (including private IODs). 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 104: List of created SOP Classes**

SOP Class Name	SOP Class UID
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7
Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1
3D Object new Storage (Private)	1.3.46.670589.5.0.2.1
3D Volume Storage new SOP Class (Private)	1.3.46.670589.5.0.1.1
Cardio Image Storage new SOP Class (Private)	1.3.46.670589.5.0.8.1
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2

CT Synthetic Image Storage (Private)	1.3.46.670589.5.0.9
CX Synthetic Image Storage (Private)	1.3.46.670589.5.0.12
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1
MR Cardio Analysis new Storage (Private)	1.3.46.670589.5.0.11.1
MR Synthetic Image Storage (Private)	1.3.46.670589.5.0.10
Perfusion (Private)	1.3.46.670589.5.0.13
Perfusion Image Storage (Private)	1.3.46.670589.5.0.14
Surface Storage new (Private)	1.3.46.670589.5.0.3.1
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1

8.1.1.2. MR Image Storage SOP Class

Table 105: 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	
Series	General Series Module	ALWAYS
Frame of Reference	Frame of Reference Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	Image Plane Module	ALWAYS
Image	Contrast/Bolus Module	CONDITIONAL
Image	General Image Module	ALWAYS
Image	MR Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	SOP Common Module	ALWAYS
Image	Overlay Plane Module	CONDITIONAL
Image	VOI LUT Module	CONDITIONAL

Table 106: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	IMPLICIT	
Patient ID	0010,0020	LO		VNAP	AUTO	
Patient's Birth Date	0010,0030	DA		VNAP	AUTO	
Patient's Sex	0010,0040	CS		VNAP	AUTO	
Issuer of Patient ID	0010,0021	LO		ANAP	AUTO	
Patient's Birth Time	0010,0032	TM		ANAP	AUTO	
Other Patient IDs	0010,1000	LO		ANAP	AUTO	
Other Patient Names	0010,1001	PN		ANAP	AUTO	
Ethnic Group	0010,2160	SH		ANAP	AUTO	
Patient Comments	0010,4000	LT		ANAP	AUTO	
Referenced Patient Sequence	0008,1120	SQ		ANAP		
>Referenced SOP Class UID	0008,1150	UI		ANAPEV	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ANAPEV	AUTO	

**Table 107: General Study Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Instance UID	0020,000D	UI		ALWAYS	AUTO	
Study Date	0008,0020	DA		VNAP	AUTO	
Study Time	0008,0030	TM		VNAP	AUTO	
Accession Number	0008,0050	SH		VNAP	AUTO	
Referring Physician's Name	0008,0090	PN		VNAP	AUTO	
Study ID	0020,0010	SH		VNAP	AUTO	
Study Description	0008,1030	LO		ANAP	AUTO	
Physician(s) of Record	0008,1048	PN		ANAP	AUTO	
Name of Physician(s) Reading Study	0008,1060	PN		ANAP	AUTO	
Referenced Study Sequence	0008,1110	SQ		ANAP	AUTO	
>Referenced SOP Class UID	0008,1150	UI		ANAPEV	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ANAPEV	AUTO	
Procedure Code Sequence	0008,1032	SQ		ANAP	AUTO	
>Code Value	0008,0100	SH		ALWAYS	AUTO	
>Coding Scheme Designator	0008,0102	SH		ALWAYS	AUTO	
>Code Meaning	0008,0104	LO		ALWAYS	AUTO	
>Coding Scheme Version	0008,0103	SH		ANAPEV	AUTO	
>Mapping Resource	0008,0105	CS		ANAPEV	AUTO	
>Context Group Version	0008,0106	DT		ANAPEV	AUTO	
>Context Group Local Version	0008,0107	DT		ANAPEV	AUTO	
>Context Group Extension Creator UID	0008,010D	UI		ANAPEV	AUTO	
>Context Group Extension Flag	0008,010B	CS		ANAP	AUTO	
>Context Identifier	0008,010F	CS		ANAP	AUTO	

**Table 108: Patient Study Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Admitting Diagnoses Description	0008,1080	LO		ANAP	AUTO	
Patient's Age	0010,1010	AS		ANAP	AUTO	
Patient's Size	0010,1020	DS		ANAP	AUTO	
Patient's Weight	0010,1030	DS		ANAP	AUTO	
Occupation	0010,2180	SH		ANAP	AUTO	
Additional Patient History	0010,21B0	LT		ANAP	AUTO	

**Table 109: General Series Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS	AUTO	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		VNAP	AUTO	
Patient Position	0018,5100	CS		VNAP	AUTO	
Laterality	0020,0060	CS		VNAP	AUTO	
Series Date	0008,0021	DA		ANAP	AUTO	
Series Time	0008,0031	TM		ANAP	AUTO	
Series Description	0008,103E	LO		ANAP	AUTO	
Performing Physician's Name	0008,1050	PN		ANAP	AUTO	
Operators' Name	0008,1070	PN		ANAP	AUTO	
Body Part Examined	0018,0015	CS		ANAP	AUTO	
Protocol Name	0018,1030	LO		ANAP	AUTO	
Smallest Pixel Value in Series	0028,0108	US /SS		ANAP	AUTO	
Largest Pixel Value in Series	0028,0109	US /SS		ANAP	AUTO	

Performed Procedure Step Start Date	0040,0244	DA		ANAP	AUTO	
Performed Procedure Step Start Time	0040,0245	TM		ANAP	AUTO	
Performed Procedure Step ID	0040,0253	SH		ANAP	AUTO	
Performed Procedure Step Description	0040,0254	LO		ANAP	AUTO	
Comments on the Performed Procedure Step	0040,0280	ST		ANAP	AUTO	
Referenced Performed Procedure Step Sequence	0008,1111	SQ		ANAP	AUTO	
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	
Performed Protocol Code Sequence	0040,0260	SQ		ANAP	AUTO	
>Code Value	0008,0100	SH		ALWAYS	AUTO	
>Coding Scheme Designator	0008,0102	SH		ALWAYS	AUTO	
>Code Meaning	0008,0104	LO		ALWAYS	AUTO	
>Coding Scheme Version	0008,0103	SH		ANAP	AUTO	
>Mapping Resource	0008,0105	CS		ANAP	AUTO	
>Context Group Version	0008,0106	DT		ANAP	AUTO	
>Context Group Local Version	0008,0107	DT		ANAP	AUTO	
>Context Group Extension Creator UID	0008,010D	UI		ANAP	AUTO	
>Context Group Extension Flag	0008,010B	CS		ANAP	AUTO	
>Context Identifier	0008,010F	CS		ANAP	AUTO	

Table 110: Frame of Reference Module

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

Table 111: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP	AUTO	
Institution Name	0008,0080	LO		ANAP	AUTO	
Institution Address	0008,0081	ST		ANAP	AUTO	
Station Name	0008,1010	SH		ANAP	AUTO	
Institutional Department Name	0008,1040	LO		ANAP	AUTO	
Manufacturer's Model Name	0008,1090	LO		ANAP	AUTO	
Device Serial Number	0018,1000	LO		ANAP	AUTO	
Software Version(s)	0018,1020	LO		ANAP	AUTO	
Spatial Resolution	0018,1050	DS		ANAP	AUTO	
Date of Last Calibration	0018,1200	DA		ANAP	AUTO	
Time of Last Calibration	0018,1201	TM		ANAP	AUTO	
Pixel Padding Value	0028,0120	US/SS		ANAP	AUTO	

Table 112: Image Plane Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Position (Patient)	0020,0032	DS		ALWAYS	AUTO	
Image Orientation (Patient)	0020,0037	DS		ALWAYS	AUTO	
Pixel Spacing	0028,0030	DS		ALWAYS	AUTO	
Slice Thickness	0018,0050	DS		VNAP	AUTO	
Slice Location	0020,1041	DS		ANAP	AUTO	

**Table 113: Contrast/Bolus Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Contrast/Bolus Agent	0018,0010	LO		VNAP	AUTO	
Contrast/Bolus Route	0018,1040	LO		ANAP	AUTO	
Contrast/Bolus Volume	0018,1041	DS		ANAP	AUTO	
Contrast/Bolus Start Time	0018,1042	TM		ANAP	AUTO	
Contrast/Bolus Stop Time	0018,1043	TM		ANAP	AUTO	
Contrast/Bolus Total Dose	0018,1044	DS		ANAP	AUTO	
Contrast Flow Rate	0018,1046	DS		ANAP	AUTO	
Contrast Flow Duration	0018,1047	DS		ANAP	AUTO	
Contrast/Bolus Ingredient	0018,1048	CS		ANAP	AUTO	
Contrast/Bolus Ingredient Concentration	0018,1049	DS		ANAP	AUTO	

**Table 114: General Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		VNAP	AUTO	
Content Date	0008,0023	DA		VNAP	AUTO	
Content Time	0008,0033	TM		VNAP	AUTO	
Patient Orientation	0020,0020	CS		VNAP	AUTO	
Acquisition Date	0008,0022	DA		ANAP	AUTO	
Acquisition Datetime	0008,002A	DT		ANAP	AUTO	
Acquisition Time	0008,0032	TM		ANAP	AUTO	
Derivation Description	0008,2111	ST		ANAP	AUTO	
Acquisition Number	0020,0012	IS		ANAP	AUTO	
Images in Acquisition	0020,1002	IS		ANAP	AUTO	
Image Comments	0020,4000	LT		ANAP	AUTO	
Quality Control Image	0028,0300	CS		ANAP	AUTO	
Burned In Annotation	0028,0301	CS		ANAP	AUTO	
Lossy Image Compression	0028,2110	CS		ANAP	AUTO	
Lossy Image Compression Ratio	0028,2112	DS		ANAP	AUTO	
Presentation LUT Shape	2050,0020	CS		ANAP	AUTO	
Referenced Image Sequence	0008,1140	SQ		ANAP	AUTO	

**Table 115: MR Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS		ALWAYS	AUTO	
Scanning Sequence	0018,0020	CS		ALWAYS	AUTO	
Sequence Variant	0018,0021	CS		ALWAYS	AUTO	
Samples per Pixel	0028,0002	US		ALWAYS	AUTO	
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	
Bits Allocated	0028,0100	US		ALWAYS	AUTO	
Scan Options	0018,0022	CS		VNAP	AUTO	
MR Acquisition Type	0018,0023	CS		VNAP	AUTO	
Echo Time	0018,0081	DS		VNAP	AUTO	
Echo Train Length	0018,0091	IS		VNAP	AUTO	
Repetition Time	0018,0080	DS		VNAP	AUTO	
Inversion Time	0018,0082	DS		VNAP	AUTO	
Trigger Time	0018,1060	DS		VNAP	AUTO	
Sequence Name	0018,0024	SH		ANAP	AUTO	
Angio Flag	0018,0025	CS		ANAP	AUTO	
Number of Averages	0018,0083	DS		ANAP	AUTO	
Imaging Frequency	0018,0084	DS		ANAP	AUTO	
Imaged Nucleus	0018,0085	SH		ANAP	AUTO	
Echo Number(s)	0018,0086	IS		ANAP	AUTO	

Magnetic Field Strength	0018,0087	DS		ANAP	AUTO	
Spacing Between Slices	0018,0088	DS		ANAP	AUTO	
Number of Phase Encoding Steps	0018,0089	IS		ANAP	AUTO	
Percent Sampling	0018,0093	DS		ANAP	AUTO	
Percent Phase Field of View	0018,0094	DS		ANAP	AUTO	
Pixel Bandwidth	0018,0095	DS		ANAP	AUTO	
Nominal Interval	0018,1062	IS		ANAP	AUTO	
Beat Rejection Flag	0018,1080	CS		ANAP	AUTO	
Low R-R Value	0018,1081	IS		ANAP	AUTO	
High R-R Value	0018,1082	IS		ANAP	AUTO	
Intervals Acquired	0018,1083	IS		ANAP	AUTO	
Intervals Rejected	0018,1084	IS		ANAP	AUTO	
PVC Rejection	0018,1085	LO		ANAP	AUTO	
Skip Beats	0018,1086	IS		ANAP	AUTO	
Heart Rate	0018,1088	IS		ANAP	AUTO	
Cardiac Number of Images	0018,1090	IS		ANAP	AUTO	
Trigger Window	0018,1094	IS		ANAP	AUTO	
Reconstruction Diameter	0018,1100	DS		ANAP	AUTO	
Receiving Coil Name	0018,1250	SH		ANAP	AUTO	
Transmitting Coil Name	0018,1251	SH		ANAP	AUTO	
Acquisition Matrix	0018,1310	US		ANAP	AUTO	
In-plane Phase Encoding Direction	0018,1312	CS		ANAP	AUTO	
Flip Angle	0018,1314	DS		ANAP	AUTO	
Variable Flip Angle Flag	0018,1315	CS		ANAP	AUTO	
SAR	0018,1316	DS		ANAP	AUTO	
dB/dt	0018,1318	DS		ANAP	AUTO	
Temporal Position Identifier	0020,0100	IS		ANAP	AUTO	
Number of Temporal Positions	0020,0105	IS		ANAP	AUTO	
Temporal Resolution	0020,0110	DS		ANAP	AUTO	

Table 116: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rows	0028,0010	US		ALWAYS	AUTO	
Columns	0028,0011	US		ALWAYS	AUTO	
Bits Stored	0028,0101	US		ALWAYS	AUTO	
High Bit	0028,0102	US		ANAP	AUTO	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	
Pixel Data	7FE0,0010	O W/ OB		ANAP	AUTO	
Planar Configuration	0028,0006	US		ANAP	AUTO	
Pixel Aspect Ratio	0028,0034	IS		ANAP	AUTO	
Red Palette Color Lookup Table Descriptor	0028,1101	US /SS		ANAP	AUTO	
Green Palette Color Lookup Table Descriptor	0028,1102	US /SS		ANAP	AUTO	
Blue Palette Color Lookup Table Descriptor	0028,1103	US /SS		ANAP	AUTO	
Red Palette Color Lookup Table Data	0028,1201	O W		ANAP	AUTO	
Green Palette Color Lookup Table Data	0028,1202	O W		ANAP	AUTO	
Blue Palette Color Lookup Table Data	0028,1203	O W		ANAP	AUTO	
Smallest Image Pixel Value	0028,0106	US /SS		ANAP	AUTO	
Largest Image Pixel Value	0028,0107	US /SS		ANAP	AUTO	



**Table 117: SOP Common Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAPEV	AUTO	
SOP Class UID	0008,0016	UI		ANAPEV	AUTO	
SOP Instance UID	0008,0018	UI		ANAPEV	AUTO	
Instance Creation Date	0008,0012	DA		ANAP	AUTO	
Instance Creation Time	0008,0013	TM		ANAP	AUTO	
Instance Creator UID	0008,0014	UI		ANAP	AUTO	
Timezone Offset From UTC	0008,0201	SH		ANAP	AUTO	
SOP Instance Status	0100,0410	CS		ANAP	AUTO	
SOP Authorization Date and Time	0100,0420	DT		ANAP	AUTO	
SOP Authorization Comment	0100,0424	LT		ANAP	AUTO	
Authorization Equipment Certification Number	0100,0426	LO		ANAP	AUTO	

**Table 118: Overlay Plane Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Overlay Rows	6000,0010	US		ALWAYS	AUTO	
Overlay Columns	6000,0011	US		ALWAYS	AUTO	
Overlay Type	6000,0040	CS		ALWAYS	AUTO	
Overlay Origin	6000,0050	SS		ALWAYS	AUTO	
Overlay Bits Allocated	6000,0100	US		ALWAYS	AUTO	
Overlay Bit Position	6000,0102	US		ALWAYS	AUTO	
Overlay Data	6000,3000	O W/ OB		ANAPEV	AUTO	
Overlay Description	6000,0022	LO		ANAP	AUTO	
Overlay Subtype	6000,0045	LO		ANAP	AUTO	
ROI Area	6000,1301	IS		ANAP	AUTO	
ROI Mean	6000,1302	DS		ANAP	AUTO	
ROI Standard Deviation	6000,1303	DS		ANAP	AUTO	
Overlay Label	6000,1500	LO		ANAP	AUTO	

**Table 119: VOI LUT Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Window Width	0028,1051	DS		ALWAYS	AUTO	
Window Center	0028,1050	DS		ALWAYS	AUTO	
Window Center & Width Explanation	0028,1055	LO		ANAP	AUTO	

**8.1.1.3. Secondary Capture Image Storage SOP Class****Table 120: IOD of Created Secondary Capture Image Storage SOP Class Instances**

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

Image	SC Image Module	ALWAYS
Image	SOP Common Module	ALWAYS
Image	Overlay Plane Module	CONDITIONAL
Image	Modality LUT Module	CONDITIONAL
Image	VOI LUT Module	CONDITIONAL
	Sc Image Equipment Module	ALWAYS

**Table 121: Patient Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	AUTO	
Patient ID	0010,0020	LO		VNAP	AUTO	
Patient's Birth Date	0010,0030	DA		VNAP	AUTO	
Patient's Sex	0010,0040	CS		VNAP	AUTO	
Patient's Birth Time	0010,0032	TM		VNAP	AUTO	
Other Patient IDs	0010,1000	LO		ANAP	AUTO	
Other Patient Names	0010,1001	PN		ANAP	AUTO	
Ethnic Group	0010,2160	SH		ANAP	AUTO	
Patient Comments	0010,4000	LT		ANAP	AUTO	
Referenced Patient Sequence	0008,1120	SQ		ANAP	AUTO	
>Referenced SOP Class UID	0008,1150	UI	1.2.840.10008.3.1.2.1.1	ANAP	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ANAP	AUTO	

**Table 122: General Study Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Instance UID	0020,000D	UI		ALWAYS	AUTO	
Study Date	0008,0020	DA		VNAP	AUTO	
Study Time	0008,0030	TM		VNAP	AUTO	
Accession Number	0008,0050	SH		VNAP	AUTO	
Referring Physician's Name	0008,0090	PN		VNAP	AUTO	
Study ID	0020,0010	SH		ANAP	AUTO	
Study Description	0008,1030	LO		ANAP	AUTO	
Physician(s) of Record	0008,1048	PN		ANAP	AUTO	
Name of Physician(s) Reading Study	0008,1060	PN		ANAP	AUTO	
Referenced Study Sequence	0008,1110	SQ		ANAP	AUTO	
>Referenced SOP Class UID	0008,1150	UI		ANAP	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ANAP	AUTO	
Procedure Code Sequence	0008,1032	SQ		ANAP	AUTO	
>Code Value	0008,0100	SH		ANAP	AUTO	
>Coding Scheme Designator	0008,0102	SH		ANAP	AUTO	
>Code Meaning	0008,0104	LO		ANAP	AUTO	
>Coding Scheme Version	0008,0103	SH		ANAP	AUTO	
>Mapping Resource	0008,0105	CS		ANAP	AUTO	
>Context Group Version	0008,0106	DT		ANAP	AUTO	
>Context Group Local Version	0008,0107	DT		ANAP	AUTO	
>Context Group Extension Creator UID	0008,010D	UI		ANAP	AUTO	
>Context Group Extension Flag	0008,010B	CS		ANAP	AUTO	
>Context Identifier	0008,010F	CS		ANAP	AUTO	

**Table 123: Patient Study Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Admitting Diagnoses Description	0008,1080	LO		ANAP	AUTO	
Patient's Age	0010,1010	AS		ANAP	AUTO	
Patient's Size	0010,1020	DS		ANAP	AUTO	
Patient's Weight	0010,1030	DS		ANAP	AUTO	

Occupation	0010,2180	SH		ANAP	AUTO	
Additional Patient History	0010,21B0	LT		ANAP	AUTO	
Admitting Diagnosis Code Sequence	0008,1084	SQ		ANAP	AUTO	
>Code Value	0008,0100	SH		ANAP	AUTO	
>Coding Scheme Designator	0008,0102	SH		ANAP	AUTO	
>Code Meaning	0008,0104	LO		ANAP	AUTO	
>Coding Scheme Version	0008,0103	SH		ANAP	AUTO	
>Mapping Resource	0008,0105	CS		ANAP	AUTO	
>Context Group Version	0008,0106	DT		ANAP	AUTO	
>Context Group Local Version	0008,0107	DT		ANAP	AUTO	
>Context Group Extension Creator UID	0008,010D	UI		ANAP	AUTO	
>Context Group Extension Flag	0008,010B	CS		ANAP	AUTO	
>Context Identifier	0008,010F	CS		ANAP	AUTO	

**Table 124: General Series Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Instance UID	0020,000E	UI		ALWAYS	CONFIG	
Series Number	0020,0011	IS		VNAP	AUTO	
Patient Position	0018,5100	CS		ANAP	AUTO	
Laterality	0020,0060	CS		ANAP	AUTO	
Series Date	0008,0021	DA		ANAP	AUTO	
Series Time	0008,0031	TM		ANAP	AUTO	
Series Description	0008,103E	LO		ANAP	AUTO	
Performing Physician's Name	0008,1050	PN		ANAP	AUTO	
Operators' Name	0008,1070	PN		ANAP	AUTO	
Body Part Examined	0018,0015	CS		ANAP	AUTO	
Protocol Name	0018,1030	LO		ANAP	AUTO	
Smallest Pixel Value in Series	0028,0108	US/SS		ANAP	AUTO	
Largest Pixel Value in Series	0028,0109	US/SS		ANAP	AUTO	
Performed Procedure Step Start Date	0040,0244	DA		ANAP	AUTO	
Performed Procedure Step Start Time	0040,0245	TM		ANAP	AUTO	
Performed Procedure Step ID	0040,0253	SH		ANAP	AUTO	
Performed Procedure Step Description	0040,0254	LO		ANAP	AUTO	
Comments on the Performed Procedure Step	0040,0280	ST		ANAP	AUTO	
Referenced Performed Procedure Step Sequence	0008,1111	SQ		ANAP	AUTO	
Performed Protocol Code Sequence	0040,0260	SQ		ANAP	AUTO	
Request Attributes Sequence	0040,0275	SQ		ANAP	AUTO	

**Table 125: General Equipment Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP	AUTO	
Institution Name	0008,0080	LO		ANAP	AUTO	
Institution Address	0008,0081	ST		ANAP	AUTO	
Station Name	0008,1010	SH		ANAP	AUTO	
Institutional Department Name	0008,1040	LO		ANAP	AUTO	
Manufacturer's Model Name	0008,1090	LO		ANAP	AUTO	
Device Serial Number	0018,1000	LO		ANAP	AUTO	
Software Version(s)	0018,1020	LO		ANAP	AUTO	

Spatial Resolution	0018,1050	DS		ANAP	AUTO	
Date of Last Calibration	0018,1200	DA		ANAP	AUTO	
Time of Last Calibration	0018,1201	TM		ANAP	AUTO	
Pixel Padding Value	0028,0120	US /SS		ANAP	AUTO	

Table 126: SC Equipment Module

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

Table 127: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		VNAP	AUTO	
Content Date	0008,0023	DA		ANAP	AUTO	
Content Time	0008,0033	TM		ANAP	AUTO	
Patient Orientation	0020,0020	CS		ALWAYS	AUTO	
Image Type	0008,0008	CS		ANAP	AUTO	
Acquisition Date	0008,0022	DA		ANAP	AUTO	
Acquisition Datetime	0008,002A	DT		ANAP	AUTO	
Acquisition Time	0008,0032	TM		ANAP	AUTO	
Derivation Description	0008,2111	ST		ANAP	AUTO	
Acquisition Number	0020,0012	IS		ANAP	AUTO	
Images in Acquisition	0020,1002	IS		ANAP	AUTO	
Image Comments	0020,4000	LT		ANAP	AUTO	
Quality Control Image	0028,0300	CS		ANAP	AUTO	
Burned In Annotation	0028,0301	CS		ANAP	AUTO	
Lossy Image Compression	0028,2110	CS		ANAP	AUTO	
Lossy Image Compression Ratio	0028,2112	DS		ANAP	AUTO	
Presentation LUT Shape	2050,0020	CS		ANAP	AUTO	
Source Image Sequence	0008,2112	SQ		ANAP	AUTO	
>Referenced SOP Class UID	0008,1150	UI		ANAP	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ANAP	AUTO	
>Referenced Frame Number	0008,1160	IS		ANAP	AUTO	
>Purpose of Reference Code Sequence	0040,A170	SQ		ANAP	AUTO	
>>Code Value	0008,0100	SH		ANAP	AUTO	
Derivation Code Sequence	0008,9215	SQ		ANAP	AUTO	
>Code Value	0008,0100	SH		ANAP	AUTO	
Icon Image Sequence	0088,0200	SQ		ANAP	AUTO	
>Samples per Pixel	0028,0002	US		ANAP	AUTO	
>Photometric Interpretation	0028,0004	CS		ANAP	AUTO	
>Rows	0028,0010	US		ANAP	AUTO	
>Columns	0028,0011	US		ANAP	AUTO	
>Bits Allocated	0028,0100	US		ANAP	AUTO	
>Bits Stored	0028,0101	US		ANAP	AUTO	
>High Bit	0028,0102	US		ANAP	AUTO	
>Pixel Representation	0028,0103	US		ANAP	AUTO	
>Pixel Data	7FE0,0010	O W/ OB		ANAP	AUTO	
>Red Palette Color Lookup Table Data	0028,1201	O W		ANAP	AUTO	
Referenced Image Sequence	0008,1140	SQ		ANAP	AUTO	
>Referenced SOP Class UID	0008,1150	UI		ANAP	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ANAP	AUTO	
>Referenced Frame Number	0008,1160	IS		ANAP	AUTO	

>Purpose of Reference Code Sequence	0040,A170	SQ		ANAP	AUTO	
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**Table 128: Image Pixel Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Samples per Pixel	0028,0002	US		ALWAYS	AUTO	
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	
Rows	0028,0010	US		ALWAYS	AUTO	
Columns	0028,0011	US		ALWAYS	AUTO	
Bits Allocated	0028,0100	US		ALWAYS	AUTO	
Bits Stored	0028,0101	US		ALWAYS	AUTO	
High Bit	0028,0102	US		ALWAYS	AUTO	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	
Planar Configuration	0028,0006	US		ANAP	AUTO	
Pixel Aspect Ratio	0028,0034	IS		ALWAYS	AUTO	
Red Palette Color Lookup Table Descriptor	0028,1101	US /SS		ANAP	AUTO	
Green Palette Color Lookup Table Descriptor	0028,1102	US /SS		ANAP	AUTO	
Blue Palette Color Lookup Table Descriptor	0028,1103	US /SS		ANAP	AUTO	
Red Palette Color Lookup Table Data	0028,1201	O W		ANAP	AUTO	
Green Palette Color Lookup Table Data	0028,1202	O W		ANAP	AUTO	
Blue Palette Color Lookup Table Data	0028,1203	O W		ANAP	AUTO	
Smallest Image Pixel Value	0028,0106	US /SS		ANAP	AUTO	
Largest Image Pixel Value	0028,0107	US /SS		ANAP	AUTO	

**Table 129: SC Image Module**

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

**Table 130: 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 131: Overlay Plane Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Overlay Rows	6000,0010	US		ALWAYS	AUTO	
Overlay Columns	6000,0011	US		ALWAYS	AUTO	
Overlay Type	6000,0040	CS		ALWAYS	AUTO	
Overlay Origin	6000,0050	SS		ALWAYS	AUTO	
Overlay Bits Allocated	6000,0100	US		ALWAYS	AUTO	
Overlay Bit Position	6000,0102	US		ALWAYS	AUTO	
Overlay Data	6000,3000	O W/ OB		ANAP	AUTO	

Overlay Description	6000,0022	LO		ANAP	AUTO	
Overlay Subtype	6000,0045	LO		ANAP	AUTO	
ROI Area	6000,1301	IS		ANAP	AUTO	
ROI Mean	6000,1302	DS		ANAP	AUTO	
ROI Standard Deviation	6000,1303	DS		ANAP	AUTO	
Overlay Label	6000,1500	LO		ANAP	AUTO	

**Table 132: Modality LUT Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rescale Intercept	0028,1052	DS		ANAP	AUTO	
Rescale Slope	0028,1053	DS		ANAP	AUTO	
Rescale Type	0028,1054	LO		ANAP	AUTO	
Modality LUT Sequence	0028,3000	SQ		ANAP	AUTO	
>LUT Descriptor	0028,3002	US /SS		ANAP	AUTO	
>Modality LUT Type	0028,3004	LO	HU, OD, US	ANAP	AUTO	
>LUT Data	0028,3006	US /SS		ANAP	AUTO	
>LUT Explanation	0028,3003	LO		ANAP	AUTO	

**Table 133: VOI LUT Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Window Width	0028,1051	DS		ANAP	AUTO	
Window Center	0028,1050	DS		ANAP	AUTO	
Window Center & Width Explanation	0028,1055	LO		ANAP	AUTO	
VOI LUT Sequence	0028,3010	SQ		ANAP	AUTO	

**Table 134: Sc Image Equipment Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS	AUTO	
Conversion Type	0008,0064	CS		ALWAYS	AUTO	
Secondary Capture Device ID	0018,1010	LO		ANAPCV	AUTO	
Secondary Capture Device Manufacturer	0018,1016	LO		ANAPCV	AUTO	
Secondary Capture Device Manufacturer's Model Name	0018,1018	LO		ANAPCV	AUTO	
Secondary Capture Device Software Version(s)	0018,1019	LO		ANAPCV	AUTO	
Video Image Format Acquired	0018,1022	SH		ANAPCV	AUTO	
Digital Image Format Acquired	0018,1023	LO		ANAPCV	AUTO	

**8.1.1.4. Softcopy Presentation State Storage SOP Class****Table 135: IOD of Created Softcopy Presentation State Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Curve	Displayed Area Module	ALWAYS
Curve	Presentation Series Module	ALWAYS
Presentation State	Softcopy Presentation LUT Module	ALWAYS
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Series	General Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	SOP Common Module	ALWAYS

Presentation State Module

ALWAYS

**Table 136: Displayed Area Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Displayed Area Selection Sequence	0070,005A	SQ		ALWAYS	AUTO	
>Displayed Area Top Left Hand Corner	0070,0052	SL	1, 1	ALWAYS	AUTO	
>Displayed Area Bottom Right Hand Corner	0070,0053	SL		ALWAYS	AUTO	
>Presentation Size Mode	0070,0100	CS	SCALE TO FIT	ALWAYS	AUTO	
>Presentation Pixel Spacing	0070,0101	DS		ANAPEV	AUTO	
>Presentation Pixel Aspect Ratio	0070,0102	IS		ANAPEV	AUTO	
>Presentation Pixel Magnification Ratio	0070,0103	FL		ANAPEV	AUTO	

**Table 137: Presentation Series Module**

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

**Table 138: Softcopy Presentation LUT Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Presentation LUT Sequence	2050,0010	SQ		ALWAYS	AUTO	
>LUT Descriptor	0028,3002	US /SS		ALWAYS	AUTO	
>LUT Data	0028,3006	US /SS		ALWAYS	AUTO	

**Table 139: Patient Module**

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

**Table 140: General Study Module**

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

**Table 141: General Series Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		VNAP	AUTO	
Laterality	0020,0060	CS		VNAP	AUTO	
Series Date	0008,0021	DA		VNAP	AUTO	
Series Time	0008,0031	TM		VNAP	AUTO	

**Table 142: General Equipment Module**

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

**Table 143: SOP Common Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.11 .1	ALWAYS	AUTO	
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	Newly generated number

**Table 144: Presentation State Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS	1	ALWAYS	AUTO	Replaced with value 1
Content Label	0070,0080	CS	Possible Values: "AS LAST SEEN", "AS ACQUIRED", "AS DICTATED", "AS APPROVED", "AS PRINTED", "NEW AT IMPORT", "USER DEFINED", "NONE", "ANALYSIS RESULTS"	ALWAYS	AUTO	
Presentation Creation Date	0070,0082	DA		ALWAYS	AUTO	Value is set to "" for "AS LAST SEEN"
Presentation Creation Time	0070,0083	TM		ALWAYS	AUTO	
Recommended Viewing Mode	0028,1090	CS		ANAPEV	AUTO	
Content Description	0070,0081	LO		VNAP	AUTO	
Content Creator's Name	0070,0084	PN		VNAP	AUTO	
Referenced Series Sequence	0008,1115	SQ		ALWAYS	AUTO	

**8.1.1.5. Computed Radiography Image Storage SOP Class**

**Table 145: IOD of Created Computed Radiography Image Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Series	General Series Module	ALWAYS
Series	CR Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Contrast/Bolus Module	CONDITIONAL
Image	CR Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	SOP Common Module	ALWAYS

**Table 146: Patient Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	AUTO	
Patient ID	0010,0020	LO		VNAP	AUTO	
Patient's Sex	0010,0040	CS		VNAP	AUTO	
Referenced Patient Sequence	0008,1120	SQ		ANAP	AUTO	



>Referenced SOP Class UID	0008,1150	UI		ANAPEV	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ANAPEV	AUTO	

**Table 147: General Study Module**

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

**Table 148: General Series Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS	AUTO	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		VNAP	AUTO	
Patient Position	0018,5100	CS		VNAP	AUTO	

**Table 149: CR Series Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Body Part Examined	0018,0015	CS		VNAP	AUTO	
View Position	0018,5101	CS		VNAP	AUTO	

**Table 150: General Equipment Module**

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

**Table 151: General Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		VNAP	AUTO	

**Table 152: Contrast/Bolus Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Contrast/Bolus Agent	0018,0010	LO		VNAP	AUTO	

**Table 153: CR Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	

**Table 154: Image Pixel Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Samples per Pixel	0028,0002	US		ALWAYS	AUTO	
Rows	0028,0010	US		ALWAYS	AUTO	
Columns	0028,0011	US		ALWAYS	AUTO	
Bits Allocated	0028,0100	US		ALWAYS	AUTO	
Bits Stored	0028,0101	US		ALWAYS	AUTO	
High Bit	0028,0102	US		ALWAYS	AUTO	

Pixel Representation	0028,0103	US		ALWAYS	AUTO	
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	

**Table 155: SOP Common Module**

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

**8.1.1.6. CT Image Storage SOP Class****Table 156: IOD of Created CT Image Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Series	General Series Module	ALWAYS
Frame of Reference	Frame of Reference Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	Image Plane Module	ALWAYS
Image	Contrast/Bolus Module	CONDITIONAL
Image	CT Image Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	SOP Common Module	ALWAYS

**Table 157: Patient Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	AUTO	
Patient's Birth Date	0010,0030	DA		VNAP	AUTO	
Patient's Sex	0010,0040	CS		VNAP	AUTO	
Referenced Patient Sequence	0008,1120	SQ		ANAP	AUTO	
>Referenced SOP Class UID	0008,1150	UI		ANAP	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ANAP	AUTO	

**Table 158: General Study Module**

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

**Table 159: General Series Module**

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

**Table 160: Frame of Reference Module**

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

**Table 161: General Equipment Module**

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

**Table 162: Image Plane Module**

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

**Table 163: Contrast/Bolus Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Contrast/Bolus Agent	0018,0010	LO		VNAP	AUTO	

**Table 164: CT Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS		ALWAYS	AUTO	
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	
Bits Allocated	0028,0100	US		ALWAYS	AUTO	
Bits Stored	0028,0101	US		ALWAYS	AUTO	
High Bit	0028,0102	US		ALWAYS	AUTO	
Rescale Intercept	0028,1052	DS		ALWAYS	AUTO	
Rescale Slope	0028,1053	DS		ALWAYS	AUTO	
KVP	0018,0060	DS		VNAP	AUTO	
Acquisition Number	0020,0012	IS		VNAP	AUTO	

**Table 165: General Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		VNAP	AUTO	

**Table 166: Image Pixel Module**

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

**Table 167: SOP Common Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAP	AUTO	

SOP Class UID	0008,0016	UI		ANAP	AUTO	
SOP Instance UID	0008,0018	UI		ANAP	AUTO	

**8.1.1.7. Digital X-Ray Image Storage - For Pres. SOP**

**Table 168: IOD of Created Digital X-Ray Image Storage - For Pres. SOP Instances**

Information Entity	Module	Presence Of Module
Image	DX Anatomy Imaged Module	ALWAYS
Image	DX Detector Module	ALWAYS
Image	DX Image Module	ALWAYS
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Series	General Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Waveform	Acquisition Context Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	SOP Common Module	ALWAYS
Image	Overlay Plane Module	CONDITIONAL
Image	VOI LUT Module	CONDITIONAL

**Table 169: DX Anatomy Imaged Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Laterality	0020,0062	CS		ALWAYS	AUTO	
Anatomic Region Sequence	0008,2218	SQ		VNAP	AUTO	
>Anatomic Region Modifier Sequence	0008,2220	SQ		ANAP	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	
>Code Meaning	0008,0104	LO		ALWAYS	AUTO	

**Table 170: DX Detector Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Imager Pixel Spacing	0018,1164	DS		ALWAYS	AUTO	
Detector Type	0018,7004	CS		VNAP	AUTO	

**Table 171: DX Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS		ALWAYS	AUTO	
Patient Orientation	0020,0020	CS		ALWAYS	AUTO	
Samples per Pixel	0028,0002	US		ALWAYS	AUTO	
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	
Bits Allocated	0028,0100	US		ALWAYS	AUTO	
Bits Stored	0028,0101	US		ALWAYS	AUTO	
High Bit	0028,0102	US		ALWAYS	AUTO	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	
Burned In Annotation	0028,0301	CS		ALWAYS	AUTO	
Pixel Intensity Relationship	0028,1040	CS		ALWAYS	AUTO	
Pixel Intensity Relationship Sign	0028,1041	SS		ALWAYS	AUTO	
Rescale Intercept	0028,1052	DS		ALWAYS	AUTO	
Rescale Slope	0028,1053	DS		ALWAYS	AUTO	

Rescale Type	0028,1054	LO		ALWAYS	AUTO	
Lossy Image Compression	0028,2110	CS		ALWAYS	AUTO	
Presentation LUT Shape	2050,0020	CS		ALWAYS	AUTO	

**Table 172: Patient Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	AUTO	
Patient ID	0010,0020	LO		VNAP	AUTO	
Patient's Birth Date	0010,0030	DA		VNAP	AUTO	
Patient's Sex	0010,0040	CS		VNAP	AUTO	
Referenced Patient Sequence	0008,1120	SQ		ANAP	AUTO	
>Referenced SOP Class UID	0008,1150	UI		ANAPEV	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ANAPEV	AUTO	

**Table 173: General Study Module**

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

**Table 174: General Series Module**

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

**Table 175: General Equipment Module**

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

**Table 176: Acquisition Context Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Context Sequence	0040,0555	SQ		VNAP	AUTO	
>Date	0040,A121	DA		ANAPEV	AUTO	
>Time	0040,A122	TM		ANAPEV	AUTO	
>Person Name	0040,A123	PN		ANAPEV	AUTO	
>Referenced Frame Numbers	0040,A136	US		ANAPEV	AUTO	
>Concept Name Code Sequence	0040,A043	SQ		ALWAYS	AUTO	
>>Code Value	0008,0100	SH		ALWAYS	AUTO	
>>Coding Scheme Designator	0008,0102	SH		ALWAYS	AUTO	
>>Code Meaning	0008,0104	LO		ALWAYS	AUTO	
>Measurement Units Code Sequence	0040,08EA	SQ		ANAPEV	AUTO	
>>Code Value	0008,0100	SH		ALWAYS	AUTO	
>>Coding Scheme Designator	0008,0102	SH		ALWAYS	AUTO	
>>Code Meaning	0008,0104	LO		ALWAYS	AUTO	
>Concept Code Sequence	0040,A168	SQ		ANAPEV	AUTO	
>>Code Value	0008,0100	SH		ALWAYS	AUTO	
>>Coding Scheme Designator	0008,0102	SH		ALWAYS	AUTO	
>>Code Meaning	0008,0104	LO		ALWAYS	AUTO	

**Table 177: General Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		VNAP	AUTO	

**Table 178: Image Pixel Module**

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

**Table 179: SOP Common Module**

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

**Table 180: Overlay Plane Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Overlay Rows	6000,0010	US		ALWAYS	AUTO	
Overlay Columns	6000,0011	US		ALWAYS	AUTO	
Overlay Type	6000,0040	CS		ALWAYS	AUTO	
Overlay Origin	6000,0050	SS		ALWAYS	AUTO	
Overlay Bits Allocated	6000,0100	US		ALWAYS	AUTO	
Overlay Bit Position	6000,0102	US		ALWAYS	AUTO	
Overlay Data	6000,3000	O W/ OB		VNAP	AUTO	

**Table 181: VOI LUT Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Window Center	0028,1050	DS		ALWAYS	AUTO	
Window Width	0028,1051	DS		ALWAYS	AUTO	
VOI LUT Sequence	0028,3010	SQ		VNAP	AUTO	

**8.1.1.8. Ultrasound Image Storage SOP Class****Table 182: IOD of Created Ultrasound Image Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Series	General Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	Contrast/Bolus Module	CONDITIONAL
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	US Image Module	ALWAYS
Image	SOP Common Module	ALWAYS

**Table 183: Patient Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP		
Patient ID	0010,0020	LO		VNAP		
Patient's Birth Date	0010,0030	DA		VNAP		
Patient's Sex	0010,0040	CS		VNAP		
Referenced Patient Sequence	0008,1120	SQ		ANAP		
>Referenced SOP Class UID	0008,1150	UI		ANAPEV		
>Referenced SOP Instance UID	0008,1155	UI		ANAPEV		

**Table 184: General Study Module**

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

**Table 185: General Series Module**

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

**Table 186: General Equipment Module**

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

**Table 187: Contrast/Bolus Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Contrast/Bolus Agent	0018,0010	LO		VNAP		

**Table 188: General Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		VNAP		

**Table 189: Image Pixel Module**

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

**Table 190: US Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Samples per Pixel	0028,0002	US		ALWAYS		

Photometric Interpretation	0028,0004	CS		ALWAYS		
Bits Allocated	0028,0100	US		ALWAYS		
High Bit	0028,0102	US		ALWAYS		
Image Type	0008,0008	CS		VNAP		

**Table 191: SOP Common Module**

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

**8.1.1.9. Ultrasound Multi-frame Image Storage SOP Class**

**Table 192: IOD of Created Ultrasound Multi-frame Image Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Series	General Series Module	ALWAYS
Frame of Reference	Frame of Reference Module	CONDITIONAL
Equipment	General Equipment Module	ALWAYS
Image	Contrast/Bolus Module	CONDITIONAL
Image	Cine Module	ALWAYS
Image	Multi-Frame Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	US Image Module	ALWAYS
Image	SOP Common Module	ALWAYS

**Table 193: Patient Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP		
Patient ID	0010,0020	LO		VNAP		
Patient's Birth Date	0010,0030	DA		VNAP		
Patient's Sex	0010,0040	CS		VNAP		
Referenced Patient Sequence	0008,1120	SQ		ANAP		
>Referenced SOP Class UID	0008,1150	UI		ANAPEV		
>Referenced SOP Instance UID	0008,1155	UI		ANAPEV		

**Table 194: General Study Module**

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

**Table 195: General Series Module**

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



Series Number	0020,0011	IS		VNAP		
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**Table 196: Frame of Reference Module**

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

**Table 197: General Equipment Module**

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

**Table 198: Contrast/Bolus Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Contrast/Bolus Agent	0018,0010	LO		VNAP		

**Table 199: Cine Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Frame Time	0018,1063	DS		ANAPEV		
Frame Time Vector	0018,1065	DS		ANAPEV		

**Table 200: Multi-Frame Module**

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

**Table 201: General Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		VNAP		

**Table 202: Image Pixel Module**

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

**Table 203: US Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Samples per Pixel	0028,0002	US		ALWAYS		
Bits Stored	0028,0101	US		ALWAYS		
Pixel Representation	0028,0103	US		ALWAYS		
Image Type	0008,0008	CS		VNAP		

**Table 204: SOP Common Module**

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

**8.1.1.10. X-Ray Angiographic Image Storage SOP Class**

**Table 205: IOD of Created X-Ray Angiographic Image Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Series	General Series Module	ALWAYS
Image	Cine Module	CONDITIONAL
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	X-ray Image Module	ALWAYS
Image	X-Ray Acquisition Module	ALWAYS
Image	XA Positioner Module	ALWAYS

**Table 206: Patient Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP		
Patient ID	0010,0020	LO		VNAP		
Patient's Birth Date	0010,0030	DA		VNAP		
Patient's Sex	0010,0040	CS		VNAP		
Referenced Patient Sequence	0008,1120	SQ		ANAP		
>Referenced SOP Class UID	0008,1150	UI		ANAPEV		
>Referenced SOP Instance UID	0008,1155	UI		ANAPEV		

**Table 207: General Study Module**

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

**Table 208: General Series Module**

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

**Table 209: Cine Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Frame Time	0018,1063	DS		ANAPEV		
Frame Time Vector	0018,1065	DS		ANAPEV		

**Table 210: General Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		VNAP		

**Table 211: Image Pixel Module**

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

**Table 212: X-ray Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS		ALWAYS		
Bits Stored	0028,0101	US		ALWAYS		
Pixel Representation	0028,0103	US		ALWAYS		

**Table 213: X-Ray Acquisition Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
KVP	0018,0060	DS		VNAP		

**Table 214: XA Positioner Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Positioner Primary Angle	0018,1510	DS		VNAP		
Positioner Secondary Angle	0018,1511	DS		VNAP		

**8.1.1.11. X-Ray Radiofluoroscopic Image Storage SOP Class**

**Table 215: IOD of Created X-Ray Radiofluoroscopic Image Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Series	General Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	Contrast/Bolus Module	CONDITIONAL
Image	Cine Module	CONDITIONAL
Image	Multi-Frame Module	ALWAYS
Image	Mask Module	CONDITIONAL
Image	General Image Module	ALWAYS
Image	X-ray Image Module	ALWAYS
Image	X-Ray Tomography Acquisition Module	CONDITIONAL
Image	X-Ray Acquisition Module	ALWAYS
Image	SOP Common Module	ALWAYS
Image	Multi-frame Overlay Module	CONDITIONAL

**Table 216: Patient Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP		
Patient ID	0010,0020	LO		VNAP		
Patient's Birth Date	0010,0030	DA		VNAP		
Patient's Sex	0010,0040	CS		VNAP		
Referenced Patient Sequence	0008,1120	SQ		ANAP		
>Referenced SOP Class UID	0008,1150	UI		ANAPEV		
>Referenced SOP Instance UID	0008,1155	UI		ANAPEV		

**Table 217: General Study Module**

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

**Table 218: General Series Module**

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

**Table 219: General Equipment Module**

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

**Table 220: Contrast/Bolus Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Contrast/Bolus Agent	0018,0010	LO		VNAP		

**Table 221: Cine Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Frame Time	0018,1063	DS		ANAPEV		
Frame Time Vector	0018,1065	DS		ANAPEV		

**Table 222: Multi-Frame Module**

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

**Table 223: Mask Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Recommended Viewing Mode	0028,1090	CS		VNAP		
Mask Subtraction Sequence	0028,6100	SQ		ALWAYS		

>Mask Operation	0028,6101	CS		ALWAYS		
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**Table 224: General Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		VNAP		

**Table 225: X-ray Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS		ALWAYS		
Samples per Pixel	0028,0002	US		ALWAYS		
Photometric Interpretation	0028,0004	CS		ALWAYS		
Bits Allocated	0028,0100	US		ALWAYS		
Bits Stored	0028,0101	US		ALWAYS		
High Bit	0028,0102	US		ALWAYS		
Pixel Representation	0028,0103	US		ALWAYS		
Pixel Intensity Relationship	0028,1040	CS		ALWAYS		

**Table 226: X-Ray Tomography Acquisition Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Tomo Layer Height	0018,1460	DS		ALWAYS		

**Table 227: X-Ray Acquisition Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Radiation Setting	0018,1155	CS		ALWAYS		
KVP	0018,0060	DS		VNAP		

**Table 228: SOP Common Module**

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

**Table 229: Multi-frame Overlay Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Frames in Overlay	6000,0015	IS		ALWAYS		

### 8.1.2. Usage of Attributes from Received IOD

**Table 230: Functionalities**

Functionality	Type1	Optional	Private
MIP		X	
MPR		X	

#### 8.1.2.1. Usage of the Functionality MIP

The following SOP classes are used by the MIP functionality.

**Table 231: Supported SOP Classes for functionality MIP**

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

**Table 232: Supported Optional attributes of functionality MIP**

Attribute Name	Tag	VR	Value	Comment
Patient's Name	0010,0010	PN		
Patient ID	0010,0020	LO		
Patient's Birth Date	0010,0030	DA		
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		
Samples per Pixel	0028,0002	US		
Photometric Interpretation	0028,0004	CS		
Bits Allocated	0028,0100	US		
Bits Stored	0028,0101	US		
High Bit	0028,0102	US		
Rescale Intercept	0028,1052	DS		
Rescale Slope	0028,1053	DS		
Acquisition Number	0020,0012	IS		
Attribute Name	Tag	VR	Value	Comment
Instance Number	0020,0013	IS		
Content Date	0008,0023	DA		
Content Time	0008,0033	TM		
Attribute Name	Tag	VR	Value	Comment
Specific Character Set	0008,0005	CS		
SOP Class UID	0008,0016	UI		
SOP Instance UID	0008,0018	UI		
Attribute Name	Tag	VR	Value	Comment
Scanning Sequence	0018,0020	CS		
Sequence Variant	0018,0021	CS		
Samples per Pixel	0028,0002	US		
Photometric Interpretation	0028,0004	CS		
Bits Allocated	0028,0100	US		
Scan Options	0018,0022	CS		
MR Acquisition Type	0018,0023	CS		
Echo Time	0018,0081	DS		
Echo Train Length	0018,0091	IS		

**8.1.2.2. Usage of the Functionality MPR**

The following SOP classes are used by the MIP functionality.

**Table 233: Supported SOP Classes for functionality MPR**

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

**Table 234: Supported Optional attributes of functionality MPR**

Attribute Name	Tag	VR	Value	Comment
Patient's Name	0010,0010	PN		
Patient ID	0010,0020	LO		
Patient's Birth Date	0010,0030	DA		
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		
Samples per Pixel	0028,0002	US		
Photometric Interpretation	0028,0004	CS		
Bits Allocated	0028,0100	US		
Bits Stored	0028,0101	US		
High Bit	0028,0102	US		
Rescale Intercept	0028,1052	DS		
Rescale Slope	0028,1053	DS		
Acquisition Number	0020,0012	IS		
Attribute Name	Tag	VR	Value	Comment
Instance Number	0020,0013	IS		
Content Date	0008,0023	DA		
Content Time	0008,0033	TM		
Attribute Name	Tag	VR	Value	Comment
Specific Character Set	0008,0005	CS		
SOP Class UID	0008,0016	UI		
SOP Instance UID	0008,0018	UI		
Attribute Name	Tag	VR	Value	Comment
Scanning Sequence	0018,0020	CS		
Sequence Variant	0018,0021	CS		
Samples per Pixel	0028,0002	US		
Photometric Interpretation	0028,0004	CS		
Bits Allocated	0028,0100	US		
Scan Options	0018,0022	CS		
MR Acquisition Type	0018,0023	CS		
Echo Time	0018,0081	DS		
Echo Train Length	0018,0091	IS		

### 8.1.3. Attribute Mapping

NA

### 8.1.4. Coerced/Modified fields

In general, ViewForum R6.3 will try and optimize the imported image data. This may involve the removal of redundant data, either or not due to the creation of a Presentation State object for the image data. This may also involve the creation of extra attributes.

If not available at import then ViewForum R6.3 will create the additional attributes as listed in the table below.

**Table 235: Additional Attributes for Image Imports**

Attribute Name	Tag	VR	Generated Value
Performed Procedure Step Start Date	0040,0244	DA	Copied from (0008, 0020) Study Date.
Performed Procedure Step Start Time	0040,0245	TM	Copied from (0008, 0030) Study Time.
Performed Procedure Step ID	0040,0253	SH	Copied from (0020, 0010) Study ID.
Performed Procedure Step Description	0040,0254	LO	Copied from (0008, 1030) Study Description.

If the SCU does not propose a presentation context for the Grayscale Softcopy Presentation State storage SOP class, then ViewForum R6.3 will derive Presentation State data from the imported image data and store this data in a new series within the examination of the imported image.

However, if during import the image is accompanied by Presentation State data, the ViewForum R6.3 database shall avoid data overlap by only storing the relevant data from the first object received; either the first image or its Presentation State!

Thus it will omit data received by succeeding objects concerning the optional attributes (VT=3) listed in table below.

**Table 236: Omitted Attributes for Image Imports**

Attribute Name	Tag	VR	Value	Presence of Value	Source
<b>Patient Module</b>					
Referenced Patient Sequence	0008,1120	SQ		ANAP	AUTO
Patient's Birth Time	0010,0032	TM		ANAP	AUTO
Other Patient Ids	0010,1000	LO		ANAP	AUTO
Other Patient Names	0010,1001	PN		ANAP	AUTO
Ethnic Group	0010,2160	SH		ANAP	AUTO
Patient Comments	0010,4000	LT		ANAP	AUTO
<b>General Study Module</b>					
Referring Physician Identification Sequence	0008,0096	SQ		ANAP	AUTO
Study Description	0008,1030	LO		ANAP	AUTO
Procedure Code Sequence	0008,1032	SQ		ANAP	AUTO
Physician(s) of Record	0008,1048	PN		ANAP	AUTO
Physician(s) of Record Identification Sequence	0008,1049	SQ		ANAP	AUTO
Name of Physician(s) Reading Study	0008,1060	PN		ANAP	AUTO
Physician(s) Reading Study Identification Sequence	0008,1062	SQ		ANAP	AUTO
Referenced Study Sequence	0008,1110	SQ		ANAP	AUTO
<b>Patient Study Module</b>					
Admitting Diagnoses Description	0008,1080	UI		ANAP	AUTO
Admitting Diagnoses Code Sequence	0008,1084	SQ		ANAP	AUTO
Patient's Age	0010,1010	AS		ANAP	AUTO
Patient's Size	0010,1020	DS		ANAP	AUTO
Patient's Weight	0010,1030	DS		ANAP	AUTO
Occupation	0010,2180	SH		ANAP	AUTO
Additional Patient History	0010,21B0	LT		ANAP	AUTO
<b>Clinical Trial Study Module</b>					
Clinical Trial Time Point Description	0012,0051			ANAP	AUTO
<b>General Series Module</b>					
Series Date	0008,0021	DA		ANAP	AUTO
Series Time	0008,0031	TM		ANAP	AUTO
Series Description	0008,103E	LO		ANAP	AUTO
Performing Physicians' Name	0008,1050	PN		ANAP	AUTO
Performing Physician Identification Sequence	0008,1052	SQ		ANAP	AUTO
Operators' Name	0008,1070	PN		ANAP	AUTO
Operators Identification Sequence	0008,1072	SQ		ANAP	AUTO
Referenced Performed Procedure Step Sequence	0008,1111	SQ		ANAP	AUTO
Body Part Examined	0018,0015	CS		ANAP	AUTO
Protocol Name	0018,1030	LO		ANAP	AUTO
Smallest Pixel Value in Series	0028.0108	US / SS		ANAP	AUTO
Largest Pixel Value in Series	0028.0109	US /		ANAP	AUTO



		SS			
Performed Procedure Step Start Date	0040,0244	DA		ANAP	AUTO
Performed Procedure Step Start Time	0040,0245	TM		ANAP	AUTO
Performed Procedure Step ID	0040,0253	SH		ANAP	AUTO
Performed Procedure Step Description	0040,0254	LO		ANAP	AUTO
Performed Protocol Code Sequence	0040,0260	SQ		ANAP	AUTO
Request Attributes Sequence	0040,0275	SQ		ANAP	AUTO
Comments on the Performed Procedure Step	0040,0280	ST		ANAP	AUTO
<b>General Equipment Module</b>					
Institution Name	0008,0080	LO		ANAP	AUTO
Institution Address	0008,0081	ST		ANAP	AUTO
Station Name	0008,1010	SH		ANAP	AUTO
Institutional Department Name	0008,1040	LO		ANAP	AUTO
Manufacturer's Model Name	0008,1090	LO		ANAP	AUTO
Device Serial Number	0018,1000	LO		ANAP	AUTO
Software Versions	0018,1020	LO		ANAP	AUTO
Spatial Resolution	0018,1050	DS		ANAP	AUTO
Date of Last Calibration	0018,1200	DA		ANAP	AUTO
Time of Last Calibration	0018,1201	TM		ANAP	AUTO
Pixel Padding Value	0028,0120	US / SS		ANAP	AUTO
<b>Display Shutter Module</b>					
Shutter Presentation Value	0018,1622	US		ANAP	AUTO
<b>Overlay Plane Module</b>					
Overlay Description	60xx,0022	LO		ANAP	AUTO
Overlay Subtype	60xx,0045	LO		ANAP	AUTO
ROI Area	60xx,1301	IS		ANAP	AUTO
ROI Mean	60xx,1302	DS		ANAP	AUTO
ROI Standard Deviation	60xx,1303	DS		ANAP	AUTO
Overlay Label	60xx,1500	LO		ANAP	AUTO
<b>SOP Common Module</b>					
Instance Creation Date	0008,0012	DA		ANAP	AUTO
Instance Creation Time	0008,0013	TM		ANAP	AUTO
Instance Creator UID	0008,0014	UI		ANAP	AUTO
Coding Scheme Identification Sequence	0008,0110	SQ		ANAP	AUTO
Timezone Offset From UTC	0008,0201	SH		ANAP	AUTO
Contributing Equipment Sequence	0018,A001	SQ		ANAP	AUTO
Instance Number	0020,0013	IS		ANAP	AUTO
SOP Authorization Date and Time	0100,0420	DT		ANAP	AUTO
SOP Authorization Comment	0100,0424	LT		ANAP	AUTO
Authorization Equipment Certification Number	0100,0426	LO		ANAP	AUTO
MAC Parameters Sequence	4FFE,0001	SQ		ANAP	AUTO
Digital Signatures Sequence	FFFA,FFFA	SQ		ANAP	AUTO

And clear all mandatory attributes (VT=2) listed in table below

**Table 237: Cleared Attributes for Image Imports**

Attribute Name	Tag	VR	Value	Presence of Value	Source
<b>Patient Module</b>					
Patient's Name	0010,0010	PN		VNAP	AUTO
Patient ID	0010,0020	LO		VNAP	AUTO
Patient's Birth Date	0010,0030	DA		VNAP	AUTO
Patient's Sex	0010,0040	CS		VNAP	AUTO

Clinical Trial Subject Module					
Clinical Trial Protocol Name	0012,0021	LO		VNAP	AUTO
Clinical Trial Site ID	0012,0030	LO		VNAP	AUTO
Clinical Trial Site Name	0012,0031	LO		VNAP	AUTO
General Study Module					
Study Date	0008,0020	DA		VNAP	AUTO
Study Time	0008,0030	TM		VNAP	AUTO
Accession Number	0008,0050	SH		VNAP	AUTO
Referring Physician's Name	0008,0090	PN		VNAP	AUTO
Study ID	0020,0010	SH		VNAP	AUTO
Clinical Trial Study Module					
Clinical Trial Time Point ID	0012,0050	LO		VNAP	AUTO
General Series Module					
Patient Position	0018,5100	CS		ANAP	AUTO
Series Number	0020,0011	IS		VNAP	AUTO
Laterality	0020,0060	CS		ANAP	AUTO
Clinical Trial Series Module					
Clinical Trial Coordinating Center Name	0012,0060	LO		VNAP	AUTO
General Equipment Module					
Manufacturer	0008,0070	LO		VNAP	AUTO
Mask Module					
Recommended Viewing Mode	0028,1090	CS		VNAP	AUTO
Overlay/Curve Activation Module					
Curve Activation Layer	50xx,1001	CS		ANAP	AUTO
Overlay Activation Layer	60xx,1001	CS		ANAP	AUTO

ViewForum R6.3 allows the operator to modify attributes of the stored images; see the table below. ViewForum R6.3 does not modify the pixel values of the stored images. Modified images retain their original Study, Series and Image UID.

**Table 238: Modifiable Attributes**

Attribute Name	Tag	VR	Value	Presence of Value	Source
Patient					
Patient's Name	0010,0010	PN		VNAP	USER
Patient ID	0010,0020	LO		VNAP	USER
Patient's Birth Date	0010,0030	DA		VNAP	USER
Patient's Sex	0010,0040	CS		VNAP	USER
Medical Alerts	0010,2000	LO	1-N	VNAP	USER
Contrast Allergies	0010,2110	LO	1-N	VNAP	USER
Patient Comments	0010,4000	LT		ANAP	USER
Study					
Accession Number	0008,0050	SH		VNAP	USER
Referring Physician's Name	0008,0090	PN		VNAP	USER
Study Description	0008,1030	LO		ANAP	USER
Physician(s) of Record	0008,1048	PN	1-N	ANAP	USER
Name of Physician(s) Reading Study	0008,1060	PN	1-N	ANAP	USER
Admitting Diagnoses Description	0008,1080	LO	1-N	ANAP	USER
Patient's Age	0010,1010	AS		ANAP	USER
Occupation	0010,2180	SH		ANAP	USER
Additional Patient History	0010,21B0	LT		ANAP	USER
Examination					
Performed Station Name	0040,0242	SH	An institution defined name for the modality on which the Performed Procedure Step was performed.	ANAP, VNAP	CONF / MPPS
Performed Location	0040,0243	SH	Description of the location at	ANAP,	USER /

			which the Performed Procedure Step was performed.	VNAP	MPPS
Performed Procedure Step Description	0040,0254	LO	From Modality Worklist or user input. The user can modify the description provided via Modality Worklist.	ANAP, VNAP	USER / MPPS
Performed Procedure Type Description	0040,0255	LO	A description of the type of procedure performed.	ANAP, VNAP	USER / MPPS
Comments on the Performed Procedure Step	0040,0280	ST	User-defined comments on the Performed Procedure Step.	ANAP, VNAP	USER / MPPS
Series					
-					

ViewForum R6.3 adds additional to exported new created images of the plug in some attributes. Some of the attributes are added for the connection to the created Presentation State. These attributes are listed in table below.

**Table 239: Additional Attributes for Export Images**

Attribute Name	Tag	VR	Value	Presence of Value	Source
<b>General Image Module</b>					
Presentation LUT Shape	2050,0020	SQ		ANAP	AUTO
<b>VOI LUT Module</b>					
Window Width	0028,1051	DS		ANAPEV	AUTO
Window Center	0028,1050	DS		ANAP	AUTO

**8.2. Data Dictionary of Private Attributes**

NA

**8.3. Coded Terminology and Templates**

NA

**8.4. Grayscale Image consistency**

NA

**8.5. Standard Extended/Specialized/Private SOPs**

NA

**8.6. Private Transfer Syntaxes**

NA

## 9. ANNEXES OF APPLICATION "MR CARDIO ANALYSIS"

### 9.1. IOD Contents

#### 9.1.1. Created SOP Instance

This section specifies each IOD created (including private IODs).

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 240: List of created SOP Classes**

SOP Class Name	SOP Class UID
MR Cardio Analysis new Storage (Private)	1.3.46.670589.5.0.11.1
Cardio Image Storage new SOP Class (Private)	1.3.46.670589.5.0.8.1

### 9.1.2. Usage of Attributes from Received IOD

**Table 241: Functionalities**

Functionality	Type1	Optional	Private
ALEF Analysis		X	
LV and RV short axis Analysis		X	
Quantitative Flow Analysis		X	

First Pass Enhancement Analysis		X	
First Pass Enhancement Compare Analysis		X	
Late Enhancement Analysis		X	
Quad Movie		X	

**9.1.2.1. Usage of the Functionality ALEF Analysis**

The following SOP class is used by the ALEF Analysis functionality.

**Table 242: Supported SOP Classes for functionality ALEF Analysis**

SOP Class name	SOP Class UID
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4

**Table 243: Supported Optional attributes of functionality ALEF Analysis**

Attribute Name	Tag	VR	Value	Comment
Series Number	0020,0011	IS		""
Series Date	0008,0021	DA		Image series identification on result views.
Series Time	0008,0031	TM		""
Protocol Name	0018,1030	LO		""
Performed Procedure Step Description	0040,0254	LO		""
Attribute Name	Tag	VR	Value	Comment
Content Date	0008,0023	DA		""
Content Time	0008,0033	TM		Movie synchronization and annotation. Determination of dynamic time corresponding to a dynamic index.
Attribute Name	Tag	VR	Value	Comment
Trigger Time	0018,1060	DS		Movie synchronization and annotation. Determination of trigger delay time corresponding to a phase number.
Heart Rate	0018,1088	IS		For annotation and determination of the RR interval.
Temporal Position Identifier	0020,0100	IS		To determine the dynamic number. Used for annotation and dimension reduction.

**9.1.2.2. Usage of the Functionality LV and RV short axis Analysis**

The following SOP class is used by the LV and RV short axis Analysis functionality.

**Table 244: Supported SOP Classes for functionality LV and RV short axis Analysis**

SOP Class name	SOP Class UID
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4

**Table 245: Supported Optional attributes of functionality LV and RV short axis Analysis**

Attribute Name	Tag	VR	Value	Comment
Series Number	0020,0011	IS		""
Series Date	0008,0021	DA		Image series identification on result views.
Series Time	0008,0031	TM		""
Protocol Name	0018,1030	LO		""
Performed Procedure Step Description	0040,0254	LO		""
Attribute Name	Tag	VR	Value	Comment
Content Date	0008,0023	DA		""
Content Time	0008,0033	TM		Movie synchronization and annotation. Determination of dynamic time corresponding to a dynamic index.
Attribute Name	Tag	VR	Value	Comment
Trigger Time	0018,1060	DS		Movie synchronization and annotation. Determination of trigger delay time corresponding to a phase number.
Heart Rate	0018,1088	IS		For annotation and determination of the RR interval.
Temporal Position Identifier	0020,0100	IS		To determine the dynamic number. Used for annotation and dimension reduction.

**9.1.2.3. Usage of the Functionality Quantitative Flow Analysis**

The following SOP class is used by the Quantitative Flow Analysis functionality.

**Table 246: Supported SOP Classes for functionality Quantitative Flow Analysis**

SOP Class name	SOP Class UID
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4

**Table 247: Supported Optional attributes of functionality Quantitative Flow Analysis**

Attribute Name	Tag	VR	Value	Comment
Series Number	0020,0011	IS		""
Series Date	0008,0021	DA		Image series identification on result views.
Series Time	0008,0031	TM		""
Protocol Name	0018,1030	LO		""
Performed Procedure Step Description	0040,0254	LO		""
Attribute Name	Tag	VR	Value	Comment
Content Date	0008,0023	DA		""
Content Time	0008,0033	TM		Movie synchronization and annotation. Determination of dynamic time corresponding to a dynamic index.

Attribute Name	Tag	VR	Value	Comment
Trigger Time	0018,1060	DS		Movie synchronization and annotation. Determination of trigger delay time corresponding to a phase number.
Heart Rate	0018,1088	IS		For annotation and determination of the RR interval.
Temporal Position Identifier	0020,0100	IS		To determine the dynamic number. Used for annotation and dimension reduction.

#### 9.1.2.4. Usage of the Functionality First Pass Enhancement Analysis

The following SOP class is used by the First Pass Enhancement Analysis functionality.

**Table 248: Supported SOP Classes for functionality First Pass Enhancement Analysis**

SOP Class name	SOP Class UID
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4

**Table 249: Supported Optional attributes of functionality First Pass Enhancement Analysis**

Attribute Name	Tag	VR	Value	Comment
Series Number	0020,0011	IS		""
Series Date	0008,0021	DA		Image series identification on result views.
Series Time	0008,0031	TM		""
Protocol Name	0018,1030	LO		""
Performed Procedure Step Description	0040,0254	LO		""
Attribute Name	Tag	VR	Value	Comment
Content Date	0008,0023	DA		""
Content Time	0008,0033	TM		Movie synchronization and annotation. Determination of dynamic time corresponding to a dynamic index.
Attribute Name	Tag	VR	Value	Comment
Trigger Time	0018,1060	DS		Movie synchronization and annotation. Determination of trigger delay time corresponding to a phase number.
Heart Rate	0018,1088	IS		For annotation and determination of the RR interval.
Temporal Position Identifier	0020,0100	IS		To determine the dynamic number. Used for annotation and dimension reduction.

#### 9.1.2.5. Usage of the Functionality First Pass Enhancement Compare Analysis

The following SOP class is used by the First Pass Enhancement Compare Analysis functionality.

**Table 250: Supported SOP Classes for functionality First Pass Enhancement Compare Analysis**

SOP Class name	SOP Class UID
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4

**Table 251: Supported Optional attributes of functionality First Pass Enhancement Compare Analysis**

Attribute Name	Tag	VR	Value	Comment
Series Number	0020,0011	IS		""
Series Date	0008,0021	DA		Image series identification on result views.
Series Time	0008,0031	TM		""
Protocol Name	0018,1030	LO		""
Performed Procedure Step Description	0040,0254	LO		""
Attribute Name	Tag	VR	Value	Comment
Content Date	0008,0023	DA		""
Content Time	0008,0033	TM		Movie synchronization and annotation. Determination of dynamic time corresponding to a dynamic index.
Attribute Name	Tag	VR	Value	Comment
Trigger Time	0018,1060	DS		Movie synchronization and annotation. Determination of trigger delay time corresponding to a phase number.
Heart Rate	0018,1088	IS		For annotation and determination of the RR interval.
Temporal Position Identifier	0020,0100	IS		To determine the dynamic number. Used for annotation and dimension reduction.

**9.1.2.6. Usage of the Functionality Late Enhancement Analysis**

The following SOP class is used by the Late Enhancement Analysis functionality.

**Table 252: Supported SOP Classes for functionality Late Enhancement Analysis**

SOP Class name	SOP Class UID
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4

**Table 253: Supported Optional attributes of functionality Late Enhancement Analysis**

Attribute Name	Tag	VR	Value	Comment
Series Number	0020,0011	IS		""
Series Date	0008,0021	DA		Image series identification on result views.
Series Time	0008,0031	TM		""
Protocol Name	0018,1030	LO		""



Performed Procedure Step Description	0040,0254	LO		""
Attribute Name	Tag	VR	Value	Comment
Content Date	0008,0023	DA		""
Content Time	0008,0033	TM		Movie synchronization and annotation. Determination of dynamic time corresponding to a dynamic index.
Attribute Name	Tag	VR	Value	Comment
Trigger Time	0018,1060	DS		Movie synchronization and annotation. Determination of trigger delay time corresponding to a phase number.
Heart Rate	0018,1088	IS		For annotation and determination of the RR interval.
Temporal Position Identifier	0020,0100	IS		To determine the dynamic number. Used for annotation and dimension reduction.

**9.1.2.7. Usage of the Functionality Quad Movie**

The following SOP class is used by the Quad Movie functionality.

**Table 254: Supported SOP Classes for functionality Quad Movie**

SOP Class name	SOP Class UID
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4

**Table 255: Supported Optional attributes of functionality Quad Movie**

Attribute Name	Tag	VR	Value	Comment
Series Number	0020,0011	IS		""
Series Date	0008,0021	DA		Image series identification on result views.
Series Time	0008,0031	TM		""
Protocol Name	0018,1030	LO		""
Performed Procedure Step Description	0040,0254	LO		""
Attribute Name	Tag	VR	Value	Comment
Content Date	0008,0023	DA		""
Content Time	0008,0033	TM		Movie synchronization and annotation. Determination of dynamic time corresponding to a dynamic index.
Attribute Name	Tag	VR	Value	Comment
Trigger Time	0018,1060	DS		Movie synchronization and annotation. Determination of trigger delay time corresponding to a phase number.
Heart Rate	0018,1088	IS		For annotation and determination of the RR interval.
Temporal Position Identifier	0020,0100	IS		To determine the dynamic number. Used for annotation and dimension reduction.

**9.1.3. Attribute Mapping**

NA

**9.1.4. Coerced/Modified fields**

NA

**9.2. Data Dictionary of Private Attributes**

NA

**9.3. Coded Terminology and Templates**

NA

**9.4. Grayscale Image consistency**

NA

**9.5. Standard Extended/Specialized/Private SOPs**

NA

**9.6. Private Transfer Syntaxes**

NA

## 10. ANNEXES OF APPLICATION "CTMR PERFUSION"

### 10.1. IOD Contents

#### 10.1.1. Created SOP Instance

This section specifies each IOD created (including private IODs).

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 256: List of created SOP Classes**

SOP Class Name	SOP Class UID
CT Synthetic Image Storage (Private)	1.3.46.670589.5.0.9
MR Synthetic Image Storage (Private)	1.3.46.670589.5.0.10
Perfusion Image Storage (Private)	1.3.46.670589.5.0.14
Perfusion (Private)	1.3.46.670589.5.0.13

#### 10.1.2. Usage of Attributes from Received IOD

**Table 257: Functionalities**

Functionality	Type1	Optional	Private
Basic CTMR Perfusion			X

Brain Perfusion			X
Quantitative Magnetization Transfer Analysis			X
BOLD Analysis			X
General Application		X	
CT Dynamic Contrast Application			X
MR Dynamic Contrast Application			X

**10.1.2.1. Usage of the Functionality Basic CTMR Perfusion**

The following SOP classes are used by the CT/MR Perfusion functionality.

**Table 258: Supported SOP Classes for functionality Basic CTMR Perfusion**

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

**Table 259: Supported Optional attributes of functionality Basic CTMR Perfusion**

Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		should be ORIGINAL
Attribute Name	Tag	VR	Value	Comment
Instance Number	0020,0013	IS		For slice identification
Content Date	0008,0023	DA		Date of the dynamic
Content Time	0008,0033	TM		Time of the dynamic
Attribute Name	Tag	VR	Value	Comment
Instance Number	0020,0013	IS		For slice identification
Content Date	0008,0023	DA		Date of the dynamic
Content Time	0008,0033	TM		Time of the dynamic
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		should be ORIGINAL
Temporal Position Identifier	0020,0100	IS		number of the dynamic

**10.1.2.2. Usage of the Functionality Brain Perfusion**

The following SOP class is used by the Brain Perfusion functionality.

**Table 260: Supported SOP Classes for functionality Brain Perfusion**

SOP Class name	SOP Class UID
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4

**Table 261: Supported Optional attributes of functionality Brain Perfusion**

Attribute Name	Tag	VR	Value	Comment
Instance Number	0020,0013	IS		For slice identification
Content Date	0008,0023	DA		Date of the dynamic
Content Time	0008,0033	TM		Time of the dynamic
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		should be ORIGINAL
Temporal Position Identifier	0020,0100	IS		number of the dynamic

**10.1.2.3. Usage of the Functionality Quantitative Magnetization Transfer Analysis**

The following SOP class is used by the Magnetization Transfer Analysis functionality.

**Table 262: Supported SOP Classes for functionality Quantitative Magnetization Transfer Analysis**

SOP Class name	SOP Class UID
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4

**Table 263: Supported Optional attributes of functionality Quantitative Magnetization Transfer Analysis**

Attribute Name	Tag	VR	Value	Comment
Instance Number	0020,0013	IS		For slice identification
Content Date	0008,0023	DA		Date of the dynamic
Content Time	0008,0033	TM		Time of the dynamic
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		should be ORIGINAL
Temporal Position Identifier	0020,0100	IS		number of the dynamic

**10.1.2.4. Usage of the Functionality BOLD Analysis**

The following SOP class is used by the BOLD Analysis functionality.

**Table 264: Supported SOP Classes for functionality BOLD Analysis**

SOP Class name	SOP Class UID
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4

**Table 265: Supported Optional attributes of functionality BOLD Analysis**

Attribute Name	Tag	VR	Value	Comment
Instance Number	0020,0013	IS		For slice identification
Content Date	0008,0023	DA		Date of the dynamic
Content Time	0008,0033	TM		Time of the dynamic
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		should be ORIGINAL
Temporal Position Identifier	0020,0100	IS		number of the dynamic

**10.1.2.5. Usage of the Functionality General Application**

The following SOP classes are used by the General Application functionality.

**Table 266: Supported SOP Classes for functionality General Application**

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

**Table 267: Supported Optional attributes of functionality General Application**

Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		should be ORIGINAL
Attribute Name	Tag	VR	Value	Comment
Instance Number	0020,0013	IS		For slice identification
Content Date	0008,0023	DA		Date of the dynamic
Content Time	0008,0033	TM		Time of the dynamic
Attribute Name	Tag	VR	Value	Comment
Instance Number	0020,0013	IS		For slice identification

Content Date	0008,0023	DA		Date of the dynamic
Content Time	0008,0033	TM		Time of the dynamic
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		should be ORIGINAL
Temporal Position Identifier	0020,0100	IS		number of the dynamic

**10.1.2.6. Usage of the Functionality CT Dynamic Contrast Application**

The following SOP class is used by the CT Dynamic Contrast functionality.

**Table 268: Supported SOP Classes for functionality CT Dynamic Contrast Application**

SOP Class name	SOP Class UID
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2

**Table 269: Supported Optional attributes of functionality CT Dynamic Contrast Application**

Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		should be ORIGINAL
Attribute Name	Tag	VR	Value	Comment
Instance Number	0020,0013	IS		For slice identification
Content Date	0008,0023	DA		Date of the dynamic
Content Time	0008,0033	TM		Time of the dynamic

**10.1.2.7. Usage of the Functionality MR Dynamic Contrast Application**

The following SOP class is used by the MR Dynamic Contrast functionality.

**Table 270: Supported SOP Classes for functionality MR Dynamic Contrast Application**

SOP Class name	SOP Class UID
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4

**Table 271: Supported Optional attributes of functionality MR Dynamic Contrast Application**

Attribute Name	Tag	VR	Value	Comment
Instance Number	0020,0013	IS		For slice identification
Content Date	0008,0023	DA		Date of the dynamic
Content Time	0008,0033	TM		Time of the dynamic
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		should be ORIGINAL
Temporal Position Identifier	0020,0100	IS		number of the dynamic

**10.1.3. Attribute Mapping**

NA

**10.1.4. Coerced/Modified fields**

NA

**10.2. Data Dictionary of Private Attributes**

NA

**10.3. Coded Terminology and Templates**

NA

**10.4. Grayscale Image consistency**

NA

**10.5. Standard Extended/Specialized/Private SOPs**

NA

**10.6. Private Transfer Syntaxes**

NA

## 11. ANNEXES OF APPLICATION "SPINE MEASUREMENTS"

### 11.1. IOD Contents

#### 11.1.1. Created SOP Instance

This section specifies each IOD created (including private IODs).

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 272: 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
Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1



11.1.1.2. Softcopy Presentation State Storage SOP Class

Table 273: IOD of Created Softcopy Presentation State Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Curve	Presentation Series Module	
Presentation State	Presentation State Identification Module	
Series	General Series Module	
Equipment	General Equipment Module	

Table 274: Presentation Series Module

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

Table 275: Presentation State Identification Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		ALWAYS		
Content Label	0070,0080	CS		ALWAYS		
Presentation Creation Date	0070,0082	DA		ALWAYS		
Presentation Creation Time	0070,0083	TM		ALWAYS		
Content Description	0070,0081	LO		VNAP		
Content Creator's Name	0070,0084	PN		VNAP		

Table 276: General Series Module

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

Table 277: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP		
Manufacturer's Model Name	0008,1090	LO		ANAP		
Software Version(s)	0018,1020	LO		ANAP		

11.1.1.3. X-Ray Radiofluoroscopic Image Storage SOP Class

Table 278: IOD of Created X-Ray Radiofluoroscopic Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Series	General Series Module	
Equipment	General Equipment Module	
Image	General Image Module	
Image	Image Pixel Module	
Image	X-ray Image Module	
Image	X-Ray Acquisition Module	
Image	SOP Common Module	

**Table 279: General Series Module**

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

**Table 280: General Equipment Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP		
Manufacturer's Model Name	0008,1090	LO		ANAP		
Software Version(s)	0018,1020	LO		ANAP		

**Table 281: General Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Content Date	0008,0023	DA		ANAPCV		
Content Time	0008,0033	TM		ANAPCV		
Patient Orientation	0020,0020	CS		ANAPCV		
Acquisition Date	0008,0022	DA		ANAP		
Acquisition Time	0008,0032	TM		ANAP		

**Table 282: Image Pixel Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Pixel Aspect Ratio	0028,0034	IS		ANAPEV		

**Table 283: X-ray Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Samples per Pixel	0028,0002	US		ALWAYS		
Bits Allocated	0028,0100	US		ALWAYS		
Bits Stored	0028,0101	US		ALWAYS		
High Bit	0028,0102	US		ALWAYS		

**Table 284: X-Ray Acquisition Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Radiation Setting	0018,1155	CS		ALWAYS		
Intensifier Size	0018,1162	DS		ANAP		

**Table 285: SOP Common Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAPEV		
SOP Class UID	0008,0016	UI		ANAPEV		

11.1.1.4. X-Ray Angiographic Image Storage SOP Class

**Table 286: IOD of Created X-Ray Angiographic Image Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Series	General Series Module	
Series	General Series Module	
Equipment	General Equipment Module	
Equipment	General Equipment Module	
Image	Multi-Frame Module	
Image	Multi-Frame Module	
Image	General Image Module	
Image	General Image Module	
Image	Image Pixel Module	
Image	Image Pixel Module	
Image	X-ray Image Module	
Image	X-ray Image Module	
Image	X-Ray Acquisition Module	
Image	X-Ray Acquisition Module	
Image	XA Positioner Module	
Image	XA Positioner Module	
Image	SOP Common Module	
Image	SOP Common Module	

**Table 287: General Series Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS		
Series Instance UID	0020,000E	UI		ALWAYS		
Laterality	0020,0060	CS		ANAPCV		
Series Date	0008,0021	DA		ANAP		
Series Time	0008,0031	TM		ANAP		
Protocol Name	0018,1030	LO		ANAP		

**Table 288: General Series Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS		
Series Instance UID	0020,000E	UI		ALWAYS		
Laterality	0020,0060	CS		ANAPCV		
Series Date	0008,0021	DA		ANAP		
Series Time	0008,0031	TM		ANAP		
Protocol Name	0018,1030	LO		ANAP		

**Table 289: General Equipment Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP		
Manufacturer's Model Name	0008,1090	LO		ANAP		
Software Version(s)	0018,1020	LO		ANAP		

**Table 290: General Equipment Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP		
Manufacturer's Model Name	0008,1090	LO		ANAP		

Software Version(s)	0018,1020	LO		ANAP		
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**Table 291: Multi-Frame Module**

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

**Table 292: Multi-Frame Module**

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

**Table 293: General Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		VNAP		
Content Date	0008,0023	DA		ANAPCV		
Content Time	0008,0033	TM		ANAPCV		
Patient Orientation	0020,0020	CS		ANAPCV		
Acquisition Date	0008,0022	DA		ANAP		
Acquisition Time	0008,0032	TM		ANAP		
Source Image Sequence	0008,2112	SQ		ANAP		
>Referenced SOP Class UID	0008,1150	UI		ANAPEV		
>Referenced SOP Instance UID	0008,1155	UI		ANAPEV		
>Referenced Frame Number	0008,1160	IS		ANAP		
>Purpose of Reference Code Sequence	0040,A170	SQ		ANAPEV		
>>Code Value	0008,0100	SH		ALWAYS		
>>Coding Scheme Designator	0008,0102	SH		ALWAYS		
>>Code Meaning	0008,0104	LO		ALWAYS		
>>Coding Scheme Version	0008,0103	SH		ANAPEV		
>>Mapping Resource	0008,0105	CS		ANAPEV		
>>Context Group Version	0008,0106	DT		ANAPEV		
>>Context Group Local Version	0008,0107	DT		ANAPEV		
>>Context Group Extension Creator UID	0008,010D	UI		ANAPEV		
>>Context Group Extension Flag	0008,010B	CS		ANAP		
>>Context Identifier	0008,010F	CS		ANAP		

**Table 294: General Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		VNAP		
Content Date	0008,0023	DA		ANAPCV		
Content Time	0008,0033	TM		ANAPCV		
Patient Orientation	0020,0020	CS		ANAPCV		
Acquisition Date	0008,0022	DA		ANAP		
Acquisition Time	0008,0032	TM		ANAP		
Source Image Sequence	0008,2112	SQ		ANAP		
>Referenced SOP Class UID	0008,1150	UI		ANAPEV		
>Referenced SOP Instance UID	0008,1155	UI		ANAPEV		
>Referenced Frame Number	0008,1160	IS		ANAP		
>Purpose of Reference Code Sequence	0040,A170	SQ		ANAPEV		
>>Code Value	0008,0100	SH		ALWAYS		
>>Coding Scheme Designator	0008,0102	SH		ALWAYS		
>>Code Meaning	0008,0104	LO		ALWAYS		
>>Coding Scheme Version	0008,0103	SH		ANAPEV		

>>Mapping Resource	0008,0105	CS		ANAPEV		
>>Context Group Version	0008,0106	DT		ANAPEV		
>>Context Group Local Version	0008,0107	DT		ANAPEV		
>>Context Group Extension Creator UID	0008,010D	UI		ANAPEV		
>>Context Group Extension Flag	0008,010B	CS		ANAP		
>>Context Identifier	0008,010F	CS		ANAP		

Table 295: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rows	0028,0010	US		ALWAYS		
Columns	0028,0011	US		ALWAYS		
Samples per Pixel	0028,0002	US		ALWAYS		
Photometric Interpretation	0028,0004	CS		ALWAYS		
Bits Allocated	0028,0100	US		ALWAYS		
Bits Stored	0028,0101	US		ALWAYS		
High Bit	0028,0102	US		ALWAYS		
Pixel Representation	0028,0103	US		ALWAYS		
Pixel Aspect Ratio	0028,0034	IS		ANAPEV		

Table 296: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rows	0028,0010	US		ALWAYS		
Columns	0028,0011	US		ALWAYS		
Samples per Pixel	0028,0002	US		ALWAYS		
Photometric Interpretation	0028,0004	CS		ALWAYS		
Bits Allocated	0028,0100	US		ALWAYS		
Bits Stored	0028,0101	US		ALWAYS		
High Bit	0028,0102	US		ALWAYS		
Pixel Representation	0028,0103	US		ALWAYS		
Pixel Aspect Ratio	0028,0034	IS		ANAPEV		

Table 297: X-ray Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS		ALWAYS		
Samples per Pixel	0028,0002	US		ALWAYS		
Photometric Interpretation	0028,0004	CS		ALWAYS		
Bits Allocated	0028,0100	US		ALWAYS		
High Bit	0028,0102	US		ALWAYS		
Pixel Representation	0028,0103	US		ALWAYS		
Pixel Intensity Relationship	0028,1040	CS		ALWAYS		
Derivation Description	0008,2111	ST		ANAP		

Table 298: X-ray Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS		ALWAYS		
Samples per Pixel	0028,0002	US		ALWAYS		
Photometric Interpretation	0028,0004	CS		ALWAYS		
Bits Allocated	0028,0100	US		ALWAYS		
High Bit	0028,0102	US		ALWAYS		
Pixel Representation	0028,0103	US		ALWAYS		
Pixel Intensity Relationship	0028,1040	CS		ALWAYS		
Derivation Description	0008,2111	ST		ANAP		

**Table 299: X-Ray Acquisition Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Radiation Setting	0018,1155	CS		ALWAYS		
Intensifier Size	0018,1162	DS		ANAP		

**Table 300: X-Ray Acquisition Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Radiation Setting	0018,1155	CS		ALWAYS		
Intensifier Size	0018,1162	DS		ANAP		

**Table 301: XA Positioner Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Positioner Primary Angle	0018,1510	DS		VNAP		
Positioner Secondary Angle	0018,1511	DS		VNAP		
Distance Source to Detector	0018,1110	DS		ANAP		

**Table 302: XA Positioner Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Positioner Primary Angle	0018,1510	DS		VNAP		
Positioner Secondary Angle	0018,1511	DS		VNAP		
Distance Source to Detector	0018,1110	DS		ANAP		

**Table 303: SOP Common Module**

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

**Table 304: SOP Common Module**

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

## 11.1.2. Usage of Attributes from Received IOD

**Table 305: Functionalities**

Functionality	Type1	Optional	Private
Image selection		X	
Run selection		X	
Reconstruction		X	
Viewing		X	
Correction Acquisition source		X	

### 11.1.2.1. Usage of the Functionality Image selection

The following SOP classes are used by the Image selection functionality.

**Table 306: Supported SOP Classes for functionality Image selection**

SOP Class name	SOP Class UID
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1

**Table 307: Supported Optional attributes of functionality Image selection**

Attribute Name	Tag	VR	Value	Comment
Source Image Sequence	0008,2112	SQ		Sorted equal to position within the overlap reconstruction.
>Referenced SOP Class UID	0008,1150	UI		
Attribute Name	Tag	VR	Value	Comment
Station Name	0008,1010	SH		Required if (0018,1000) is not present
Device Serial Number	0018,1000	LO		Used to determine the image source.
Attribute Name	Tag	VR	Value	Comment
Number of Frames	0028,0008	IS		should be 1
Attribute Name	Tag	VR	Value	Comment
Acquisition Date	0008,0022	DA		Use to compare the image date with the calibration date
Attribute Name	Tag	VR	Value	Comment
Rows	0028,0010	US		should be equal for all images
Columns	0028,0011	US		should be equal for all images
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		Last entry should not be equal to: BOLUS_CHASE, SPINE, COLON, LEGS or OVERLAP_RECONSTRUCTION
Bits Allocated	0028,0100	US		Should be equal for all images
Bits Stored	0028,0101	US		Should be equal for all images
High Bit	0028,0102	US		
Derivation Description	0008,2111	ST		Should not contain: BOLUS_CHASE_RECONSTRUCTION, SPINE_RECONSTRUCTION, COLON_RECONSTRUCTION or LEGS_RECONSTRUCTION.
Attribute Name	Tag	VR	Value	Comment
Intensifier Size	0018,1162	DS		Identifies the correct calibration parameters.

#### 11.1.2.2. Usage of the Functionality Run selection

The following SOP classes are used by the Run selection functionality.

**Table 308: Supported SOP Classes for functionality Run selection**

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

**Table 309: Supported Optional attributes of functionality Run selection**

Attribute Name	Tag	VR	Value	Comment
Station Name	0008,1010	SH		Required if (0018,1000) is not present
Device Serial Number	0018,1000	LO		Used to determine the image source.
Attribute Name	Tag	VR	Value	Comment
Number of Frames	0028,0008	IS		should be 1
Attribute Name	Tag	VR	Value	Comment
Acquisition Date	0008,0022	DA		Use to compare the image date with the calibration date
Attribute Name	Tag	VR	Value	Comment
Rows	0028,0010	US		should be equal for all images
Columns	0028,0011	US		should be equal for all images
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		Last entry should not be equal to: BOLUS_CHASE, SPINE, COLON, LEGS or OVERLAP_RECONSTRUCTION
Bits Allocated	0028,0100	US		Should be equal for all images
Bits Stored	0028,0101	US		Should be equal for all images
High Bit	0028,0102	US		
Derivation Description	0008,2111	ST		Should not contain: BOLUS_CHASE_RECONSTRUCTION, SPINE_RECONSTRUCTION, COLON_RECONSTRUCTION or LEGS_RECONSTRUCTION.
Attribute Name	Tag	VR	Value	Comment
Intensifier Size	0018,1162	DS		Identifies the correct calibration parameters.

**11.1.2.3. Usage of the Functionality Reconstruction**

The following SOP classes are used by the Reconstruction functionality.

**Table 310: Supported SOP Classes for functionality Reconstruction**

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



**Table 311: Supported Optional attributes of functionality Reconstruction**

Attribute Name	Tag	VR	Value	Comment
Station Name	0008,1010	SH		Required if (0018,1000) is not present
Device Serial Number	0018,1000	LO		Used to determine the image source.
Attribute Name	Tag	VR	Value	Comment
Number of Frames	0028,0008	IS		should be 1
Attribute Name	Tag	VR	Value	Comment
Acquisition Date	0008,0022	DA		Use to compare the image date with the calibration date
Attribute Name	Tag	VR	Value	Comment
Rows	0028,0010	US		should be equal for all images
Columns	0028,0011	US		should be equal for all images
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		Last entry should not be equal to: BOLUS_CHASE, SPINE, COLON, LEGS or OVERLAP_RECONSTRUCTION
Bits Allocated	0028,0100	US		Should be equal for all images
Bits Stored	0028,0101	US		Should be equal for all images
High Bit	0028,0102	US		
Derivation Description	0008,2111	ST		Should not contain: BOLUS_CHASE_RECONSTRUCTION, SPINE_RECONSTRUCTION, COLON_RECONSTRUCTION or LEGS_RECONSTRUCTION.
Attribute Name	Tag	VR	Value	Comment
Intensifier Size	0018,1162	DS		Identifies the correct calibration parameters.

**11.1.2.4. Usage of the Functionality Viewing**

The following SOP classes are used by the Viewing functionality.

**Table 312: Supported SOP Classes for functionality Viewing**

SOP Class name	SOP Class UID
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2

**Table 313: Supported Optional attributes of functionality Viewing**

Attribute Name	Tag	VR	Value	Comment
Source Image Sequence	0008,2112	SQ		Sorted equal to position within the overlap reconstruction.

Attribute Name	Tag	VR	Value	Comment
>Referenced SOP Class UID	0008,1150	UI		
Station Name	0008,1010	SH		Required if (0018,1000) is not present
Device Serial Number	0018,1000	LO		Used to determine the image source.
Number of Frames	0028,0008	IS		should be 1
Acquisition Date	0008,0022	DA		Use to compare the image date with the calibration date
Rows	0028,0010	US		should be equal for all images
Columns	0028,0011	US		should be equal for all images
Image Type	0008,0008	CS		Last entry should not be equal to: BOLUS_CHASE, SPINE, COLON, LEGS or OVERLAP_RECONSTRUCTION
Bits Allocated	0028,0100	US		Should be equal for all images
Bits Stored	0028,0101	US		Should be equal for all images
High Bit	0028,0102	US		
Derivation Description	0008,2111	ST		Should not contain: BOLUS_CHASE_RECONSTRUCTION, SPINE_RECONSTRUCTION, COLON_RECONSTRUCTION or LEGS_RECONSTRUCTION.
Intensifier Size	0018,1162	DS		Identifies the correct calibration parameters.

**11.1.2.5. Usage of the Functionality Correction Acquisition source**

The following SOP classes are used by the Correction Acquisition source functionality.

**Table 314: Supported SOP Classes for functionality Correction Acquisition source**

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

**Table 315: Supported Optional attributes of functionality Correction Acquisition source**

Attribute Name	Tag	VR	Value	Comment
Station Name	0008,1010	SH		Required if (0018,1000) is not present

Device Serial Number	0018,1000	LO		Used to determine the image source.
Attribute Name	Tag	VR	Value	Comment
Number of Frames	0028,0008	IS		should be 1
Attribute Name	Tag	VR	Value	Comment
Acquisition Date	0008,0022	DA		Use to compare the image date with the calibration date
Attribute Name	Tag	VR	Value	Comment
Rows	0028,0010	US		should be equal for all images
Columns	0028,0011	US		should be equal for all images
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		Last entry should not be equal to: BOLUS_CHASE, SPINE, COLON, LEGS or OVERLAP_RECONSTRUCTION
Bits Allocated	0028,0100	US		Should be equal for all images
Bits Stored	0028,0101	US		Should be equal for all images
High Bit	0028,0102	US		
Derivation Description	0008,2111	ST		Should not contain: BOLUS_CHASE_RECONSTRUCTION, SPINE_RECONSTRUCTION, COLON_RECONSTRUCTION or LEGS_RECONSTRUCTION.
Attribute Name	Tag	VR	Value	Comment
Intensifier Size	0018,1162	DS		Identifies the correct calibration parameters.

**11.1.3. Attribute Mapping**

NA

**11.1.4. Coerced/Modified fields**

NA

**11.2. Data Dictionary of Private Attributes**

NA

**11.3. Coded Terminology and Templates**

NA

**11.4. Grayscale Image consistency**

NA

**11.5. Standard Extended/Specialized/Private SOPs**

NA

## 11.6. Private Transfer Syntaxes

NA

## 12. ANNEXES OF APPLICATION "LEG MEASUREMENTS"

### 12.1. IOD Contents

#### 12.1.1. Created SOP Instance

This section specifies each IOD created (including private IODs).

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 316: List of created SOP Classes**

SOP Class Name	SOP Class UID
Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2

#### 12.1.1.2. Softcopy Presentation State Storage SOP Class

**Table 317: IOD of Created Softcopy Presentation State Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Curve	Graphic Annotation Module	

Curve	Presentation Series Module	
Presentation State	Presentation State Identification Module	
Presentation State	Softcopy Presentation LUT Module	
Presentation State	Softcopy VOI LUT Module	
Curve	Displayed Area Module	
Series	General Series Module	
Equipment	General Equipment Module	

**Table 318: Graphic Annotation Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Graphic Annotation Sequence	0070,0001	SQ		ALWAYS		
>Graphic Layer	0070,0002	CS		ALWAYS		
>Referenced Image Sequence	0008,1140	SQ		ANAPEV		

**Table 319: Presentation Series Module**

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

**Table 320: Presentation State Identification Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		ALWAYS		
Content Label	0070,0080	CS		ALWAYS		
Presentation Creation Date	0070,0082	DA		ALWAYS		
Presentation Creation Time	0070,0083	TM		ALWAYS		
Content Description	0070,0081	LO		VNAP		
Content Creator's Name	0070,0084	PN		VNAP		

**Table 321: Softcopy Presentation LUT Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Presentation LUT Shape	2050,0020	CS		ANAPEV		
Presentation LUT Sequence	2050,0010	SQ		ANAPEV		
>LUT Descriptor	0028,3002	US /SS		ALWAYS		
>LUT Data	0028,3006	US /SS		ALWAYS		
>LUT Explanation	0028,3003	LO		ANAP		

**Table 322: Softcopy VOI LUT Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Softcopy VOI LUT Sequence	0028,3110	SQ		ALWAYS		
>Window Center	0028,1050	DS		ANAPEV		
>Window Width	0028,1051	DS		ANAPEV		
>Window Center & Width Explanation	0028,1055	LO		ANAP		
>VOI LUT Function	0028,1056	CS		ANAP		
>VOI LUT Sequence	0028,3010	SQ		ANAPEV		
>>LUT Descriptor	0028,3002	US /SS		ALWAYS		
>>LUT Data	0028,3006	US /SS		ALWAYS		
>>LUT Explanation	0028,3003	LO		ANAP		

**Table 323: Displayed Area Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Displayed Area Selection Sequence	0070,005A	SQ		ALWAYS		
>Displayed Area Top Left Hand Corner	0070,0052	SL		ALWAYS		
>Displayed Area Bottom Right Hand Corner	0070,0053	SL		ALWAYS		
>Presentation Size Mode	0070,0100	CS		ALWAYS		
>Referenced Image Sequence	0008,1140	SQ		ANAPEV		
>>Referenced SOP Class UID	0008,1150	UI		ALWAYS		
>>Referenced Frame Number	0008,1160	IS		ALWAYS		
>>Referenced SOP Instance UID	0008,1155	UI		ANAPEV		

**Table 324: General Series Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Instance UID	0020,000E	UI		ALWAYS		
Series Number	0020,0011	IS		VNAP		
Laterality	0020,0060	CS		ANAPCV		
Series Date	0008,0021	DA		ANAP		
Series Time	0008,0031	TM		ANAP		

**Table 325: General Equipment Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP		
Manufacturer's Model Name	0008,1090	LO		ANAP		
Software Version(s)	0018,1020	LO		ANAP		

**12.1.1.3. X-Ray Angiographic Image Storage SOP Class****Table 326: IOD of Created X-Ray Angiographic Image Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Series	General Series Module	
Equipment	General Equipment Module	
Image	Multi-Frame Module	
Image	General Image Module	
Image	Image Pixel Module	
Image	X-ray Image Module	
Image	X-Ray Acquisition Module	
Image	XA Positioner Module	
Image	SOP Common Module	
Image	Modality LUT Module	

**Table 327: General Series Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS	COPY	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	Created
Series Number	0020,0011	IS		VNAP	COPY	Modified
Laterality	0020,0060	CS		ANAPCV	COPY	
Series Date	0008,0021	DA		ANAP	COPY	

Series Time	0008,0031	TM		ANAP	COPY	
Protocol Name	0018,1030	LO		ANAP	COPY	

**Table 328: General Equipment Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP	COPY	
Manufacturer's Model Name	0008,1090	LO		ANAP	COPY	
Software Version(s)	0018,1020	LO		ANAP	COPY	

**Table 329: Multi-Frame Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Frames	0028,0008	IS		ALWAYS	AUTO	Set to 1

**Table 330: General Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		VNAP	AUTO	Set to 1
Content Date	0008,0023	DA		ANAPCV	COPY	
Content Time	0008,0033	TM		ANAPCV	COPY	
Patient Orientation	0020,0020	CS		ANAPCV	COPY	
Acquisition Date	0008,0022	DA		ANAP	COPY	
Acquisition Time	0008,0032	TM		ANAP	COPY	
Acquisition Number	0020,0012	IS		ANAP	COPY	
Source Image Sequence	0008,2112	SQ		ANAP	AUTO	Sorted
>Referenced SOP Class UID	0008,1150	UI		ANAPEV	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ANAPEV	AUTO	
>Referenced Frame Number	0008,1160	IS		ANAP	AUTO	

**Table 331: Image Pixel Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rows	0028,0010	US		ALWAYS	AUTO	
Columns	0028,0011	US		ALWAYS	AUTO	
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	
Pixel Aspect Ratio	0028,0034	IS		ANAPEV	AUTO	

**Table 332: X-ray Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS		ALWAYS	AUTO	DERIVED, SECONDARY, SINGLE PLANE, LEGS
Samples per Pixel	0028,0002	US		ALWAYS	COPY	
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	Set to MONOCHROME2
Bits Allocated	0028,0100	US		ALWAYS	COPY	
Bits Stored	0028,0101	US		ALWAYS	COPY	
High Bit	0028,0102	US		ALWAYS	COPY	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	Set to 0
Pixel Intensity Relationship	0028,1040	CS		ALWAYS	AUTO	Set to DISP
Derivation Description	0008,2111	ST		ANAP	AUTO	Set to LEGS_RECONSTRUCTI ON



**Table 333: X-Ray Acquisition Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Radiation Setting	0018,1155	CS		ALWAYS	COPY	
Intensifier Size	0018,1162	DS		ANAP	COPY	

**Table 334: XA Positioner Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Positioner Primary Angle	0018,1510	DS		VNAP	COPY	
Positioner Secondary Angle	0018,1511	DS		VNAP	COPY	
Distance Source to Detector	0018,1110	DS		ANAP	COPY	

**Table 335: SOP Common Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAPEV	COPY	
SOP Class UID	0008,0016	UI		ANAPEV	COPY	
Instance Creation Date	0008,0012	DA		ANAP	AUTO	Date of reconstruction
Instance Creation Time	0008,0013	TM		ANAP	AUTO	Time of reconstruction
Instance Creator UID	0008,0014	UI		ANAP	AUTO	
Instance Number	0020,0013	IS		ANAP	AUTO	Set to 1

**Table 336: Modality LUT Module**

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

**12.1.1.4. X-Ray Radiofluoroscopic Image Storage SOP Class**

**Table 337: IOD of Created X-Ray Radiofluoroscopic Image Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Series	General Series Module	
Equipment	General Equipment Module	
Image	Multi-Frame Module	
Image	General Image Module	
Image	Image Pixel Module	
Image	X-ray Image Module	
Image	X-Ray Acquisition Module	
Image	SOP Common Module	
Image	Modality LUT Module	

**Table 338: General Series Module**

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

**Table 339: General Equipment Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP	COPY	
Manufacturer's Model Name	0008,1090	LO		ANAP	COPY	
Software Version(s)	0018,1020	LO		ANAP	COPY	

**Table 340: Multi-Frame Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Frames	0028,0008	IS		ALWAYS	AUTO	Set to 1

**Table 341: General Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		VNAP	AUTO	Set to 1
Content Date	0008,0023	DA		ANAPCV	COPY	
Content Time	0008,0033	TM		ANAPCV	COPY	
Patient Orientation	0020,0020	CS		ANAPCV	COPY	
Acquisition Date	0008,0022	DA		ANAP	COPY	
Acquisition Number	0020,0012	IS		ANAP	COPY	
Source Image Sequence	0008,2112	SQ		ANAP	AUTO	Sorted equal to position within the overlap re construction
>Referenced SOP Class UID	0008,1150	UI		ANAPEV	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ANAPEV	AUTO	
>Referenced Frame Number	0008,1160	IS		ANAP	AUTO	

**Table 342: Image Pixel Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rows	0028,0010	US		ALWAYS	AUTO	Are set to the size of the overview image
Columns	0028,0011	US		ALWAYS	AUTO	Are set to the size of the
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	

**Table 343: X-ray Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS		ALWAYS	AUTO	DERIVED, SECONDARY, SINGLE PLANE, LEGS
Samples per Pixel	0028,0002	US		ALWAYS	COPY	
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	Set to MONOCHROME2
Bits Allocated	0028,0100	US		ALWAYS	COPY	
Bits Stored	0028,0101	US		ALWAYS	COPY	
High Bit	0028,0102	US		ALWAYS	COPY	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	Set to 0
Pixel Intensity Relationship	0028,1040	CS		ALWAYS	AUTO	Set to DISP
Derivation Description	0008,2111	ST		ANAP	AUTO	Is set to LEGS_RECONSTRUCTI ON

**Table 344: X-Ray Acquisition Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Radiation Mode	0018,115A	CS		ANAP		

**Table 345: SOP Common Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAPEV	COPY	
SOP Class UID	0008,0016	UI		ANAPEV	COPY	
Instance Creation Date	0008,0012	DA		ANAP	AUTO	Set to date of reconstruction
Instance Creation Time	0008,0013	TM		ANAP	AUTO	Set to time of reconstruction
Instance Number	0020,0013	IS		ANAP	AUTO	Set to 1

**Table 346: Modality LUT Module**

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

## 12.1.2. Usage of Attributes from Received IOD

**Table 347: Functionalities**

Functionality	Type1	Optional	Private
Image selection		X	
Run selection		X	
Reconstruction		X	
Viewing			X

### 12.1.2.1. Usage of the Functionality Image selection

The following SOP classes are used by the Image selection functionality.

**Table 348: Supported SOP Classes for functionality Image selection**

SOP Class name	SOP Class UID
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2

**Table 349: Supported Optional attributes of functionality Image selection**

Attribute Name	Tag	VR	Value	Comment
Source Image Sequence	0008,2112	SQ		Sorted equal to position within the overlap reconstruction
>Referenced SOP Class UID	0008,1150	UI		

Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		Last entry should not be equal to: BOLUS_CHASE, SPINE, COLON, LEGS or OVERLAP_RECONSTRUCTION
Derivation Description	0008,2111	ST		Should not contain: BOLUS_CHASE_RECONSTRUCTION, SPINE_RECONSTRUCTION, COLON_RECONSTRUCTION or LEGS_RECONSTRUCTION

**12.1.2.2. Usage of the Functionality Run selection**

The following SOP classes are used by the Run selection functionality.

**Table 350: Supported SOP Classes for functionality Run selection**

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

**Table 351: Supported Optional attributes of functionality Run selection**

Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		Last entry should not be equal to: BOLUS_CHASE, SPINE, COLON, LEGS or OVERLAP_RECONSTRUCTION
Derivation Description	0008,2111	ST		Should not contain: BOLUS_CHASE_RECONSTRUCTION, SPINE_RECONSTRUCTION, COLON_RECONSTRUCTION or LEGS_RECONSTRUCTION

**12.1.2.3. Usage of the Functionality Reconstruction**

The following SOP classes are used by the Reconstruction functionality.

**Table 352: Supported SOP Classes for functionality Reconstruction**

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

**Table 353: Supported Optional attributes of functionality Reconstruction**

Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		Last entry should not be equal to: BOLUS_CHASE, SPINE, COLON, LEGS or OVERLAP_RECONSTRUCTION

Derivation Description	0008,2111	ST		Should not contain: BOLUS_CHASE_RECO NSTRUCTION, SPINE_RECONSTRUCT ION, COLON_RECONSTRUC TION or LEGS_RECONSTRUCTI ON
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**12.1.2.4. Usage of the Functionality Viewing**

The following SOP classes are used by the Viewing functionality.

**Table 354: Supported SOP Classes for functionality Viewing**

SOP Class name	SOP Class UID
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2

**Table 355: Supported Optional attributes of functionality Viewing**

Attribute Name	Tag	VR	Value	Comment
Source Image Sequence	0008,2112	SQ		Sorted equal to position within the overlap reconstruction
>Referenced SOP Class UID	0008,1150	UI		
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		Last entry should not be equal to: BOLUS_CHASE, SPINE, COLON, LEGS or OVERLAP_RECONSTRUCTION
Derivation Description	0008,2111	ST		Should not contain: BOLUS_CHASE_RECO NSTRUCTION, SPINE_RECONSTRUCT ION, COLON_RECONSTRUC TION or LEGS_RECONSTRUCTI ON

**12.1.3. Attribute Mapping**

NA

**12.1.4. Coerced/Modified fields**

NA

**12.2. Data Dictionary of Private Attributes**

NA

**12.3. Coded Terminology and Templates**

NA

**12.4. Grayscale Image consistency**

NA

**12.5. Standard Extended/Specialized/Private SOPs**

NA

**12.6. Private Transfer Syntaxes**

NA

## 13. ANNEXES OF APPLICATION "BOLUS CHASE RECONSTRUCTION"

### 13.1. IOD Contents

#### 13.1.1. Created SOP Instance

This section specifies each IOD created (including private IODs).

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

#### 13.1.1.1. List of created SOP Classes

**Table 356: List of created SOP Classes**

SOP Class Name	SOP Class UID
Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2

## 13.1.1.2. Softcopy Presentation State Storage SOP Class

Table 357: IOD of Created Softcopy Presentation State Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Curve	Displayed Area Module	
Curve	Graphic Annotation Module	
Curve	Presentation Series Module	
Presentation State	Presentation State Identification Module	
Presentation State	Softcopy Presentation LUT Module	
Presentation State	Softcopy VOI LUT Module	
Series	General Series Module	
Equipment	General Equipment Module	

Table 358: Displayed Area Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Displayed Area Selection Sequence	0070,005A	SQ		ALWAYS	AUTO	zoomed to shutters
>Displayed Area Top Left Hand Corner	0070,0052	SL		ALWAYS	AUTO	
>Displayed Area Bottom Right Hand Corner	0070,0053	SL		ALWAYS	AUTO	
>Presentation Size Mode	0070,0100	CS		ALWAYS		
>Presentation Pixel Spacing	0070,0101	DS		ANAPEV		
>Presentation Pixel Aspect Ratio	0070,0102	IS		ANAPEV		
>Presentation Pixel Magnification Ratio	0070,0103	FL		ANAPEV		
>Referenced Image Sequence	0008,1140	SQ		ANAPEV		
>>Referenced SOP Class UID	0008,1150	UI		ALWAYS		
>>Referenced Frame Number	0008,1160	IS		ALWAYS		
>>Referenced SOP Instance UID	0008,1155	UI		ANAPEV		

Table 359: Graphic Annotation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Graphic Annotation Sequence	0070,0001	SQ		ALWAYS	COPY	Modified. Annotations of the last input image are copied. Graphic lines are added where the match between the successive source images is not OK in any way.
>Graphic Layer	0070,0002	CS		ALWAYS	COPY	
>Referenced Image Sequence	0008,1140	SQ		ANAPEV	COPY	
>Text Object Sequence	0070,0008	SQ		ANAPEV	COPY	
>>Unformatted Text Value	0070,0006	ST		ALWAYS	COPY	
>Graphic Object Sequence	0070,0009	SQ		ANAPEV	COPY	
>>Graphic Annotation Units	0070,0005	CS		ALWAYS	COPY	
>>Graphic Dimensions	0070,0020	US		ALWAYS	COPY	
>>Number of Graphics Points	0070,0021	US		ALWAYS	COPY	
>>Graphic Data	0070,0022	FL		ALWAYS	COPY	
>>Graphic Type	0070,0023	CS		ALWAYS	COPY	



**Table 360: Presentation Series Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS	AUTO	set to PR

**Table 361: Presentation State Identification Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		ALWAYS	AUTO	set to 1
Content Label	0070,0080	CS		ALWAYS	AUTO	set to NONE
Presentation Creation Date	0070,0082	DA		ALWAYS	AUTO	set to date of reconstruction
Presentation Creation Time	0070,0083	TM		ALWAYS	AUTO	set to time of reconstruction
Content Description	0070,0081	LO		VNAP	AUTO	
Content Creator's Name	0070,0084	PN		VNAP	AUTO	set to "BOLUS_CHASE_RECONSTRUCTION"

**Table 362: Softcopy Presentation LUT Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Presentation LUT Shape	2050,0020	CS		ANAPEV	COPY	
Presentation LUT Sequence	2050,0010	SQ		ANAPEV	COPY	
>LUT Descriptor	0028,3002	US /SS		ALWAYS	COPY	
>LUT Data	0028,3006	US /SS		ALWAYS	COPY	
>LUT Explanation	0028,3003	LO		ANAP	COPY	

**Table 363: Softcopy VOI LUT Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Softcopy VOI LUT Sequence	0028,3110	SQ		ALWAYS	COPY	
>Referenced Image Sequence	0008,1140	SQ		ANAPEV	COPY	
>Window Center	0028,1050	DS		ANAPEV	COPY	
>Window Width	0028,1051	DS		ANAPEV	COPY	
>Window Center & Width Explanation	0028,1055	LO		ANAP	COPY	
>VOI LUT Function	0028,1056	CS		ANAP	COPY	
>VOI LUT Sequence	0028,3010	SQ		ANAPEV	COPY	
>>LUT Descriptor	0028,3002	US /SS		ALWAYS	COPY	
>>LUT Data	0028,3006	US /SS		ALWAYS	COPY	
>>LUT Explanation	0028,3003	LO		ANAP	COPY	

**Table 364: General Series Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		VNAP	COPY	modified
Series Date	0008,0021	DA		ANAP	AUTO	set to date of reconstruction
Series Time	0008,0031	TM		ANAP	AUTO	set to time of reconstruction

**Table 365: General Equipment Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP	COPY	
Manufacturer's Model Name	0008,1090	LO		ANAP	COPY	
Software Version(s)	0018,1020	LO		ANAP	COPY	

**13.1.1.3. X-Ray Angiographic Image Storage SOP Class****Table 366: IOD of Created X-Ray Angiographic Image Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Series	General Series Module	
Equipment	General Equipment Module	
Image	Multi-Frame Module	
Image	General Image Module	
Image	Image Pixel Module	
Image	X-ray Image Module	
Image	X-Ray Acquisition Module	
Image	XA Positioner Module	
Image	SOP Common Module	
Image	Modality LUT Module	

**Table 367: General Series Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS	COPY	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		VNAP	COPY	Modified, Copied from input and increased with 100.
Laterality	0020,0060	CS		ANAPCV	COPY	
Series Date	0008,0021	DA		ANAP	COPY	
Series Time	0008,0031	TM		ANAP	COPY	
Protocol Name	0018,1030	LO		ANAP	COPY	

**Table 368: General Equipment Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP	COPY	
Manufacturer's Model Name	0008,1090	LO		ANAP	COPY	
Software Version(s)	0018,1020	LO		ANAP	COPY	

**Table 369: Multi-Frame Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Frames	0028,0008	IS		ALWAYS	AUTO	Set to 1

**Table 370: General Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Content Date	0008,0023	DA		ANAPCV	COPY	
Content Time	0008,0033	TM		ANAPCV	COPY	
Patient Orientation	0020,0020	CS		ANAPCV	COPY	
Acquisition Date	0008,0022	DA		ANAP	COPY	

Acquisition Number	0020,0012	IS		ANAP	COPY	
Source Image Sequence	0008,2112	SQ		ANAP	COPY	
>Referenced SOP Class UID	0008,1150	UI		ANAPEV	COPY	
>Referenced SOP Instance UID	0008,1155	UI		ANAPEV	COPY	
>Referenced Frame Number	0008,1160	IS		ANAP	COPY	
>Purpose of Reference Code Sequence	0040,A170	SQ		ANAPEV	COPY	
>>Code Value	0008,0100	SH		ALWAYS	COPY	
>>Coding Scheme Designator	0008,0102	SH		ALWAYS	COPY	
>>Code Meaning	0008,0104	LO		ALWAYS	COPY	

**Table 371: Image Pixel Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rows	0028,0010	US		ALWAYS	AUTO	
Columns	0028,0011	US		ALWAYS	AUTO	
Pixel Aspect Ratio	0028,0034	IS		ANAPEV	COPY	

**Table 372: X-ray Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS		ALWAYS	AUTO	Set to the following: entry(0) = DERIVED, entry(1) = SECONDARY, entry(2) = SINGLE PLANE, entry(3) = BOLUS_CHASE.
Samples per Pixel	0028,0002	US		ALWAYS	COPY	
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	Set to MONOCHROME2
Bits Allocated	0028,0100	US		ALWAYS	COPY	
Bits Stored	0028,0101	US		ALWAYS	COPY	
High Bit	0028,0102	US		ALWAYS	COPY	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	Set to 0
Pixel Intensity Relationship	0028,1040	CS		ALWAYS	AUTO	Set to DISP
Derivation Description	0008,2111	ST		ANAP	AUTO	Set to BOLUS_CHASE_RECO NSTRUCTION

**Table 373: X-Ray Acquisition Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Radiation Setting	0018,1155	CS		ALWAYS	COPY	
Intensifier Size	0018,1162	DS		ANAP	COPY	

**Table 374: XA Positioner Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Positioner Primary Angle	0018,1510	DS		VNAP	COPY	
Positioner Secondary Angle	0018,1511	DS		VNAP	COPY	
Distance Source to Detector	0018,1110	DS		ANAP	COPY	

**Table 375: SOP Common Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAPEV	COPY	
SOP Class UID	0008,0016	UI		ANAPEV	COPY	
Instance Creation Date	0008,0012	DA		ANAP	AUTO	Set to Date of Reconstruction

Instance Creation Time	0008,0013	TM		ANAP	AUTO	Set to Time of Reconstruction
Instance Number	0020,0013	IS		ANAP	AUTO	Set to 1

**Table 376: Modality LUT Module**

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

**13.1.1.4. X-Ray Radiofluoroscopic Image Storage SOP Class****Table 377: IOD of Created X-Ray Radiofluoroscopic Image Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Series	General Series Module	
Equipment	General Equipment Module	
Image	Multi-Frame Module	
Image	General Image Module	
Image	Image Pixel Module	
Image	X-ray Image Module	
Image	X-Ray Acquisition Module	
Image	SOP Common Module	
Image	Modality LUT Module	

**Table 378: General Series Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS	COPY	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		VNAP	COPY	Modified
Laterality	0020,0060	CS		ANAPCV	COPY	
Series Date	0008,0021	DA		ANAP	COPY	
Series Time	0008,0031	TM		ANAP	COPY	

**Table 379: General Equipment Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP	COPY	
Manufacturer's Model Name	0008,1090	LO		ANAP	COPY	
Software Version(s)	0018,1020	LO		ANAP	COPY	

**Table 380: Multi-Frame Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Frames	0028,0008	IS		ALWAYS	AUTO	Set to 1

**Table 381: General Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		VNAP	AUTO	
Content Date	0008,0023	DA		ANAPCV	COPY	
Content Time	0008,0033	TM		ANAPCV	COPY	
Patient Orientation	0020,0020	CS		ANAPCV	COPY	
Acquisition Date	0008,0022	DA		ANAP	COPY	

Acquisition Time	0008,0032	TM		ANAP	COPY	
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**Table 382: Image Pixel Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rows	0028,0010	US		ALWAYS	AUTO	
Columns	0028,0011	US		ALWAYS	AUTO	
Pixel Data	7FE0,0010	O W/ OB		ALWAYS	AUTO	
Pixel Aspect Ratio	0028,0034	IS		ANAPEV	COPY	

**Table 383: X-ray Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS		ALWAYS	AUTO	DERIVED, SECONDARY, SINGLE PLANE, BOLUS_CHASE
Samples per Pixel	0028,0002	US		ALWAYS	COPY	
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	Set to MONOCHROME2
Bits Allocated	0028,0100	US		ALWAYS	COPY	
Bits Stored	0028,0101	US		ALWAYS	COPY	
High Bit	0028,0102	US		ALWAYS	COPY	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	Set to 0
Pixel Intensity Relationship	0028,1040	CS		ALWAYS	AUTO	Set to DISP
Derivation Description	0008,2111	ST		ANAP	AUTO	set to BOLUS_CHASE_RECONSTRUCTION

**Table 384: X-Ray Acquisition Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Radiation Setting	0018,1155	CS		ALWAYS	COPY	

**Table 385: SOP Common Module**

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

**Table 386: Modality LUT Module**

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

### 13.1.2. Usage of Attributes from Received IOD

**Table 387: Functionalities**

Functionality	Type1	Optional	Private
Image selection		X	
Run selection		X	
Reconstruction		X	
Manual Composition		X	
Viewing		X	

Information reconstruction		X	
Correction acquisition source		X	

**13.1.2.1. Usage of the Functionality Image selection**

The following SOP classes are used by the Image selection functionality.

**Table 388: Supported SOP Classes for functionality Image selection**

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

**Table 389: Supported Optional attributes of functionality Image selection**

Attribute Name	Tag	VR	Value	Comment
Station Name	0008,1010	SH		Required if (0x0018, 1000) is not present
Device Serial Number	0018,1000	LO		Used to determine the image source
Attribute Name	Tag	VR	Value	Comment
Number of Frames	0028,0008	IS		Should be 1.
Attribute Name	Tag	VR	Value	Comment
Acquisition Date	0008,0022	DA		Used to compare image date with the calibration date
Source Image Sequence	0008,2112	SQ		
>Referenced SOP Class UID	0008,1150	UI		

**13.1.2.2. Usage of the Functionality Run selection**

The following SOP classes are used by the Run selection functionality.

**Table 390: Supported SOP Classes for functionality Run selection**

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

**Table 391: Supported Optional attributes of functionality Run selection**

Attribute Name	Tag	VR	Value	Comment
Station Name	0008,1010	SH		Required if (0x0018, 1000) is not present
Device Serial Number	0018,1000	LO		Used to determine the image source
Attribute Name	Tag	VR	Value	Comment
Number of Frames	0028,0008	IS		Should be 1.
Attribute Name	Tag	VR	Value	Comment
Acquisition Date	0008,0022	DA		Used to compare image date with the calibration date
Source Image Sequence	0008,2112	SQ		
>Referenced SOP Class UID	0008,1150	UI		

### 13.1.2.3. Usage of the Functionality Reconstruction

The following SOP classes are used by the Reconstruction functionality.

**Table 392: Supported SOP Classes for functionality Reconstruction**

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

**Table 393: Supported Optional attributes of functionality Reconstruction**

Attribute Name	Tag	VR	Value	Comment
Station Name	0008,1010	SH		Required if (0x0018, 1000) is not present
Device Serial Number	0018,1000	LO		Used to determine the image source
Attribute Name	Tag	VR	Value	Comment
Number of Frames	0028,0008	IS		Should be 1.
Attribute Name	Tag	VR	Value	Comment
Acquisition Date	0008,0022	DA		Used to compare image date with the calibration date
Source Image Sequence	0008,2112	SQ		
>Referenced SOP Class UID	0008,1150	UI		

### 13.1.2.4. Usage of the Functionality Manual Composition

The following SOP classes are used by the Manual Composition functionality.

**Table 394: Supported SOP Classes for functionality Manual Composition**

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

**Table 395: Supported Optional attributes of functionality Manual Composition**

Attribute Name	Tag	VR	Value	Comment
Station Name	0008,1010	SH		Required if (0x0018, 1000) is not present
Device Serial Number	0018,1000	LO		Used to determine the image source
Attribute Name	Tag	VR	Value	Comment
Number of Frames	0028,0008	IS		Should be 1.
Attribute Name	Tag	VR	Value	Comment
Acquisition Date	0008,0022	DA		Used to compare image date with the calibration date
Source Image Sequence	0008,2112	SQ		
>Referenced SOP Class UID	0008,1150	UI		

### 13.1.2.5. Usage of the Functionality Viewing

The following SOP classes are used by the Viewing functionality.

**Table 396: Supported SOP Classes for functionality Viewing**

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

**Table 397: Supported Optional attributes of functionality Viewing**

Attribute Name	Tag	VR	Value	Comment
Station Name	0008,1010	SH		Required if (0x0018, 1000) is not present
Device Serial Number	0018,1000	LO		Used to determine the image source
Attribute Name	Tag	VR	Value	Comment
Number of Frames	0028,0008	IS		Should be 1.
Attribute Name	Tag	VR	Value	Comment
Acquisition Date	0008,0022	DA		Used to compare image date with the calibration date
Source Image Sequence	0008,2112	SQ		
>Referenced SOP Class UID	0008,1150	UI		

**13.1.2.6. Usage of the Functionality Information reconstruction**

The following SOP classes are used by the Information Reconstruction functionality.

**Table 398: Supported SOP Classes for functionality Information reconstruction**

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

**Table 399: Supported Optional attributes of functionality Information reconstruction**

Attribute Name	Tag	VR	Value	Comment
Station Name	0008,1010	SH		Required if (0x0018, 1000) is not present
Device Serial Number	0018,1000	LO		Used to determine the image source
Attribute Name	Tag	VR	Value	Comment
Number of Frames	0028,0008	IS		Should be 1.
Attribute Name	Tag	VR	Value	Comment
Acquisition Date	0008,0022	DA		Used to compare image date with the calibration date
Source Image Sequence	0008,2112	SQ		
>Referenced SOP Class UID	0008,1150	UI		

**13.1.2.7. Usage of the Functionality Correction acquisition source**

The following SOP classes are used by the Correction acquisition source functionality.



**Table 400: Supported SOP Classes for functionality Correction acquisition source**

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

**Table 401: Supported Optional attributes of functionality Correction acquisition source**

Attribute Name	Tag	VR	Value	Comment
Station Name	0008,1010	SH		Required if (0x0018, 1000) is not present
Device Serial Number	0018,1000	LO		Used to determine the image source
Attribute Name	Tag	VR	Value	Comment
Number of Frames	0028,0008	IS		Should be 1.
Attribute Name	Tag	VR	Value	Comment
Acquisition Date	0008,0022	DA		Used to compare image date with the calibration date
Source Image Sequence	0008,2112	SQ		
>Referenced SOP Class UID	0008,1150	UI		

**13.1.3. Attribute Mapping**

NA

**13.1.4. Coerced/Modified fields**

NA

**13.2. Data Dictionary of Private Attributes**

NA

**13.3. Coded Terminology and Templates**

NA

**13.4. Grayscale Image consistency**

NA

**13.5. Standard Extended/Specialized/Private SOPs**

NA

**13.6. Private Transfer Syntaxes**

NA

## 14. ANNEXES OF APPLICATION "COLON OVERVIEW"

### 14.1. IOD Contents

#### 14.1.1. Created SOP Instance

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

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

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

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

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

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

##### 14.1.1.1. List of created SOP Classes

**Table 402: List of created SOP Classes**

SOP Class Name	SOP Class UID
Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2

##### 14.1.1.2. Softcopy Presentation State Storage SOP Class

**Table 403: IOD of Created Softcopy Presentation State Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Curve	Graphic Annotation Module	
Curve	Presentation Series Module	

Presentation State	Presentation State Identification Module	
Presentation State	Softcopy Presentation LUT Module	
Series	General Series Module	
Equipment	General Equipment Module	

**Table 404: Graphic Annotation Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Graphic Annotation Sequence	0070,0001	SQ		ALWAYS	COPY	Modified
>Graphic Layer	0070,0002	CS		ALWAYS		
>Referenced Image Sequence	0008,1140	SQ		ANAPEV		

**Table 405: Presentation Series Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS	AUTO	Set to "PR"

**Table 406: Presentation State Identification Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		ALWAYS	AUTO	Set to 1
Content Label	0070,0080	CS		ALWAYS	AUTO	Set to "NONE"
Presentation Creation Date	0070,0082	DA		ALWAYS	AUTO	Set to date of reconstruction
Presentation Creation Time	0070,0083	TM		ALWAYS	AUTO	Set to time of reconstruction
Content Description	0070,0081	LO		VNAP	AUTO	
Content Creator's Name	0070,0084	PN		VNAP	AUTO	Set to "COLON_RECONSTRUCTION"

**Table 407: Softcopy Presentation LUT Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Presentation LUT Shape	2050,0020	CS		ANAPEV	COPY	Taken over from the last input image
Presentation LUT Sequence	2050,0010	SQ		ANAPEV	COPY	Taken over from the I
>LUT Descriptor	0028,3002	US/SS		ALWAYS		
>LUT Data	0028,3006	US/SS		ALWAYS		
>LUT Explanation	0028,3003	LO		ANAP		

**Table 408: General Series Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	new
Series Number	0020,0011	IS		VNAP	COPY	Modified
Series Date	0008,0021	DA		ANAP	AUTO	Series of date of reconstruction
Series Time	0008,0031	TM		ANAP	AUTO	Series of date of reconstruction

**Table 409: General Equipment Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP	COPY	
Manufacturer's Model Name	0008,1090	LO		ANAP	COPY	
Software Version(s)	0018,1020	LO		ANAP	COPY	

14.1.1.3. X-Ray Angiographic Image Storage SOP Class

Table 410: IOD of Created X-Ray Angiographic Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Series	General Series Module	
Equipment	General Equipment Module	
Image	Multi-Frame Module	
Image	Multi-Frame Module	
Image	General Image Module	
Image	Image Pixel Module	
Image	X-ray Image Module	
Image	X-Ray Acquisition Module	
Image	XA Positioner Module	
Image	SOP Common Module	
Image	Modality LUT Module	

Table 411: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS	COPY	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	created
Series Number	0020,0011	IS		VNAP	COPY	modified, copied from input and increased with 100
Laterality	0020,0060	CS		ANAPCV	COPY	
Series Date	0008,0021	DA		ANAP	COPY	
Series Time	0008,0031	TM		ANAP	COPY	
Protocol Name	0018,1030	LO		ANAP	COPY	

Table 412: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP	COPY	
Manufacturer's Model Name	0008,1090	LO		ANAP	COPY	
Software Version(s)	0018,1020	LO		ANAP	COPY	

Table 413: Multi-Frame Module

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

Table 414: Multi-Frame Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Frames	0028,0008	IS		ALWAYS	AUTO	Set to 1

Table 415: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		VNAP	AUTO	Set to `
Content Date	0008,0023	DA		ANAPCV	COPY	
Content Time	0008,0033	TM		ANAPCV	COPY	
Acquisition Date	0008,0022	DA		ANAP	COPY	
Acquisition Time	0008,0032	TM		ANAP	COPY	

Source Image Sequence	0008,2112	SQ		ANAP	AUTO	Stored equal to position within the overlap construction.
>Referenced SOP Class UID	0008,1150	UI		ANAPEV		
>Referenced SOP Instance UID	0008,1155	UI		ANAPEV		
>Referenced Frame Number	0008,1160	IS		ANAP		

**Table 416: Image Pixel Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rows	0028,0010	US		ALWAYS	AUTO	Set to the size of the overview image
Rows	0028,0010	US		ALWAYS	AUTO	
Columns	0028,0011	US		ALWAYS	AUTO	
Columns	0028,0011	US		ALWAYS	AUTO	Set to the size of the overview image
Pixel Aspect Ratio	0028,0034	IS		ANAPEV	COPY	

**Table 417: X-ray Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS		ALWAYS	AUTO	DERIVED, SECONDARY, SINGLE PLANE, COLON
Samples per Pixel	0028,0002	US		ALWAYS	COPY	
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	Set to MONOCHROME2
Bits Allocated	0028,0100	US		ALWAYS	COPY	
Bits Stored	0028,0101	US		ALWAYS	COPY	
High Bit	0028,0102	US		ALWAYS	COPY	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	Set to 0
Pixel Intensity Relationship	0028,1040	CS		ALWAYS	AUTO	Set to DISP
Derivation Description	0008,2111	ST		ANAP	AUTO	Set to COLON_RECONSTRUCTION

**Table 418: X-Ray Acquisition Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Radiation Setting	0018,1155	CS		ALWAYS	COPY	
Intensifier Size	0018,1162	DS		ANAP	COPY	

**Table 419: XA Positioner Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Positioner Primary Angle	0018,1510	DS		VNAP	COPY	
Positioner Secondary Angle	0018,1511	DS		VNAP	COPY	

**Table 420: SOP Common Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAPEV	COPY	
SOP Class UID	0008,0016	UI		ANAPEV	COPY	
Instance Creation Date	0008,0012	DA		ANAP		
Instance Creation Time	0008,0013	TM		ANAP		
Instance Number	0020,0013	IS		ANAP		

**Table 421: Modality LUT Module**

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

**14.1.1.4. X-Ray Radiofluoroscopic Image Storage SOP Class****Table 422: IOD of Created X-Ray Radiofluoroscopic Image Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Series	General Series Module	
Equipment	General Equipment Module	
Image	Multi-Frame Module	
Image	General Image Module	
Image	Image Pixel Module	
Image	X-ray Image Module	
Image	X-Ray Acquisition Module	
Image	SOP Common Module	
Image	Modality LUT Module	

**Table 423: General Series Module**

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

**Table 424: General Equipment Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP	COPY	
Manufacturer's Model Name	0008,1090	LO		ANAP	COPY	
Software Version(s)	0018,1020	LO		ANAP	COPY	

**Table 425: Multi-Frame Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Frames	0028,0008	IS		ALWAYS	AUTO	Set to 1

**Table 426: General Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Instance Number	0020,0013	IS		VNAP	AUTO	Set to 1
Content Date	0008,0023	DA		ANAPCV	AUTO	
Content Time	0008,0033	TM		ANAPCV	COPY	
Patient Orientation	0020,0020	CS		ANAPCV	COPY	
Acquisition Date	0008,0022	DA		ANAP	COPY	
Acquisition Time	0008,0032	TM		ANAP	AUTO	
Acquisition Number	0020,0012	IS		ANAP	COPY	

Source Image Sequence	0008,2112	SQ		ANAP	AUTO	Sorted equal to position within the overlap reconstruction
>Referenced SOP Class UID	0008,1150	UI		ANAPEV	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ANAPEV	AUTO	
>Referenced Frame Number	0008,1160	IS		ANAP	AUTO	

**Table 427: Image Pixel Module**

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

**Table 428: X-ray Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS		ALWAYS	AUTO	DERIVED, SECONDARY, SINGLE PLANE, COLON
Samples per Pixel	0028,0002	US		ALWAYS	COPY	
Photometric Interpretation	0028,0004	CS		ALWAYS	AUTO	Set to MONOCHROME2
Bits Allocated	0028,0100	US		ALWAYS	COPY	
Bits Stored	0028,0101	US		ALWAYS	COPY	
Pixel Representation	0028,0103	US		ALWAYS	AUTO	Set to 0
Pixel Intensity Relationship	0028,1040	CS		ALWAYS	AUTO	Set to DISP
Derivation Description	0008,2111	ST		ANAP	AUTO	set to COLON_RECONSTRUCTION

**Table 429: X-Ray Acquisition Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Radiation Setting	0018,1155	CS		ALWAYS	COPY	
Intensifier Size	0018,1162	DS		ANAP	COPY	

**Table 430: SOP Common Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAPEV	COPY	
SOP Class UID	0008,0016	UI		ANAPEV	COPY	
Instance Creation Date	0008,0012	DA		ANAP	AUTO	Set to Date of Reconstruction
Instance Creation Time	0008,0013	TM		ANAP	AUTO	Set to Time of Reconstruction
Instance Number	0020,0013	IS		ANAP	AUTO	Set to 1

**Table 431: Modality LUT Module**

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

### 14.1.2. Usage of Attributes from Received IOD

**Table 432: Functionalities**

Functionality	Type1	Optional	Private
Image selection		X	
Run selection		X	
Reconstruction		X	
Viewing			X

#### 14.1.2.1. Usage of the Functionality Image selection

The following SOP classes are used by the Image selection functionality.

**Table 433: Supported SOP Classes for functionality Image selection**

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

**Table 434: Supported Optional attributes of functionality Image selection**

Attribute Name	Tag	VR	Value	Comment
Source Image Sequence	0008,2112	SQ		Sorted equal to position within the overlap reconstruction
>Referenced SOP Class UID	0008,1150	UI		

#### 14.1.2.2. Usage of the Functionality Run selection

The following SOP classes are used by the Run selection functionality.

**Table 435: Supported SOP Classes for functionality Run selection**

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

**Table 436: Supported Optional attributes of functionality Run selection**

Attribute Name	Tag	VR	Value	Comment
Source Image Sequence	0008,2112	SQ		Sorted equal to position within the overlap reconstruction
>Referenced SOP Class UID	0008,1150	UI		

#### 14.1.2.3. Usage of the Functionality Reconstruction

The following SOP classes are used by the Reconstruction functionality.

**Table 437: Supported SOP Classes for functionality Reconstruction**

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



**Table 438: Supported Optional attributes of functionality Reconstruction**

Attribute Name	Tag	VR	Value	Comment
Source Image Sequence	0008,2112	SQ		Sorted equal to position within the overlap reconstruction
>Referenced SOP Class UID	0008,1150	UI		

**14.1.2.4. Usage of the Functionality Viewing**

The following SOP classes are used by the Viewing functionality.

**Table 439: Supported SOP Classes for functionality Viewing**

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

**Table 440: Supported Optional attributes of functionality Viewing**

Attribute Name	Tag	VR	Value	Comment
Source Image Sequence	0008,2112	SQ		Sorted equal to position within the overlap reconstruction
>Referenced SOP Class UID	0008,1150	UI		

**14.1.3. Attribute Mapping**

NA

**14.1.4. Coerced/Modified fields**

NA

**14.2. Data Dictionary of Private Attributes**

NA

**14.3. Coded Terminology and Templates**

NA

**14.4. Grayscale Image consistency**

NA

**14.5. Standard Extended/Specialized/Private SOPs**

NA

**14.6. Private Transfer Syntaxes**

NA

## 15. ANNEXES OF APPLICATION "X-RAY VASCULAR ANALYSIS"

### 15.1. IOD Contents

#### 15.1.1. Created SOP Instance

This section specifies each IOD created (including private IODs).

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

#### 15.1.1.1. List of created SOP Classes

**Table 441: List of created SOP Classes**

SOP Class Name	SOP Class UID
Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2

## 15.1.1.2. X-Ray Angiographic Image Storage SOP Class

Table 442: IOD of Created X-Ray Angiographic Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Image	General Image Module	
Image	X-ray Image Module	

Table 443: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Source Image Sequence	0008,2112	SQ		ANAP	AUTO	References to the images it was created from.
>Referenced SOP Class UID	0008,1150	UI		ANAPEV	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ANAPEV	AUTO	
>Referenced Frame Number	0008,1160	IS		ANAP	AUTO	
>Purpose of Reference Code Sequence	0040,A170	SQ		ANAPEV		
>>Code Value	0008,0100	SH		ALWAYS		
>>Coding Scheme Designator	0008,0102	SH		ALWAYS		
>>Code Meaning	0008,0104	LO		ALWAYS		

Table 444: X-ray Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	VIEW_TRACE	ALWAYS	AUTO	

## 15.1.1.3. X-Ray Radiofluoroscopic Image Storage SOP Class

Table 445: IOD of Created X-Ray Radiofluoroscopic Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Image	General Image Module	
Image	X-ray Image Module	

Table 446: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Source Image Sequence	0008,2112	SQ		ANAP	AUTO	
>Referenced SOP Class UID	0008,1150	UI		ANAPEV	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ANAPEV	AUTO	
>Referenced Frame Number	0008,1160	IS		ANAP	AUTO	

Table 447: X-ray Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	DERIVED, VIEW_TRACE	ALWAYS	AUTO	

## 15.1.2. Usage of Attributes from Received IOD

**Table 448: Functionalities**

Functionality	Type1	Optional	Private
Viewing		X	
View Trace		X	
Subtraction		X	

### 15.1.2.1. Usage of the Functionality Viewing

The following SOP classes are used by the Viewing functionality.

**Table 449: Supported SOP Classes for functionality Viewing**

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

**Table 450: Supported Optional attributes of functionality Viewing**

Attribute Name	Tag	VR	Value	Comment
Software Version(s)	0018,1020	LO		First value must contain "DSI" or "DigitalImaging"
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		Last value = "VIEW_TRACE", third value of all images has to be equal and not "BIPLANE", Last value = "OCDC" means corrected.

### 15.1.2.2. Usage of the Functionality View Trace

The following SOP classes are used by the View Trace functionality.

**Table 451: Supported SOP Classes for functionality View Trace**

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

**Table 452: Supported Optional attributes of functionality View Trace**

Attribute Name	Tag	VR	Value	Comment
Software Version(s)	0018,1020	LO		First value must contain "DSI" or "DigitalImaging"
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		Last value = "VIEW_TRACE", third value of all images has to be equal and not "BIPLANE", Last value = "OCDC" means corrected.

**15.1.2.3. Usage of the Functionality Subtraction**

The following SOP classes are used by the Subtraction functionality.

**Table 453: Supported SOP Classes for functionality Subtraction**

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

**Table 454: Supported Optional attributes of functionality Subtraction**

Attribute Name	Tag	VR	Value	Comment
Software Version(s)	0018,1020	LO		First value must contain "DSI" or "DigitalImaging"
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		Last value = "VIEW_TRACE", third value of all images has to be equal and not "BIPLANE", Last value = "OCD" means corrected.

**15.1.3. Attribute Mapping**

NA

**15.1.4. Coerced/Modified fields**

NA

**15.2. Data Dictionary of Private Attributes**

NA

**15.3. Coded Terminology and Templates**

NA

**15.4. Grayscale Image consistency**

NA

**15.5. Standard Extended/Specialized/Private SOPs**

NA

**15.6. Private Transfer Syntaxes**

NA

## 16. ANNEXES OF APPLICATION "VOLUME ANALYSIS"

### 16.1. IOD Contents

#### 16.1.1. Created SOP Instance

This section specifies each IOD created (including private IODs).

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

#### 16.1.1.1. List of created SOP Classes

**Table 455: List of created SOP Classes**

SOP Class Name	SOP Class UID
3D Object new Storage (Private)	1.3.46.670589.5.0.2.1
3D Volume Storage new SOP Class (Private)	1.3.46.670589.5.0.1.1
Surface Storage new (Private)	1.3.46.670589.5.0.3.1
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2
CT Synthetic Image Storage (Private)	1.3.46.670589.5.0.9
CX Synthetic Image Storage (Private)	1.3.46.670589.5.0.12
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4
MR Synthetic Image Storage (Private)	1.3.46.670589.5.0.10
XA reconstructed X-ray SOP Class (private)	1.3.46.670589.2.4.1.1

**16.1.1.2. CT Image Storage SOP Class**

**Table 456: IOD of Created CT Image Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Image	CT Image Module	

**Table 457: CT Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	MPR	ALWAYS		
Samples per Pixel	0028,0002	US		ALWAYS		
Photometric Interpretation	0028,0004	CS		ALWAYS		
Bits Allocated	0028,0100	US		ALWAYS		
Bits Stored	0028,0101	US		ALWAYS		
High Bit	0028,0102	US		ALWAYS		
Rescale Intercept	0028,1052	DS		ALWAYS		
Rescale Slope	0028,1053	DS		ALWAYS		
KVP	0018,0060	DS		VNAP		
Acquisition Number	0020,0012	IS		VNAP		

**16.1.1.3. MR Image Storage SOP Class**

**Table 458: IOD of Created MR Image Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Image	MR Image Module	

**Table 459: MR Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	DERIVED, SECONDARY, MPR	ALWAYS		
Scanning Sequence	0018,0020	CS		ALWAYS		
Sequence Variant	0018,0021	CS		ALWAYS		
Samples per Pixel	0028,0002	US		ALWAYS		
Photometric Interpretation	0028,0004	CS		ALWAYS		
Bits Allocated	0028,0100	US		ALWAYS		
Scan Options	0018,0022	CS		VNAP		
MR Acquisition Type	0018,0023	CS		VNAP		
Echo Time	0018,0081	DS		VNAP		
Echo Train Length	0018,0091	IS		VNAP		

**16.1.2. Usage of Attributes from Received IOD**

**Table 460: Functionalities**

Functionality	Type1	Optional	Private
Volume Analysis			X
Volume Inspection			X
Coro 3D			X
CT Colonography			X

**16.1.2.1. Usage of the Functionality Volume Analysis**

The following SOP classes are used by the Volume Analysis functionality.

**Table 461: Supported SOP Classes for functionality Volume Analysis**

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
3D Object new Storage (Private)	1.3.46.670589.5.0.2.1
3D Volume Storage new SOP Class (Private)	1.3.46.670589.5.0.1.1
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1

**Table 462: Supported Optional attributes of functionality Volume Analysis**

Attribute Name	Tag	VR	Value	Comment
Image Position (Patient)	0020,0032	DS		
Image Orientation (Patient)	0020,0037	DS		
Pixel Spacing	0028,0030	DS		
Slice Thickness	0018,0050	DS		
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		
Photometric Interpretation	0028,0004	CS		
Bits Allocated	0028,0100	US		
Bits Stored	0028,0101	US		
Attribute Name	Tag	VR	Value	Comment
Instance Number	0020,0013	IS		
Content Date	0008,0023	DA		
Content Time	0008,0033	TM		
Attribute Name	Tag	VR	Value	Comment
Rows	0028,0010	US		
Columns	0028,0011	US		
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		
Echo Time	0018,0081	DS		
Echo Number(s)	0018,0086	IS		
Temporal Position Identifier	0020,0100	IS		

**16.1.2.2. Usage of the Functionality Volume Inspection**

The following SOP classes are used by the Volume Inspection functionality.

**Table 463: Supported SOP Classes for functionality Volume Inspection**

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
3D Object new Storage (Private)	1.3.46.670589.5.0.2.1
3D Volume Storage new SOP Class (Private)	1.3.46.670589.5.0.1.1
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1

**Table 464: Supported Optional attributes of functionality Volume Inspection**

Attribute Name	Tag	VR	Value	Comment
Image Position (Patient)	0020,0032	DS		
Image Orientation (Patient)	0020,0037	DS		
Pixel Spacing	0028,0030	DS		



Slice Thickness	0018,0050	DS		
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		
Photometric Interpretation	0028,0004	CS		
Bits Allocated	0028,0100	US		
Bits Stored	0028,0101	US		
Attribute Name	Tag	VR	Value	Comment
Instance Number	0020,0013	IS		
Content Date	0008,0023	DA		
Content Time	0008,0033	TM		
Attribute Name	Tag	VR	Value	Comment
Rows	0028,0010	US		
Columns	0028,0011	US		
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		
Echo Time	0018,0081	DS		
Echo Number(s)	0018,0086	IS		
Temporal Position Identifier	0020,0100	IS		

**16.1.2.3. Usage of the Functionality Coro 3D**

The following SOP classes are used by the Coro 3D functionality.

**Table 465: Supported SOP Classes for functionality Coro 3D**

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
3D Object new Storage (Private)	1.3.46.670589.5.0.2.1
3D Volume Storage new SOP Class (Private)	1.3.46.670589.5.0.1.1
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1

**Table 466: Supported Optional attributes of functionality Coro 3D**

Attribute Name	Tag	VR	Value	Comment
Image Position (Patient)	0020,0032	DS		
Image Orientation (Patient)	0020,0037	DS		
Pixel Spacing	0028,0030	DS		
Slice Thickness	0018,0050	DS		
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		
Photometric Interpretation	0028,0004	CS		
Bits Allocated	0028,0100	US		
Bits Stored	0028,0101	US		
Attribute Name	Tag	VR	Value	Comment
Instance Number	0020,0013	IS		
Content Date	0008,0023	DA		
Content Time	0008,0033	TM		
Attribute Name	Tag	VR	Value	Comment
Rows	0028,0010	US		
Columns	0028,0011	US		

Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		
Echo Time	0018,0081	DS		
Echo Number(s)	0018,0086	IS		
Temporal Position Identifier	0020,0100	IS		

#### 16.1.2.4. Usage of the Functionality CT Colonography

The following SOP classes are used by the CT Colonography functionality.

**Table 467: Supported SOP Classes for functionality CT Colonography**

SOP Class name	SOP Class UID
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2

**Table 468: Supported Optional attributes of functionality CT Colonography**

Attribute Name	Tag	VR	Value	Comment
Image Position (Patient)	0020,0032	DS		
Image Orientation (Patient)	0020,0037	DS		
Pixel Spacing	0028,0030	DS		
Slice Thickness	0018,0050	DS		
Attribute Name	Tag	VR	Value	Comment
Image Type	0008,0008	CS		
Photometric Interpretation	0028,0004	CS		
Bits Allocated	0028,0100	US		
Bits Stored	0028,0101	US		
Attribute Name	Tag	VR	Value	Comment
Instance Number	0020,0013	IS		
Content Date	0008,0023	DA		
Content Time	0008,0033	TM		
Attribute Name	Tag	VR	Value	Comment
Rows	0028,0010	US		
Columns	0028,0011	US		

#### 16.1.3. Attribute Mapping

NA

#### 16.1.4. Coerced/Modified fields

NA

### 16.2. Data Dictionary of Private Attributes

NA

### 16.3. Coded Terminology and Templates

NA

### 16.4. Grayscale Image consistency

NA

**16.5. Standard Extended/Specialized/Private SOPs**

NA

**16.6. Private Transfer Syntaxes**

NA

## 17. ANNEXES OF APPLICATION "PHILIPS ORTHOPAEDIC APPLICATIONS"

### 17.1. IOD Contents

#### 17.1.1. Created SOP Instance

This section specifies each IOD created (including private IODs).

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

#### 17.1.1.1. List of created SOP Classes

**Table 469: 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

#### 17.1.2. Usage of Attributes from Received IOD

**Table 470: Functionalities**

Functionality	Type1	Optional	Private
Leg Osteotomy planning		X	
Lower extremity measurements		X	

Hip implant planning		X	
Viewing			X

**17.1.2.1. Usage of the Functionality Leg Osteotomy planning**

The following SOP classes are used by the Leg Osteotomy planning functionality.

**Table 471: Supported SOP Classes for functionality Leg Osteotomy planning**

SOP Class name	SOP Class UID
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2

**Table 472: Supported Optional attributes of functionality Leg Osteotomy planning**

Attribute Name	Tag	VR	Value	Comment
Patient's Name	0010,0010	PN		
Patient ID	0010,0020	LO		
Patient's Birth Date	0010,0030	DA		
Patient's Sex	0010,0040	CS		
Attribute Name	Tag	VR	Value	Comment
Study Date	0008,0020	DA		
Referring Physician's Name	0008,0090	PN		
Study Description	0008,1030	LO		
Attribute Name	Tag	VR	Value	Comment
Pixel Data	7FE0,0010	O W/ OB		
Pixel Aspect Ratio	0028,0034	IS		
Attribute Name	Tag	VR	Value	Comment
SOP Class UID	0008,0016	UI		
Attribute Name	Tag	VR	Value	Comment
Number of Frames	0028,0008	IS		

**17.1.2.2. Usage of the Functionality Lower extremity measurements**

The following SOP classes are used by the Lower extremity measurements functionality.

**Table 473: Supported SOP Classes for functionality Lower extremity measurements**

SOP Class name	SOP Class UID
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2

**Table 474: Supported Optional attributes of functionality Lower extremity measurements**

Attribute Name	Tag	VR	Value	Comment
Patient's Name	0010,0010	PN		
Patient ID	0010,0020	LO		
Patient's Birth Date	0010,0030	DA		
Patient's Sex	0010,0040	CS		
Attribute Name	Tag	VR	Value	Comment
Study Date	0008,0020	DA		
Referring Physician's Name	0008,0090	PN		
Study Description	0008,1030	LO		
Attribute Name	Tag	VR	Value	Comment
Pixel Data	7FE0,0010	O W/ OB		
Pixel Aspect Ratio	0028,0034	IS		
Attribute Name	Tag	VR	Value	Comment
SOP Class UID	0008,0016	UI		
Attribute Name	Tag	VR	Value	Comment
Number of Frames	0028,0008	IS		

**17.1.2.3. Usage of the Functionality Hip implant planning**

The following SOP classes are used by the Hip implant planning functionality.

**Table 475: Supported SOP Classes for functionality Hip implant planning**

SOP Class name	SOP Class UID
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2

**Table 476: Supported Optional attributes of functionality Hip implant planning**

Attribute Name	Tag	VR	Value	Comment
Patient's Name	0010,0010	PN		
Patient ID	0010,0020	LO		
Patient's Birth Date	0010,0030	DA		
Patient's Sex	0010,0040	CS		
Attribute Name	Tag	VR	Value	Comment
Study Date	0008,0020	DA		
Referring Physician's Name	0008,0090	PN		
Study Description	0008,1030	LO		
Attribute Name	Tag	VR	Value	Comment
Pixel Data	7FE0,0010	O W/ OB		
Pixel Aspect Ratio	0028,0034	IS		
Attribute Name	Tag	VR	Value	Comment
SOP Class UID	0008,0016	UI		

Attribute Name	Tag	VR	Value	Comment
Number of Frames	0028,0008	IS		

#### 17.1.2.4. Usage of the Functionality Viewing

The following SOP classes are used by the Viewing functionality.

**Table 477: Supported SOP Classes for functionality Viewing**

SOP Class name	SOP Class UID
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2

**Table 478: Supported Optional attributes of functionality Viewing**

Attribute Name	Tag	VR	Value	Comment
Patient's Name	0010,0010	PN		
Patient ID	0010,0020	LO		
Patient's Birth Date	0010,0030	DA		
Patient's Sex	0010,0040	CS		
Attribute Name	Tag	VR	Value	Comment
Study Date	0008,0020	DA		
Referring Physician's Name	0008,0090	PN		
Study Description	0008,1030	LO		
Attribute Name	Tag	VR	Value	Comment
Pixel Data	7FE0,0010	O W/ OB		
Pixel Aspect Ratio	0028,0034	IS		
Attribute Name	Tag	VR	Value	Comment
SOP Class UID	0008,0016	UI		
Attribute Name	Tag	VR	Value	Comment
Number of Frames	0028,0008	IS		

#### 17.1.3. Attribute Mapping

NA

#### 17.1.4. Coerced/Modified fields

NA

### 17.2. Data Dictionary of Private Attributes

NA

### 17.3. Coded Terminology and Templates

NA

**17.4. Grayscale Image consistency**

NA

**17.5. Standard Extended/Specialized/Private SOPs**

NA

**17.6. Private Transfer Syntaxes**

NA



## 18. ANNEXES OF APPLICATION "MERGEVIEW"

### 18.1. IOD Contents

#### 18.1.1. Created SOP Instance

This section specifies each IOD created (including private IODs).

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

#### 18.1.1.1. List of created SOP Classes

Table 479: List of created SOP Classes

SOP Class Name	SOP Class UID
3D Object new Storage (Private)	1.3.46.670589.5.0.2.1
3D Volume Storage new SOP Class (Private)	1.3.46.670589.5.0.1.1
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

#### 18.1.2. Usage of Attributes from Received IOD

Table 480: Functionalities

Functionality	Type1	Optional	Private
MergeView			X

**18.1.3. Attribute Mapping**

NA

**18.1.4. Coerced/Modified fields**

NA

**18.2. Data Dictionary of Private Attributes**

NA

**18.3. Coded Terminology and Templates**

NA

**18.4. Grayscale Image consistency**

NA

**18.5. Standard Extended/Specialized/Private SOPs**

NA

**18.6. Private Transfer Syntaxes**

NA