

# DICOM Conformance Statement

## Incisive CT – Eviewer v4.5



**Issued by:**

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Doc Id: ICAP-PF.0030107  
Date: 2020-Mar-04

# 1. DICOM Conformance Statement Overview

Eviewer is used with general computer to acquire, store, process, print and display medical images generated by Computed Tomography (CT) imaging equipment in line with DICOM standard and related data, and provide data management, 2D, MPR, Volume, virtual endoscopy, vessel analysis, brain perfusion, dental planning, lung nodule analysis, CT colonoscopy and other image display mode and multiple tissues analysis.

The system is verified as DIN 6862-2 compliant.

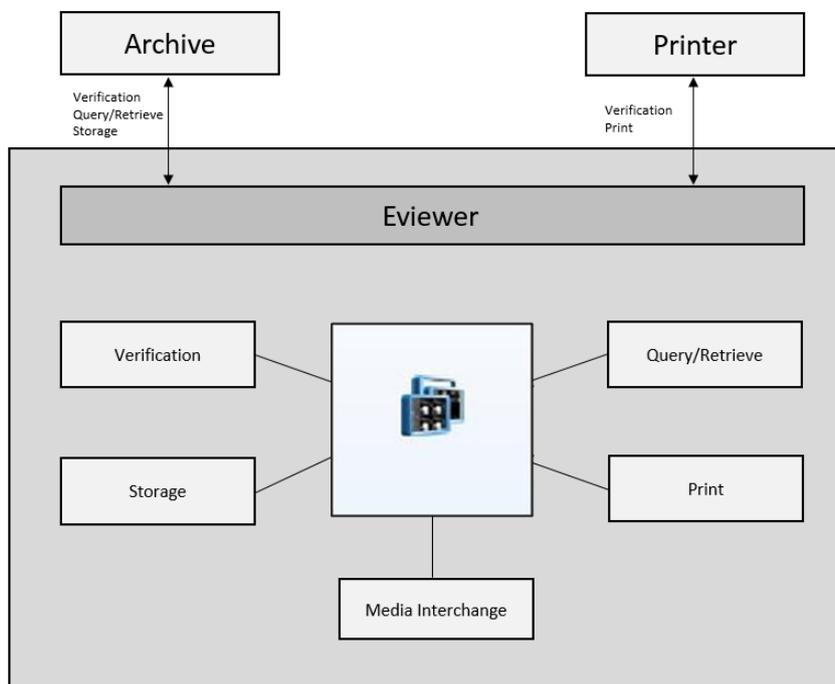


Figure 1: Eviewer in a DICOM network

A table of supported Network DICOM Service (SOP) Classes is provided with roles (User/Provider)

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	Yes	Yes
<b>Print Management</b>			
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

SOP Class		User of Service (SCU)	Provider of Service (SCP)
Name	UID		
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Yes	No
>Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	Yes	No
>Printer SOP Class	1.2.840.10008.5.1.1.16	Yes	No
Query/Retrieve			
Study Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	Yes	Yes
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Yes	Yes
Transfer			
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	Yes	Yes
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Yes	Yes
X-Ray Radiation Dose SR	1.2.840.10008.5.1.4.1.1.88.67	Yes	Yes
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	Yes

For media the Eviewer system supports:

- FSC service for CD-R, CD-RW, DVD + R, DVD - R, DVD + RW, DVD - RW media
- FSR service for CD-R, CD-RW, DVD + R, DVD - R, DVD + RW, DVD - RW media

All the Media Services supported by Eviewer are shown in the next table.

**Table 2: Media Services**

Media Storage Application Profile	File-set Creator (FSC)	File-set Updater (FSU)	File-set Reader (FSR)	Display Directory (DD)
Compact Disk-Recordable				
General Purpose CD-R Interchange	Yes	No	Yes	No

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## 3. Introduction

### 3.1. Revision History

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

**Table 3: Revision History**

Document Version	Date of Issue	Description of change
00	07-Dec-2017	Final version
01	04-Mar-2020	Final Version with DIN 6862-2 updates

### 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 ensure that the actual implementation of the DICOM interface corresponds with this Conformance Statement.  
Where Philips equipment is linked to non-Philips equipment, the first step is to compare the relevant Conformance Statements. If the Conformance Statements indicate that successful information exchange should be possible, additional validation tests will be necessary to ensure the functionality, performance, accuracy and stability of image and image related data. It is the responsibility of the user (or user's agent) to specify the appropriate test suite and to carry out the additional validation tests.
- **New versions of the DICOM Standard**  
The DICOM Standard will evolve in future to meet the user's growing requirements and to incorporate new features and technologies. Philips is actively involved in this evolution and plans to adapt its equipment to future versions of the DICOM Standard. In order to do so, Philips reserves the right to make changes to its products or to discontinue its delivery. The user should ensure that any non-Philips provider linking to Philips equipment also adapts to future versions of the DICOM Standard. If not, the incorporation of DICOM enhancements into Philips equipment may lead to loss of connectivity (in case of networking) and incompatibility (in case of media).

## 3.4. Definitions, Terms and Abbreviations

Table 4: Definitions, Terms and Abbreviations

Abbreviation/Term	Explanation
AE	Application Entity
CD	Compact Disc
CD-R	CD-Recordable
CT	Computed Tomography
DCS	DICOM Conformance Statement
DICOM	Digital Imaging and Communications in Medicine
DIMSE	DICOM Message Service Element
DVD	A trademark of the DVD Forum that is not an abbreviation
DVD-RW	DVD Rewritable
EBE	DICOM Explicit VR Big Endian
ELE	DICOM Explicit VR Little Endian
FSC	File-set Creator
FSR	File-set Reader
FSU	File-set Updater
ILE	DICOM Implicit VR Little Endian
IOD	Information Object Definition
NEMA	National Electrical Manufacturers Association
PDU	Protocol Data Unit
RWA	Real-World Activity
SC	Secondary Capture
SCP	Service Class Provider
SCU	Service Class User
SOP	Service Object Pair
TCP/IP	Transmission Control Protocol/Internet Protocol
UI	User Interface
UID	Unique Identifier
USB	Universal Serial Bus
WS	Workstation

## 3.5. References

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

## 4. Networking

This section contains the networking related services.

### 4.1. Implementation model

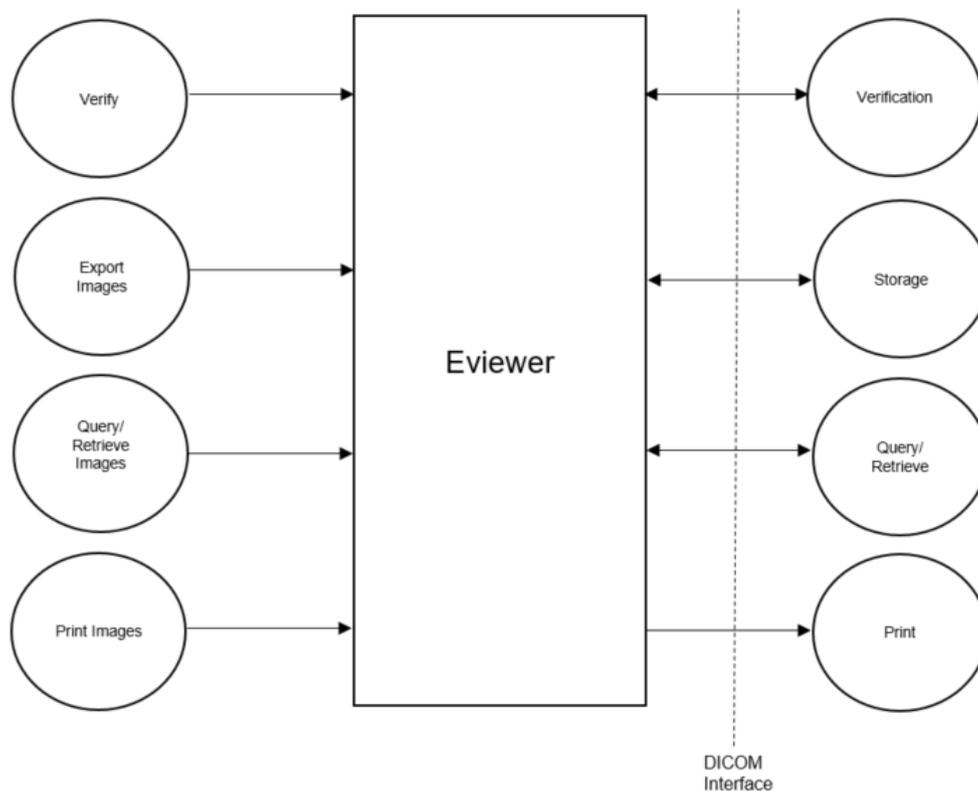
The implementation model consists of three sections:

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

#### 4.1.1. Application Data Flow

The Eviewer system consists of a single Application Entity (Eviewer Network AE).

Figure 2 shows the Networking application data flow as a functional overview of the Eviewer Network AE).



**Figure 2: Data flow diagram Incisive CT - Eviewer**

Eviewer incorporates the following functionality:

- DICOM Verification service (for both SCU and SCP).
- Imports to store images and related objects from a remote archive.
- Storage of DICOM objects on a remote DICOM system.
- Querying for data on a remote DICOM system.
- Retrieval of DICOM objects from a remote DICOM system
- Storage and Retrieval of DICOM objects per removable media.
- Printing of hardcopies on a remote DICOM printer.
- Query for data by a remote DICOM system.

## 4.1.2. Functional Definition of AE's

The Eviewer Network AE is the one and only application entity within the Eviewer scanner. It includes the following service classes.

### 4.1.2.1. Functional Definition of Print

The Eviewer Network AE gives the user the option to print Color and Grayscale Images.

### 4.1.2.2. Functional Definition of QR

The Eviewer (SCU) initiates an association to find Examinations on a remote system (e.g. PACS).

Via the move operation a request will be sent to a remote system to send an examination into the Eviewer local database.

The Eviewer (SCP) accepts an association from a remote system to receive a Query/Retrieve request. Via the move operation a request is sent to Eviewer to send an examination into remote system.

### 4.1.2.3. Functional Definition of storage

#### Export Images

The Eviewer Network AE uses the Storage SCU service to store images on a remote system using the relevant storage SOP classes.

#### Import Images

The Eviewer Network AE as Storage SCP supports the storage of images from a remote archive using the relevant storage SOP classes.

### 4.1.2.4. Functional Definition of Verification

The Eviewer Network AE provides the Verification service as SCU and SCP.

A remote SCU shall request an association with the Eviewer Network AE for Verification SOP class. After accepting the association the Eviewer Network AE receives and responds to the Verification request and releases the association when requested.

The Eviewer Network AE requests an association to a remote node for Verification SOP class. After receiving the response for the Verification request from the remote SCP system, it releases the association.

### 4.1.3. Sequencing of Real World Activities

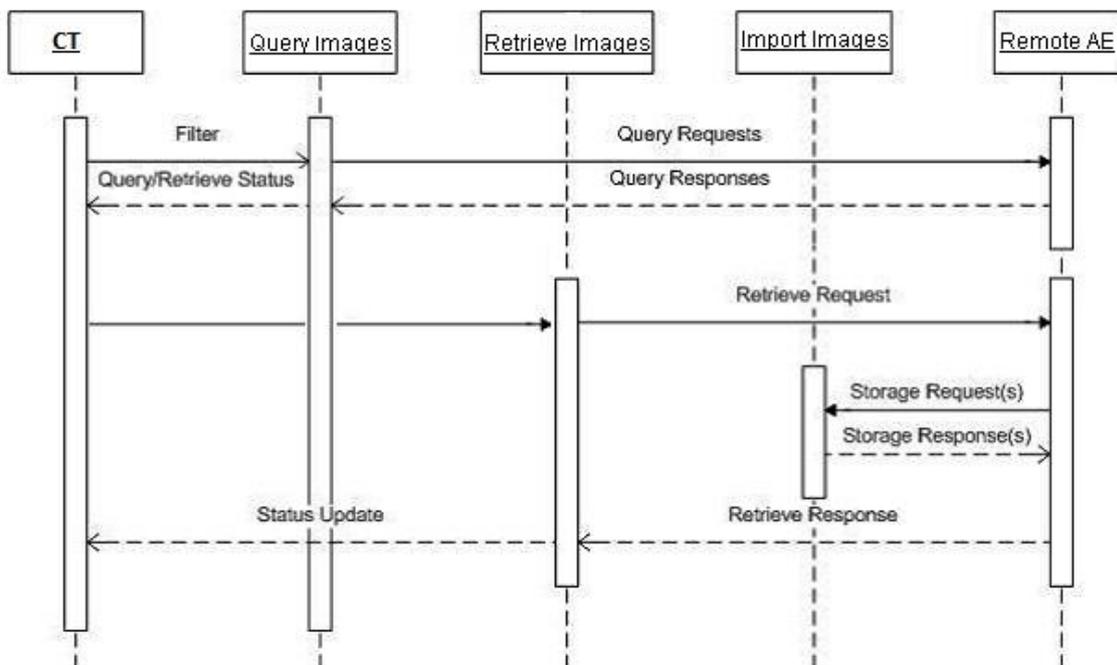


Figure 3: Sequence of real world activity

The Eviewer sends initial query requests to the remote AE to find all Examinations matching the specified filter. After selecting the Examinations to be retrieved, the move selection to local database is initiated. This is followed by retrieve requests to the remote AE to move all required Series of Images. Then for each retrieve request the remote AE will store the related Images on the Eviewer. Query/Retrieve as SCP is supported by the Eviewer.

## 4.2. AE Specifications

This section in the DICOM Conformance Statement is a set of Application Entity specifications. There are as many of these subsections as there are different AE's in the implementation.

### 4.2.1. Eviewer AE

Details 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 5: SOP Classes for Verification AE

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	Yes	Yes
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	Yes	Yes
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Yes	Yes
X-Ray Radiation Dose SR	1.2.840.10008.5.1.4.1.1.88.67	Yes	Yes
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	Yes
Study Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	Yes	Yes
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Yes	Yes

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

**Table 6: DICOM Application Context**

Description	Value
Application Context Name	1.2.840.10008.3.1.1.1

Note: When an incorrect Application context name is sent from remote system, Eviewer accepts the association.

##### 4.2.1.2.2. Number of Associations

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

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

Description	Value
Maximum number of simultaneous associations	Not configurable (limited on resource availability)

**Table 8: Number of associations as an Association Acceptor for this AE**

Description	Value
Maximum number of simultaneous associations	Not configurable (limited on resource availability)

##### 4.2.1.2.3. Implementation Identifying Information

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

**Table 9: DICOM Implementation Class and Version for Hardcopy AE**

Implementation Class UID	1.3.46.670589.61.1
Implementation Version Name	CHESS4_5

#### 4.2.1.2.4. Communication Failure Handling

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

**Table 10: Communication Failure Behavior**

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the command is marked as failed.
e.g. Association aborted	The Association is aborted using A-ABORT and the command is marked as failed.
e.g. Failed to connect	The Association is aborted using A-ABORT and the command is marked as failed.

#### 4.2.1.3. Association Initiation Policy

The Eviewer Network AE initiates associations as a result of the following events:

- The operator selects local images and uses the “copy to” function to send the selected images to a remote destination.
- A retrieve request is received from a remote system to export images to a remote destination.
- The operator queries a database on a remote system
- Operator requests to print selected images.

The Application Entity responds to an Association reject as shown in the table below.

**Table 11: Association Reject response**

Result	Source	Reason/Diagnosis	Behavior
1 - rejected permanent	1 - DICOM UL service-user	1 - no-reason-given	Connection closed. "Failed to connect to remote Device: Association request has been rejected" popup message is displayed in UI.
		2 - application-context-name-not-supported	
		3 - calling-AE-title-not-recognized	
		7 - called-AE-title-not-recognized	
	2 - DICOM UL service provider (ACSE related function)	1 - no-reason-given	Connection closed. "Failed to connect to remote Device: Association request has been rejected" popup message is displayed in UI.
		2 - protocol-version-not-supported	
3 - DICOM UL service provider (Presentation related function)	1 - temporary-congestion	Connection closed. "Failed to connect to remote Device: Association request has been rejected" popup message is displayed in UI.	
	2 - local-limit-exceeded		
2 - rejected-transient	1 - DICOM UL service-user	1 - no-reason-given	Connection closed. "Failed to connect to remote Device: Association request has been rejected" popup message is displayed in UI.
		2 - application-context-name-not-supported	
		3 - calling-AE-title-not-recognized	
		7 - called-AE-title-not-recognized	
	2 - DICOM UL service provider (ACSE related function)	1 - no-reason-given	Connection closed. "Failed to connect to remote Device: Association request has been rejected" popup message is displayed in UI.
		2 - protocol-version-not-supported	
	3 - DICOM UL service provider (Presentation related function)	1 - temporary-congestion	Connection closed. "Failed to connect to remote Device: Association request has been rejected" popup message is displayed in UI.
		2 - local-limit-exceeded	

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

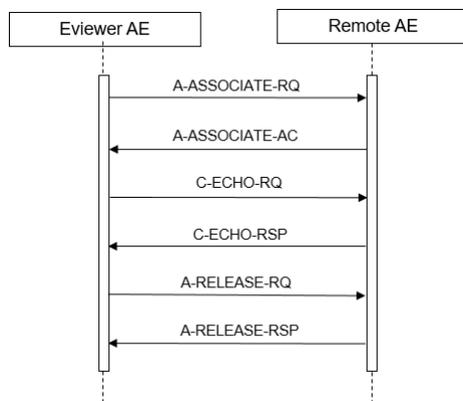
**Table 12: Association Abort Handling**

Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user (initiated abort)	0 - reason-not-specified	When received, the Eviewer Network AE terminates the connection and logs the event. "Failed to send image: peer aborted association (or never connected)" message is displayed in UI.
2 - DICOM UL service-provider (initiated abort)	0 - reason-not-specified	When received, the Eviewer Network AE terminates the connection and logs the event. "Failed to send image: peer aborted association (or never connected)" message is displayed in UI.
	1 - unrecognized-PDU	When received, the Eviewer Network AE terminates the connection and logs the event. "Failed to send image: peer aborted association (or never connected)" message is displayed in UI.
	2 - unexpected-PDU	When received, the Eviewer Network AE terminates the connection and logs the event. "Failed to send image: peer aborted association (or never connected)" message is displayed in UI.
	4 - unrecognized-PDU parameter	When received, the Eviewer Network AE terminates the connection and logs the event. "Failed to send image: peer aborted association (or never connected)" message is displayed in UI.
	5 - unexpected-PDU parameter	When received, the Eviewer Network AE terminates the connection and logs the event. "Failed to send image: peer aborted association (or never connected)" message is displayed in UI.
	6 - invalid-PDU-parameter value	When received, the Eviewer Network AE terminates the connection and logs the event. "Failed to send image: peer aborted association (or never connected)" message is displayed in UI.

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

##### 4.2.1.3.1.1. Description and Sequencing of Activities

The CT user can send a verification request to a remote system via the "Test" button in the system setting (configuration) tool.



**Figure 4: (Real World) Activity - Verification as SCU**

The system sends a DICOM Association request message. After the Association accept is received a C-ECHO message is sent. Configuration succeeded message is displayed in the User Interface.

##### 4.2.1.3.1.2. Proposed Presentation Contexts

The presentation contexts are defined in the table below

**Table 13: Proposed Presentation Contexts for (Real-World) Activity – Verification as SCU**

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

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

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

**4.2.1.3.1.3.1. Dataset Specific Conformance for Verification C-ECHO SCU**

In the table below the possible response messages from the CT application are given as a result of the status in the received C-ECHO-RSP message.

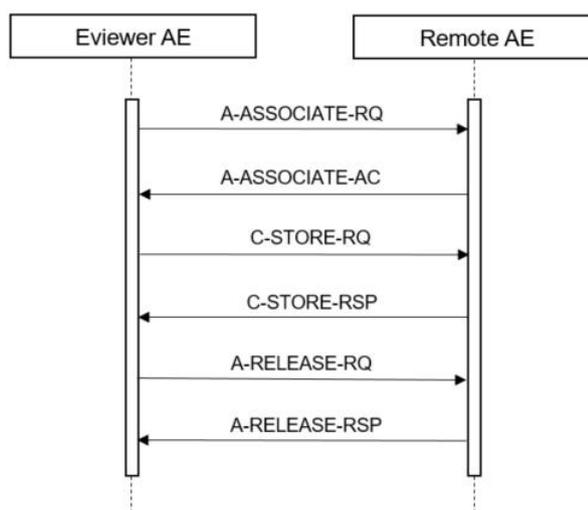
**Table 14: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Communication with remote system is successful	Popup message "Connection Succeeded" appears.
Failure	<xxxx>	Failed communication	Popup message "Connection Failed" appears.

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

**4.2.1.3.2.1. Description and Sequencing of Activities**

As defined by the Eviewer RWA export Images, from the local patient database studies/series/images can be selected for export to a remote destination. The export is triggered by using the button “Copy to “  
 For each selected Examination the Eviewer AE will successively do the following actions.



**Figure 5: (Real World) Activity – Image export**

The Eviewer AE initiates an association with the configured export node. Over this association all images, related data are exported. When the storage job has finished, be it successfully or not, the Eviewer AE releases the association.

#### 4.2.1.3.2.2. Proposed Presentation Contexts

The presentation contexts proposed by the Eviewer AE for Image Export are defined in Table below.

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

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

**Table 15: 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		
CT Image Storage SOP class	1.2.840.10008.5.1.4.1.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Secondary Capture Image Storage SOP class	1.2.840.10008.5.1.4.1.1.7	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
X-Ray Radiation Dose SR SOP Class	1.2.840.10008.5.1.4.1.1.88.67	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

#### 4.2.1.3.2.3.1. Dataset Specific Conformance for C-STORE-RQ

The possible Status Responses for the export Images storage are shown in table below.

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

Service Status	Code	Further Meaning	Behavior
Success	0000	Storage is complete	On the Statusbar a message is shown that all images were sent completely and then hide automatically
Failure	A7xx	Refused:Out of resources	The reason is logged. "Sending image file: message = Refused:out of Resources" message is displayed in the status bar.
	A9xx	Error: Data set does not match SOP class	The reason is logged. "Sending image file: message = Error : Data set doesnot match sop class" message is displayed in the status bar.
	Cxxx	Error: Cannot understand	The reason is logged. "Sending image file: message = Error : Cannot understand" message is displayed in the status bar.
Warning	B000	Coercion of data elements	The reason is logged. Message pops up in status bar to give user the error message.
	B006	Elements discarded	The reason is logged. Message pops up in status bar to give user the error message.
	B007	Data set does not match SOP class	The reason is logged. Message pops up in status bar to give user the error message.

The status can be inspected via the user interface (StatusBar at the bottom right corner of the screen).

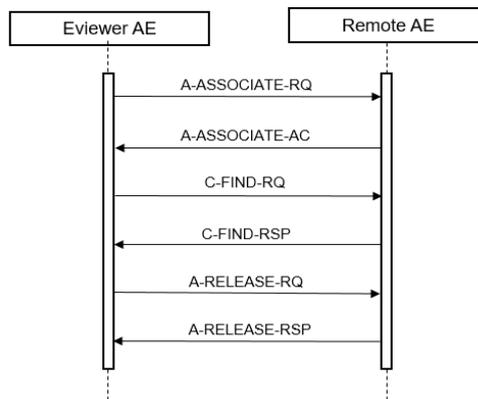
The possible communication failures during a C-STORE-RQ are listed in table below.

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

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and job is marked as failed. The reason is logged.
Association aborted	The job is marked as failed. The reason is logged.

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

**4.2.1.3.3.1. Description and Sequencing of Activities**



**Figure 6: (Real World) Activity - Find as SCU**

After a node is selected by the operator from the remote device list, the search window pops-up. After the required matching values are entered and the search button is pressed, a study level query request is send to the remote system. Only for the first received study, automatically a new association is opened for a series level query. All results (study, series) are displayed in the study manager on the Eviewer system. Each time a study is selected from the remote study list, a series level query is automatically started.

**4.2.1.3.3.2. Proposed Presentation Contexts**

Each time an association is initiated, the association initiator propose a number of presentation contexts to be used on that association. In this subsection, the presentation context proposed by Eviewer Network AE for (Real World) Activity - C-FIND (SCU) are defined.

**Table 18: Proposed Presentation Contexts for (Real-World) Activity – FIND As SCU**

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

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

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

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

In the table below the query keys are specified for each supported query level.

**Table 19: Supported Query Keys for Study Root Information Model**

Study Root Information Model				
Attribute Name	Tag	VR	Type Of Matching	Comment
Query/Retrieve Level	0008,0052	CS		Study, Series, Image
Specific Character Set	0008,0005	CS		Only present in case non default characters are used in one of the matching values.
Study level attributes				
Study Date	0008,0020	DA	R,U	Possible values: Today, Last Three Days, Last Month, Last Week, Last Two Weeks, Any Time
Study Time	0008,0030	TM	U	
Accession Number	0008,0050	SH	*,U	
Modalities in Study	0008,0061	CS	U	
Referring Physician's Name	0008,0090	PN	U	
Study Description	0008,1030	LO	*,U	
Patient's Name	0010,0010	PN	*,U	
Patient ID	0010,0020	LO	*,U	
Patient's Birth Date	0010,0030	DA	U	
Patient's Sex	0010,0040	CS	S,U	M,F,O
Study Instance UID	0020,000D	UI	U	
Study ID	0020,0010	SH	*,U	
Series level attributes				
Series Date	0008,0021	DA	U	
Series Time	0008,0031	TM	U	
Modality	0008,0060	CS	U	
Series Description	0008,103E	LO	U	
Series Instance UID	0020,000E	UI	Unique	
Series Number	0020,0011	IS	U	
Number of Series Related Instances	0020,1209	IS	U	
Performed Procedure Step Start Date	0040,0244	DA	U	
Performed Procedure Step Start Time	0040,0245	TM	U	
Request Attributes Sequence	0040,0275	SQ	U	

#### Types of Matching:

The types of Matching supported by the C-FIND SCU. An "S" indicates the identifier attribute uses Single Value Matching, an "R" indicates Range Matching, an "\*" indicates wild card matching, a 'U' indicates Universal Matching, and an 'L' indicates that UID lists are sent.

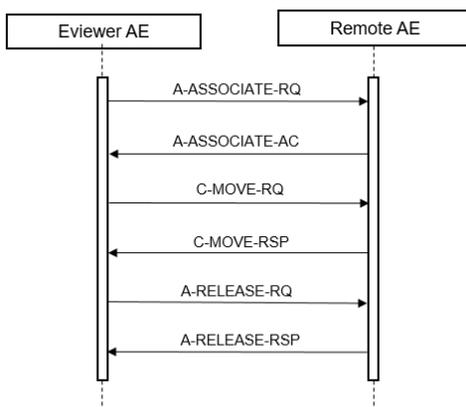
This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

**Table 20: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Matching is complete	Query result is logged in log file, Association is released
Failure	<xxxx>	Failed Communication	Error code is logged in log file. The Association is aborted using A-ABORT

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

**4.2.1.3.4.1. Description and Sequencing of Activities**



**Figure 7: (Real World) Activity - MOVE as SCU**

In the Eviewer 1 or more studies, series or images can be selected and retrieved. In case multiple studies, series are selected for retrieve, for each item a separate C-MOVE-RQ message is send in a separate association to the remote system. (Only a single UID value is included in a C-MOVE –RQ on all levels).

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**

The presentation contexts for MOVE as SCU are defined in the table below.

**Table 21: Proposed Presentation Contexts for (Real-World) Activity – MOVE As SCU**

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

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

The CT System provides standard conformance for the Study Root QR Information Model - MOVE SOP Class.

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

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

**Table 22: Identifiers for MOVE Study Root Information Model as SCU**

Study Root Information Model				
Attribute Name	Tag	VR	Type Of Matching	Comment
Query/Retrieve Level	0008,0052	CS		Study, Series
Study level attributes				
Study Instance UID	0020,000D	UI	Unique	

#### Types of Matching:

The types of Matching supported by the C-MOVE SCU. A 'U' indicates UNIQUE Matching (single UID), and an 'L' indicates that UID lists are sent.

The DICOM C-MOVE Study Root Information Model Command Status Response Handling is shown in the Table below.

**Table 23: Status Response**

Service Status	Status Code	Further Meaning	Behavior
Success	0000	Sub-operations completed	On the Status bar a message is shown that all images are sent completely and then hide automatically.
Failure	A701	Refused: Out of resources. Unable to calculate number of matches	The reason is logged. Message pops up in status bar to give user the error message.
	A702	Refused: Out of resources. Unable to perform sub-operations	The reason is logged. Message pops up in status bar to give user the error message.
	A703	Refused: Move destination Unknown	The reason is logged. Message pops up in status bar to give user the error message.
	A900	Identifier does not match SOP class	The reason is logged. Message pops up in status bar to give user the error message.
	Cxxx	Unable to process	The reason is logged. Message pops up in status bar to give user the error message.
Warning	B000	Sub-operations completed. One or more failures	The reason is logged. Message pops up in status bar to give user the error message.
Pending	FF00	Sub operations are continuing	The reason is logged. Message pops up in status bar to give user the error message.

#### 4.2.1.3.5. (Real-World) Activity - Print Management as SCU

##### 4.2.1.3.5.1. Description and Sequencing of Activities

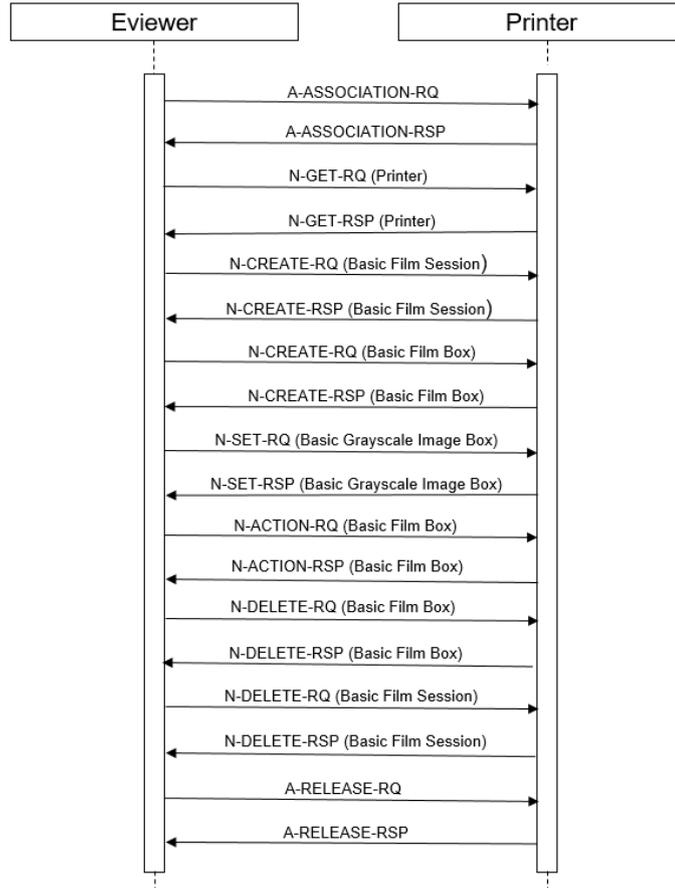


Figure 8: (Real World) Activity - Print Management as SCU

A typical sequence of DIMSE messages sent in an association between Hardcopy AE and a Printer is illustrated in above figure.

- Print AE opens an association with the printer.
- N-GET on the Printer SOP Class is used to obtain current printer status information. If the printer reports a status of failure, the print-job is switched to a failed state and the user is informed.
- N-CREATE on the Film Session SOP Class creates a Film Session.
- N-CREATE on the Film Box SOP Class creates a film box linked to the film session. A single image box will be created as the result of the operation. (Print AE only use the format STANDARD\1,1)
- N-SET on the Image Box (Grayscale or Color) SOP Class transfers the contents of the film sheet to the printer.
- N-ACTION on the Film Box SOP Class instructs the printer to print the film box.
- The printer prints the requested number of film sheets.
- N-DELETE on the FILM BOX SOP Class deletes the Film Box SOP Instance.
- N-DELETE on the Film Session SOP Class deletes the complete Film Session SOP Instance hierarchy.
- Print AE close the association with the printer.

##### 4.2.1.3.5.2. Proposed Presentation Contexts

The presentation contexts are defined in the next table.

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**Table 24: Proposed Presentation Contexts for (Real-World) Activity – Print Management As SCU**

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18			SCU	None
>Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Printer SOP Class	1.2.840.10008.5.1.1.16	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9			SCU	None
>Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Printer SOP Class	1.2.840.10008.5.1.1.16	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

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

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

- ALWAYS      The attribute is always present with a value
- EMPTY      The attribute is always present without any value (attribute sent zero length)
- VNAP      The attribute is always present and its Value is Not Always Present (attribute sent zero length if no value is present)
- ANAP      The attribute is present under specified condition – if present then it will always have a value
- 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
USER	The attribute value source is explicit user input

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

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

##### 4.2.1.3.5.3.1. Dataset Specific Conformance for Basic Color Image Box SOP Class N-SET Request.

**Table 25: Image Box Pixel Presentation Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Box Position	2020,0010	US	1	ALWAYS	FIXED	
Polarity	2020,0020	CS	NORMAL	ALWAYS	FIXED	
Basic Color Image Sequence	2020,0111	SQ		ALWAYS	AUTO	
>Samples per Pixel	0028,0002	US	3	ALWAYS	FIXED	
>Photometric Interpretation	0028,0004	CS	RGB	ALWAYS	FIXED	
>Planar Configuration	0028,0006	US	0	ALWAYS	FIXED	
>Rows	0028,0010	US		ALWAYS	AUTO	
>Columns	0028,0011	US		ALWAYS	AUTO	
>Pixel Aspect Ratio	0028,0034	IS	1\1	ALWAYS	FIXED	
>Bits Allocated	0028,0100	US	8	ALWAYS	FIXED	
>Bits Stored	0028,0101	US	8	ALWAYS	FIXED	
>High Bit	0028,0102	US	7	ALWAYS	FIXED	
>Pixel Representation	0028,0103	US	0	ALWAYS	FIXED	
>Pixel Data	7FE0,0010	OW/ OB		ALWAYS	AUTO	

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

**Table 26: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Image successfully stored in image box.	The print job continues and completes.
Failure	<xxxx>	(any failure)	Print job is not terminated, job is continued and the association is released.
Warning	B604	Image size is larger than image box size, the image has been unmagnified.	The print job continues and the warning is logged.
	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.
	B609	Image size is larger than the image box size. The image has been cropped to fit.	The print job continues and the warning is logged.
	B60A	Image size or combined print image size is larger than the image box size. Image or combined print image has been decimated to fit.	The print job continues and the warning is logged.

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

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

##### 4.2.1.3.5.4.1. Dataset Specific Conformance for Basic Film Box SOP Class N-CREATE Request

Details regarding the Dataset Specific request behavior are reported in this section.

**Table 27: Basic Film Box Presentation Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Display Format	2010,0010	ST	STANDARD\1,1	ALWAYS	FIXED	
Film Orientation	2010,0040	CS	PORTRAIT, LANDSCAPE	ALWAYS	USER	
Film Size ID	2010,0050	CS		ALWAYS	CONFIG	
Magnification Type	2010,0060	CS		ALWAYS	CONFIG	Configurable in standalone EViewer
Min Density	2010,0120	US		ALWAYS	CONFIG	Configurable in standalone EViewer
Max Density	2010,0130	US		ALWAYS	CONFIG	Configurable in standalone EViewer
Trim	2010,0140	CS	YES, NO	ALWAYS	CONFIG	Configurable in standalone EViewer

**Table 28: Basic Film Box Relationship Module**

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

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

**Table 29: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film accepted for printing.	The print job continues and completes.
Failure	<xxxx>	(any failure)	Print job is not terminated, job is continued and the association is released.
Warning	B603	Film Box SOP Instance hierarchy does not contain Image Box SOP Instances (empty page).	The print job continues and the warning is logged.
	B604	Image size is larger than image box size, the image has been unmagnified.	The print job continues and the warning is logged.
	B609	Image size is larger than the image box size. The image has been cropped to fit.	The print job continues and the warning is logged.
	B60A	Image size or combined print image size is larger than the image box size. Image or combined print image has been decimated to fit.	The print job continues and the warning is logged.

#### 4.2.1.3.5.4.2. Dataset Specific Conformance for Basic Film Box SOP Class N-ACTION Response

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

**Table 30: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film accepted for printing.	The print job continues and completes.
Failure	<xxxx>	(any failure)	Print job fails, the error is logged, and the association is released.
Warning	B603	Film Box SOP Instance hierarchy does not contain Image Box SOP Instances (empty page).	The print job continues and the warning is logged.
	B604	Image size is larger than image box size, the image has been unmagnified.	The print job continues and the warning is logged.
	B609	Image size is larger than the image box size. The image has been cropped to fit.	The print job continues and the warning is logged.
	B60A	Image size or combined print image size is larger than the image box size. Image or combined print image has been decimated to fit.	The print job continues and the warning is logged.

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

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

**Table 31: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Job successfully completed	The SCU has successfully completed
Failure	<xxxx>	(any failure)	The print job fails, the error is logged and the association is released.
Warning	<xxxx>	(any warning)	The print job fails, the warning is logged and the association is released.

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

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

##### 4.2.1.3.5.5.1. Dataset Specific Conformance for Basic Film Session SOP Class N-CREATE Request

Details regarding the Dataset Specific request behavior are reported in this section.

**Table 32: Basic Film Session Presentation Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Copies	2000,0010	IS		ALWAYS	USER	
Print Priority	2000,0020	CS	MED	ALWAYS	FIXED	
Medium Type	2000,0030	CS		ALWAYS	CONFIG	
Film Destination	2000,0040	CS		ALWAYS	CONFIG	
Film Session Label	2000,0050	LO	Philips	ALWAYS	FIXED	

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

**Table 33: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	The SCP has completed the operation successfully
Failure	<xxxx>	All error numbers	Error is logged and print job is marked as failure.
Warning	<xxxx>	All warning numbers	Warning is ignored, print job continued.

**4.2.1.3.5.5.2. Dataset Specific Conformance for Basic Film Session SOP Class N-DELETE Request.**

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

**Table 34: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	The SCP has completed the operation successfully
Failure	<xxxx>	Error code	The print job fails, the error is logged and the association is released.

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

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

**4.2.1.3.5.6.1. Dataset Specific Conformance for Printer SOP Class N-EVENT-REPORT Request.**

The DIMSE N-EVENT-REPORT of the Printer SOP Class is not supported by the Eviewer.

**4.2.1.3.5.6.2. Dataset Specific Conformance for Printer SOP Class N-GET Request.**

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

**Table 35: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	The SCP has completed the operation successfully
Failure	<xxxx>	Error during printing	Error is logged and print job is marked as failure
Warning	<xxxx>	Warning during printing	The Eviewer does not react on this status and finish print job

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

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

**4.2.1.3.5.7.1. Dataset Specific Conformance for Basic Film Box SOP Class N-CREATE-RQ**

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

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

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Display Format	2010,0010	ST	STANDARD\1,1	ALWAYS	FIXED	
Film Orientation	2010,0040	CS	PORTRAIT, LANDSCAPE	ALWAYS	USER	

Film Size ID	2010,0050	CS		ALWAYS	CONFIG	
Magnification Type	2010,0060	CS		ALWAYS	CONFIG	Configurable in standalone EViewer
Min Density	2010,0120	US		ALWAYS	CONFIG	Configurable in standalone EViewer
Max Density	2010,0130	US		ALWAYS	CONFIG	Configurable in standalone EViewer
Trim	2010,0140	CS	YES,NO	ALWAYS	CONFIG	Configurable in standalone EViewer

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

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

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

**Table 38: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	The SCP has completed the operation successfully
Failure	<xxxx>	All error numbers	Error is logged and print job is marked as failure
Warning	<xxxx>	All warning numbers	Warning is logged, print job continued.

#### 4.2.1.3.5.7.2. Dataset Specific Conformance for Basic Film Box SOP Class N-ACTION Request.

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

**Table 39: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	The SCP has completed the operation successfully
Failure	<xxxx>	Error code	Print job continued.

#### 4.2.1.3.5.7.3. Dataset Specific Conformance for Basic Film Box SOP Class N-DELETE Request.

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

**Table 40: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	The SCP has completed the operation successfully
Failure	<xxxx>	Error code	Print job continued

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

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

#### 4.2.1.3.5.8.1. Dataset Specific Conformance for Basic Film Session SOP Class N-CREATE Request

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

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

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Copies	2000,0010	IS		ALWAYS	USER	
Print Priority	2000,0020	CS	MED	ALWAYS	FIXED	
Medium Type	2000,0030	CS		ALWAYS	CONFIG	
Film Destination	2000,0040	CS		ALWAYS	CONFIG	
Film Session Label	2000,0050	LO	Philips	ALWAYS	FIXED	

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

**Table 42: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	The SCP has completed the operation successfully
Failure	0106	Invalid attribute value	The association is released after error is received. Does not send film to printer.
	<xxxx>	Other error numbers	Error is ignored, print job continued.
Warning	<xxxx>	All warning numbers	Warning is ignored, print job continued.

#### 4.2.1.3.5.8.2. Dataset Specific Conformance for Basic Film Session SOP Class N-DELETE Request.

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

**Table 43: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	The SCP has completed the operation successfully
Failure	<xxxx>	Error code	Print job continued

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

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

##### 4.2.1.3.5.9.1. Dataset Specific Conformance for Basic Grayscale Image Box SOP Class N-SET Request.

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

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

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Box Position	2020,0010	US	1	ALWAYS	FIXED	
Polarity	2020,0020	CS	NORMAL	ALWAYS	FIXED	
Basic Grayscale Image Sequence	2020,0110	SQ		ALWAYS	AUTO	
>Samples per Pixel	0028,0002	US	1	ALWAYS	FIXED	

>Photometric Interpretation	0028,0004	CS	MONOCHROME2	ALWAYS	FIXED	
>Rows	0028,0010	US		ALWAYS	AUTO	
>Columns	0028,0011	US		ALWAYS	AUTO	
>Pixel Aspect Ratio	0028,0034	IS	1\1	ALWAYS	FIXED	
>Bits Allocated	0028,0100	US	8	ALWAYS	FIXED	
>Bits Stored	0028,0101	US	8	ALWAYS	FIXED	
>High Bit	0028,0102	US	7	ALWAYS	FIXED	
>Pixel Representation	0028,0103	US	0	ALWAYS	FIXED	
>Pixel Data	7FE0,0010	OW/ OB		ALWAYS	AUTO	

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

**Table 45: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	The SCP has completed the operation successfully
Failure	<xxxx>	All error numbers	The error is logged and print job is marked as failure.
Warning	<xxxx>	All warning numbers	The warning is logged. Print job continue.

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

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

##### 4.2.1.3.5.10.1. Dataset Specific Conformance for Printer SOP Class N-EVENT-REPORT Request.

The DIMSE N-EVENT-REPORT of the Printer SOP Class is not supported by Eviewer

##### 4.2.1.3.5.10.2. Dataset Specific Conformance for Printer SOP Class N-GET Request.

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

**Table 46: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	The SCP has completed the operation successfully
Failure	<xxxx>	Error during printing	Error is logged and print job is marked as failure.
Warning	<xxxx>	Warning during printing	Eviewer does not react on this status and finish printing

#### 4.2.1.4. Association Acceptance Policy

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

**Table 47: Association Reject reasons**

Result	Source	Reason/Diagnosis	Behavior
1 - rejected permanent	1 - DICOM UL service-user	2 - application-context-name-not-supported	When receiving association request and the application context name is not supported.

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

\* Remark: the Eviewer system accepts associations from any host and from any calling AE title. It is not required to add the remote DICOM SCU node to the configuration in the Eviewer.

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

**Table 48: DICOM receiving Association Abort Handling.**

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

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

**Table 49: Association Abort Policies.**

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

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

##### 4.2.1.4.1.1. Description and Sequencing of Activities

A remote system requests verification from Eviewer AE using the C-ECHO command.

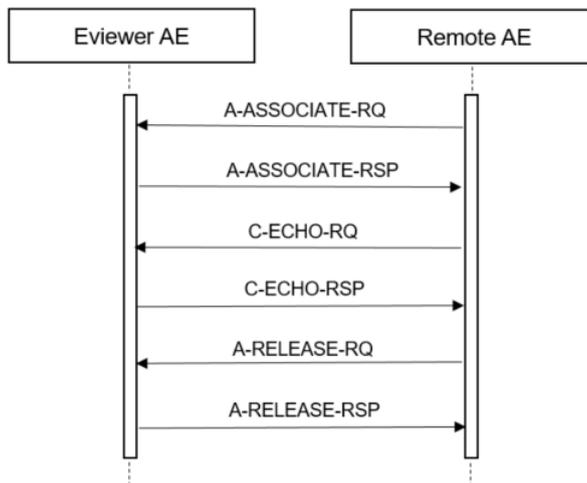


Figure 9: (Real World) Activity - Verification as SCP

#### 4.2.1.4.1.2. Accepted Presentation Contexts

The presentation contexts are defined in the next table.

Table 50: 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	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

#### 4.2.1.4.1.3. SOP Specific Conformance for Verification SOP Class

The system provides standard conformance to the Verification SOP Class as an SCP.

##### 4.2.1.4.1.3.1. Dataset Specific Conformance for Verification C-ECHO SCP

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

Table 51: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Success	The C-ECHO message is successfully received.
Failure	C000	Error- Cannot Understand	In all other situation than success.

#### 4.2.1.4.2. (Real-World) Activity – Image Import

##### 4.2.1.4.2.1. Description and Sequencing of Activities

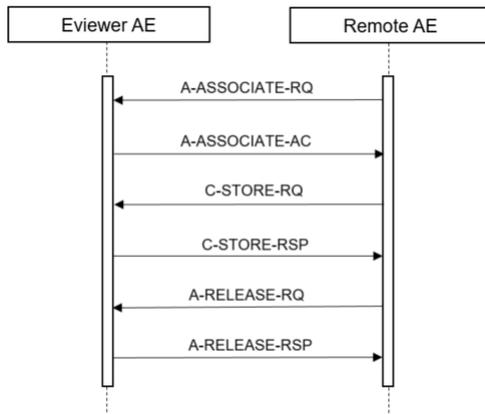


Figure 10: (Real World) Activity - Image Import

The Storage SCP function will accept images as a result of a retrieve request initiated by Eviewer and in case a remote Storage SCU node opens an association to store supported Storage SOP class objects to Eviewer.

##### 4.2.1.4.2.2. Accepted Presentation Contexts

The presentation contexts are defined in the next table.

Table 52: 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		
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		
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		
X-Ray Radiation Dose SR	1.2.840.10008.5.1.4.1.1.88.67	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

The use of Explicit Little Endian transfer syntax is preferred.

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

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

##### 4.2.1.4.2.3.1. Dataset Specific Conformance for C-STORE-RSP

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

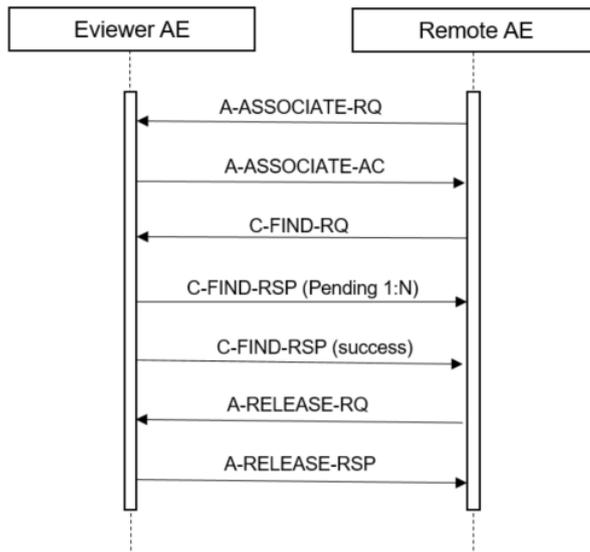
This includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

**Table 53: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Successful stored	Information is automatically updated in the patient list and series list
Failure	A700	Refused: Out of Resources	The reason is logged. Message pops up to give user the error message
	Cxxx	Error: Cannot understand	The reason is logged. Message pops up to give user the error message
	A900	Error: Data Set does not match SOP Class	The reason is logged. Message pops up to give user the error message

#### 4.2.1.4.3. (Real-World) Activity – FIND as SCP

##### 4.2.1.4.3.1. Description and Sequencing of Activities



**Figure 11: (Real World) Activity – FIND as SCP**

The FIND SCP function will respond to query requests from a remote system. Queries are supported on STUDY, SERIES and IMAGE level.

##### 4.2.1.4.3.2. Accepted Presentation Contexts

The presentation contexts are defined in the next table.

**Table 54: Acceptable Presentation Contexts for (Real-World) Activity – Find as SCP**

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Study Root QR information Model – FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

The use of Explicit Little Endian transfer syntax is preferred.

**4.2.1.4.3.3. SOP Specific Conformance for Study Root QR Information Model – FIND SOP Class**

The Eviewer AE provides standard conformance to the Query/Retrieve service class. Relational queries are not supported. The maximum number of association requests for incoming queries that can be handled by Eviewer AE at the same time is unlimited.

**4.2.1.4.3.3.1. Dataset Specific Conformance for Study Root QR Information Model – FIND SOP Class**

Eviewer only supports hierarchical queries, starting at the top level in the Query/Retrieve Information Model, continuing until the Query/Retrieve level specified in the C-FIND request is reached.

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

**Table 55: Supported Query Keys for Study Root Information Model**

Study Root Information Model				
Attribute Name	Tag	VR	Type Of Matching	Comment
Query/Retrieve Level	0008,0052	CS	NONE	Study, Series, Image
Specific Character Set	0008,0005	CS	NONE	Required in case non default characters are used in one of the matching values.
Study level attributes				
Study Date	0008,0020	DA	R,U	
Study Time	0008,0030	TM	U	
Patient's Birth Date	0010,0030	DA	R,U	
Modalities in Study	0008,0061	CS	S,*,U	Matching is not case sensitive
Referring Physician's Name	0008,0090	PN	U,*	
Study Description	0008,1030	LO	S,*,U	Matching is not case sensitive
Number of Study Related Series	0020,1206	IS	U	
Number of Study Related Instances	0020,1208	IS	U	
Accession Number	0008,0050	SH	S,*,U	Matching is not case sensitive
Retrieve AE Title	0008,0054	AE	NONE	
Patient's Name	0010,0010	PN	*,U	
Patient ID	0010,0020	LO	S,*,U	Matching is not case sensitive
Patient's Sex	0010,0040	CS	S,U	M, F, O
Study Instance UID	0020,000D	UI	Unique	
Study ID	0020,0010	SH	S,*,U	Matching is not case sensitive
Series level attributes				
Retrieve AE Title	0008,0054	AE	NONE	
Number of Series Related Instances	0020,1209	IS	U	
Series Description	0008,103E	LO	S,*,U	

Modality	0008,0060	CS	S,U	
Study Instance UID	0020,000D	UI	L, U	
Series Instance UID	0020,000E	UI	L,Unique	
Series Number	0020,0011	IS	S,U	
<b>Image level attributes</b>				
SOP Instance UID	0008,0018	UI	L,Unique	
Image Type	0008,0008	CS	U	
Retrieve AE Title	0008,0054	AE	NONE	
Instance Number	0020,0013	IS	S,U	
Study Instance UID	0020,000D	UI	L,U	
Series Instance UID	0020,000E	UI	L,U	

**Types of Matching:**

The types of Matching supported by the C-FIND SCP. An "S" indicates the identifier attribute uses Single Value Matching, an "R" indicates Range Matching, an "\*" indicates wild card matching, a 'U' indicates Universal Matching and "L" indicates List of UID Matching.

**Table 56: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Successfully stored	Matching successful
Failure	C000	General failure status	Whenever the find operation failed.
	A900	Identifier does not match SOP class	
Cancel	FE00	Cancel	Whenever receiving a cancel request
Pending	FF00	Pending	For every C-FIND response. More responses to follow.

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

**4.2.1.4.4.1. Description and Sequencing of Activities**

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

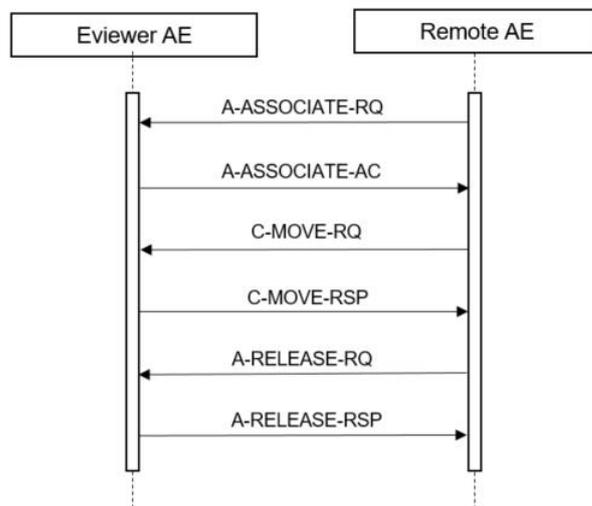


Figure 12: (Real World) Activity – MOVE as SCP

The MOVE SCP service will respond to move requests from a remote system. Retrieve operations are supported on STUDY, SERIES and IMAGE level.

#### 4.2.1.4.4.2. Accepted Presentation Contexts

The presentation contexts are defined in the next table.

Table 57: Acceptable Presentation Contexts for (Real-World) Activity – MOVE as SCP

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Study Root QR information Model – MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

The use of Explicit Little Endian transfer syntax is preferred.

#### 4.2.1.4.4.3. SOP Specific Conformance for Study Root QR Information Model – MOVE SOP Class

The Eviewer AE provides standard conformance to MOVE SOP class as an SCP. Extended negotiation is not supported. All instances requested in a single C-MOVE –RQ message will be sent over a single association. Only single values in C-MOVE-RQ identifiers are supported.

#### 4.2.1.4.4.3.1. Dataset Specific Conformance for Study Root QR Information Model – MOVE SOP Class

The possible identifiers for the C-MOVE-SCP are shown in the table below.

Table 58: Identifiers for MOVE Study Root Information Model as SCP

Study Root Information Model				
Attribute Name	Tag	VR	Type Of Matching	Comment
Query/Retrieve Level	0008,0052	CS		Study, Series
Study level attributes				
Study Instance UID	0020,000D	UI	Unique	

Series level attributes			
Series Instance UID	0020,000E	UI	Unique

Types of Matching:

The types of Matching supported by the C-MOVE SCP. An "S" indicates the identifier attribute uses Single Value Matching, "NONE" indicates that no matching is supported.

**Table 59: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	MOVE operation is completed.	The C-MOVE command has been completed.
Failure	A801	Move destination unknown	No C-STORE command will be sent. Eviever logs the reason.
	A900	Identifier does not match SOP class	The C-MOVE request cannot be parsed. No Store Command will be sent. Eviever logs the reason.
	Cxxx	Unable to process	The C-MOVE request cannot be parsed. No Store Command will be sent. Eviever logs the reason.
Cancel	FE00	Cancel	Whenever receiving a cancel request
Warning	B000	Move operation completed with one or more failures	Move operation completed. Eviever logs the reason for one or more failures.
Pending	FF00	Pending	The C-MOVE request is canceled, no more C-MOVE responses are sent.

### 4.3. Network Interfaces

#### 4.3.1. Physical Network Interfaces

The System provides only DICOM V3.0 TCP/IP Network Communication Support as defined in PS 3.8 of the standard. TCP/IP is the only protocol stack supported.

The Eviever inherits its TCP/IP stack from Windows 7 (i.e. the operation system platform).

The Eviever supports a single network interface: Ethernet ISO. 802.3 with supported physical medium include:

- IEEE 802.3-1995, 10BASE-T
- IEEE 802.3-1995, 100BASE-TX (Fast Ethernet)
- IEEE 802.3, 1000BASE-X (Fiber Optic Gigabit Ethernet).

The TCP/IP Stack as supported by the underlying Operating System.

The API is the WinSock 2 interface as supported by the underlying Operating System.

#### 4.3.2. Additional Protocols

Not applicable

### 4.4. Configuration

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

#### 4.4.1. AE Title/Presentation Address Mapping

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

##### 4.4.1.1. Local AE Titles

The local AE title mapping and configuration are specified as:

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**Table 60: AE Title configuration table**

Application Entity	Default AE Title	Default TCP/IP Port
STORE SCU	MIPPP	
PRINT	MIPPP	
QR SCU	MIPPP	
STORE SCP	MIPPP	104
QR SCP	MIPPP	105

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

The configuration of the remote application is specified here.

**Table 61: Defined remote parameters StorageSCU AE**

Description	Default
RemoteAE	None
IP	None
Port	None
AR Timeout (s)	20 seconds

**Table 62: Defined remote parameters QRSCU AE**

Description	Default
Remote AE	None
IP	None
Port	None
AR Timeout (s)	20 seconds

**Table 63: Defined remote parameters DICOM SCP**

Description	Default
Calling Title	None

#### 4.4.2. Parameters

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

**Table 64: Configuration Parameters Table**

Parameter	Configurable*	Default Value
<b>General Parameters</b>		
Max PDU receive size	No	16384
Max PDU send size	No	131072
<b>Storage SCU AE Specific Parameters</b>		
DIMSE Time Out (storage)	No	20 seconds
<b>QRSCU AE Specific Parameters</b>		
DIMSE Time Out (FIND)	No	20 seconds
ARTim Time Out (MOVE)	Yes	20 seconds

Parameter	Configurable*	Default Value
DIMSE Time Out (MOVE)	No	20 seconds
<b>Storage SCP AE Specific Parameters</b>		
ARTim Time Out	Yes	20 seconds
DIMSE Time Out	Yes	20 seconds
<b>QRSCP AE Specific Parameters</b>		
ARTim Time Out	Yes	20 seconds
DIMSE Time Out	Yes	20 seconds

\* Remark: Value Yes = value can be changed via service mode UI  
Value No = value is defined in configuration file in the system.

## 5. Media Interchange

### 5.1. Implementation model

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

#### 5.1.1. Application Data Flow Diagram

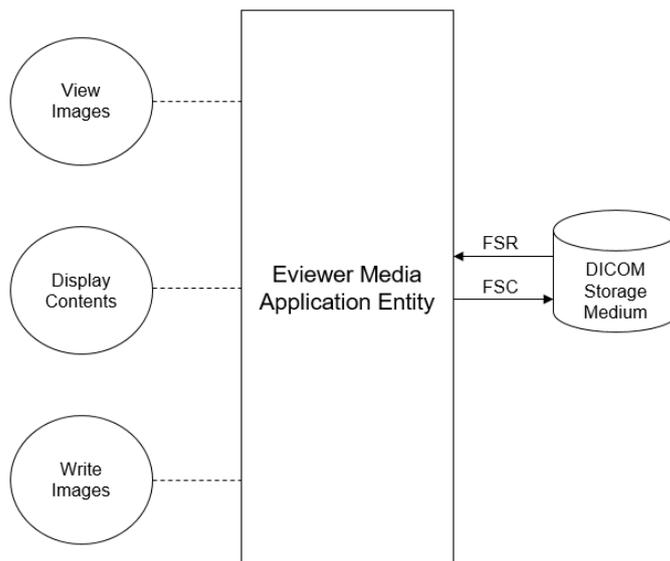


Figure 13: Media Application Data Flow Diagram

#### 5.1.2. Functional Definitions of AE's

- The Eviewer can write and read to different media's.
- The DICOM Standard protocol is used for writing to CD's and DVD's.
- For other media their own protocol is used.
- The images on the CD or DVD can be viewed with the on CD or DVD available viewer.
- The Eviewer cannot update a CD or DVD. An error message will be popup.

### 5.1.3. Sequencing of Real World Activities

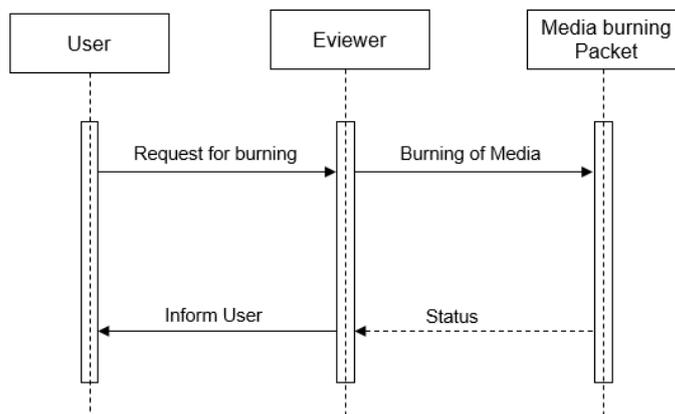


Figure 14: Sequence of Real World Activities - Media

After the selection of studies for the media the system check if the media is already used.

## 5.2. AE Specifications

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

### 5.2.1. Media - Specification

Table 65: AE media related Application Profiles, RWA activities and roles

Supported Application Profile	Identifier	Real-World Activities	Roles
General Purpose CD-R Interchange	STD-GEN-CD	Create File-set	FSC
		Read File-set	FSR

#### 5.2.1.1. File Meta Information for the media

Table 66: File Meta Information for the media

Implementation Class UID	1.3.46.670589.61.1
Implementation Version Name	CHESS4_5

#### 5.2.1.2. Real-World Activities

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

##### 5.2.1.2.1. RWA - Read File-set

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

##### 5.2.1.2.1.1. Media Storage Application Profile

The Eviewer uses the default "General Purpose CD-R" application profile for reading the CD or DVD.

The Eviewer will read the CD or DVD for the "CT Image" and "Secondary Capture" SOP classes, X-Ray Radiation Dose Report and General Electrocardiogram.

Read images can be displayed with the Eviewer viewer (except for the X-Ray Radiation Dose Report).

#### **5.2.1.2.1.1.1. Options**

Not applicable

#### **5.2.1.2.2. RWA - Create File-set**

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

##### **5.2.1.2.2.1. Media Storage Application Profile**

The Eviewer write CD and DVD by using the "General Purpose CD-R Interchange" application profile. The Eviewer can write multiple studies and multiply patients on a single CD or DVD in one process. Update of CD or DVD with a new study is not possible.

#### **5.2.1.2.2.1.1. Options**

Not applicable

#### **5.2.1.2.3. RWA - Update File-set**

Not applicable

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

Not applicable

### **5.4. Media Configuration**

Not applicable

## 6. Support of Character Sets

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

**Table 67: Supported DICOM Character Sets**

Character Set Description	Defined Term	ESC Sequence	ISO Registration Number	Code Element	Character Set
GB18030	GB18030	-	-	-	-
Latin alphabet No. 1	ISO_IR 100	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 100	G1	Supplementary set of ISO 8859
Latin alphabet No. 2	ISO_IR 101	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 101	G1	Supplementary set of ISO 8859
Cyrillic	ISO_IR 144		ISO-IR 6	G0	ISO 646
			ISO-IR 144	G1	Supplementary set of ISO 8859
Unicode in UTF-8	ISO_IR 192	-	-	-	-

## 7. Security

### 7.1. Security Profiles

This version of the Eviewer does not satisfy the security as describe in the DICOM Standard.

#### 7.1.1. Security use Profiles

Not applicable

#### 7.1.2. Security Transport Connection Profiles

Not applicable

#### 7.1.3. Digital Signature Profiles

Not applicable

#### 7.1.4. Media Storage Security Profiles

Not applicable

#### 7.1.5. Attribute Confidentiality Profiles

Not applicable

#### 7.1.6. Network Address Management Profiles

Not applicable

#### 7.1.7. Time Synchronization Profiles

Not applicable

#### 7.1.8. Application Configuration Management Profiles

Not applicable

#### 7.1.9. Audit Trail Profiles

Not applicable

### 7.2. Association Level Security

Not applicable

### 7.3. Application Level Security

Not applicable

## 8. Eviewer

### 8.1. IOD Contents

#### 8.1.1. Created SOP Instance

This section specifies each IOD created by this application.

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

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

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

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

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

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

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

##### 8.1.1.1. List of created SOP Classes

**Table 68: List of created SOP Classes**

SOP Class Name	SOP Class UID
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7

##### 8.1.1.2. CT Image Storage SOP Class

**Table 69: IOD of Created CT Image Storage SOP Class Instances**

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
	Patient Study Module	ALWAYS
Series	General Series Module	ALWAYS
	Frame of Reference Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	General Image Module	ALWAYS

General Reference Module	ALWAYS
Image Plane Module	ALWAYS
Image Pixel Module	ALWAYS
Contrast/Bolus Module	CONDITIONAL
CT Image Module	ALWAYS
Overlay Plane Module	CONDITIONAL
VOI LUT Module	ALWAYS
SOP Common Module	ALWAYS

**Table 70: Patient Module**

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

**Table 71: General Study Module**

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

**Table 72: Patient Study Module**

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

**Table 73: General Series Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Date	0008,0021	DA		ALWAYS	AUTO	
Series Time	0008,0031	TM		ALWAYS	AUTO	
Modality	0008,0060	CS	CT	ALWAYS	COPY	
Series Description	0008,103E	LO		VNAP	USER	
Operators' Name	0008,1070	PN		VNAP	COPY	
Body Part Examined	0008,0015	CS		ALWAYS	COPY	
Protocol Name	0018,1030	LO		ALWAYS	COPY	
Patient Position	0018,5100	CS		ALWAYS	COPY	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS		ALWAYS	AUTO	
Request Attributes Sequence	0040,0275	SQ		ALWAYS	AUTO	

>Scheduled Procedure Step ID	0040,0009	SH		ANAP	AUTO	
>Requested Procedure ID	0040,1001	SH		ANAP	AUTO	
>Reason for the Requested Procedure	0040,1002	LO		ALWAYS	AUTO	

Table 74: Frame of Reference Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Frame of Reference UID	0020,0052	UI		COPY, AUTO	AUTO	The Eviewer will generate a new UID when generate a batch images with mini-localizer from original images.
Position Reference Indicator	0020,1040	LO		EMPTY		

Table 75: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips	ALWAYS	FIXED	
Institution Name	0008,0080	LO		VNAP	COPY	
Institution Address	0008,0081	ST		ALWAYS	COPY	
Institutional Department Name	0008,1040	LO		ALWAYS	COPY	
Station Name	0008,1010	SH		ALWAYS	COPY	
Manufacturer's Model Name	0008,1090	LO	Incisive CT	ALWAYS	COPY	
Software Version(s)	0018,1020	LO	CHESS4_5	ALWAYS	COPY	
Spatial Resolution	0018,1050	DS		ALWAYS	COPY	
Device Serial Number	0018,1000	LO		VNAP	AUTO	

Table 76: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Referenced Image Sequence	0008,1140	SQ		ALWAYS	COPY	
Content Date	0008,0023	DA		ALWAYS	AUTO	
Acquisition Date	0008,0022	DA		ALWAYS	COPY	
Acquisition Time	0008,0032	TM		ALWAYS	COPY	
Content Time	0008,0033	TM		ALWAYS	AUTO	
Instance Number	0020,0013	IS		ALWAYS	COPY	
Acquisition number	0020,0012	IS		ALWAYS	AUTO	
Image Laterality	0020,0062	CS		ALWAYS	AUTO	
Lossy Image Compression	0028,2110	CS		ALWAYS	AUTO	

Table 77: General Reference Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Referenced Image Sequence	0008,1140	SQ		ANAP	AUTO	
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	
Source Image Sequence	0008,2112	SQ		ANAP	AUTO	2D application always present. Other application present when DIN is configured
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	

**Table 78: Image Plane Module**

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

**Table 79: Image Pixel Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Samples per Pixel	0028,0002	US	1	ALWAYS	FIXED	
Photometric Interpretation	0028,0004	CS	MONOCHROME2	ALWAYS	FIXED	
Rows	0028,0010	US		ALWAYS	AUTO	
Columns	0028,0011	US		ALWAYS	AUTO	
Bits Allocated	0028,0100	US	16	ALWAYS	FIXED	
Bits Stored	0028,0101	US	12	ALWAYS	FIXED	
High Bit	0028,0102	US	11	ALWAYS	FIXED	
Pixel Representation	0028,0103	US	0	ALWAYS	AUTO	
Pixel Data	7FE0,0010	OW		ALWAYS	AUTO	

**Table 80: Contrast/Bolus Module**

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

**Table 81: CT Image Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	Value 1: ORIGINAL, Value 2: PRIMARY, Value 3: AXIAL, LOCALIZER Value 4: application defined or empty	ALWAYS	AUTO	
Scan Options	0018,0022	CS		ALWAYS	COPY	
KVP	0018,0060	DS		ALWAYS	COPY	
Data Collection Diameter	0018,0090	DS		ANAP	COPY	
Reconstruction Diameter	0018,1100	DS		ANAP	COPY	
Distance Source to Detector	0018,1110	DS		ANAP	COPY	
Distance Source to Patient	0018,1111	DS		ANAP	COPY	
Gantry/Detector Tilt	0018,1120	DS		ALWAYS	COPY	
Table Height	0018,1130	DS		ALWAYS	COPY	
Rotation Direction	0018,1140	CS	CW	ANAP	COPY	
Exposure Time	0018,1150	IS		ALWAYS	COPY	
X-ray Tube Current	0018,1151	IS		ALWAYS	COPY	
Exposure	0018,1152	IS		ALWAYS	COPY	
Filter Type	0018,1160	SH	WEDGE	ALWAYS	COPY	
Convolution Kernel	0018,1210	SH		ALWAYS	COPY	
Revolution Time	0018,9305	FD		ALWAYS	COPY	

Single Collimation Width	0018,9306	FD		ALWAYS	AUTO	
Total Collimation Width	0018,9307	FD		ALWAYS	AUTO	
Table Speed	0018,9309	FD		ANAP	COPY	
Table Feed per Rotation	0018,9310	FD		ALWAYS	COPY	
Spiral Pitch Factor	0018,9311	FD		ALWAYS	COPY	Only in Helical scans
CTDIvol	0018,9345	FD		ALWAYS	COPY	
CTDI Phantom Type Code Sequence	0018,9346	SQ		ALWAYS	COPY	
>Code Value	0008,0100	SH		ANAP	COPY	
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	
>Code Meaning	0008,0104	LO		ANAP	COPY	
Reconstruction Target Center (Patient)	0018,9318	FD		ALWAYS	COPY	
Acquisition Number	0020,0012	IS		ALWAYS	COPY	
Samples per Pixel	0028,0002	US	1	ALWAYS	FIXED	
Photometric Interpretation	0028,0004	CS	MONOCHROME2	ALWAYS	COPY	
Bits Allocated	0028,0100	US	16	ALWAYS	COPY	
Bits Stored	0028,0101	US	12	ALWAYS	COPY	
High Bit	0028,0102	US	11	ALWAYS	COPY	
Rescale Intercept	0028,1052	DS	-1024	ALWAYS	COPY	
Rescale Slope	0028,1053	DS	1	ALWAYS	COPY	
Rescale Type	0028,1054	LO	HU, US	ALWAYS	FIXED	US is used for Localizer
Exposure Modulation Type	0018,9323	CS		ALWAYS	AUTO	

Table 82: Overlay plane module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Overlay Rows	60xx,0010	US		ALWAYS	AUTO	
Overlay Columns	60xx,0011	US		ALWAYS	AUTO	
Overlay Type	60xx,0040	CS		ALWAYS	AUTO	
Overlay Origin	60xx,0050	SS		ALWAYS	AUTO	
Overlay Bits Allocated	60xx,0100	US		ALWAYS	AUTO	
Overlay Bit Position	60xx,0102	US		ALWAYS	AUTO	
Overlay Data	60xx,3000	OW		ALWAYS	AUTO	

Table 83: VOI LUT Module

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

Table 84: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAP	COPY	
Instance Creation Date	0008,0012	DA		ALWAYS	AUTO	
Instance Creation Time	0008,0013	TM		ALWAYS	AUTO	
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.2	ALWAYS	FIXED	
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	

### 8.1.1.3. Secondary Capture Image Storage SOP Class

**Table 85: IOD of Created Secondary Capture Image Storage SOP Class Instances (Dose info page)**

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
	SC Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
	Image Pixel Module	ALWAYS
	SC Image Module	ALWAYS
	SOP Common Module	ALWAYS

**Table 86: Patient Module**

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

**Table 87: General Study Module**

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

**Table 88: General Series Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS	USER	
Series Date	0008,0021	DA		ALWAYS	AUTO	
Series Time	0008,0031	TM		ALWAYS	AUTO	
Series Description	0008,103E	LO	2D_Secondary	ALWAYS	COPY	
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	
Series Number	0020,0011	IS	10009	ALWAYS	AUTO	
Request Attributes Sequence	0040,0275	SQ		ALWAYS	AUTO	
>Reason for the Requested Procedure	0040,1002	LO		ALWAYS	AUTO	

**Table 89: General Equipment Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips	ALWAYS	FIXED	
Institution Name	0008,0080	LO		VNAP	COPY	
Institution Address	0008,0081	ST		ALWAYS	COPY	
Institutional Department Name	0008,1040	LO		ALWAYS	COPY	

Manufacturer's Model Name	0008,1090	LO	Incisive CT	ALWAYS	COPY	
Software Version(s)	0018,1020	LO	CHESS4_5	ALWAYS	COPY	
Spatial Resolution	0018,1050	DS		ALWAYS	COPY	
Device Serial Number	0018,1000	LO		VNAP	AUTO	

Table 90: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS	CT	ALWAYS	COPY	
Conversion Type	0008,0064	CS	WSD	ALWAYS	FIXED	
Secondary Capture Device Manufacturer	0018,1016	LO	Philips	ALWAYS	CONFIG	
Secondary Capture Device Manufacturer Model Name	0018,1018	LO	Incisive CT	ALWAYS	CONFIG	

Table 91: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	Value 1: DERIVED, Value 2: SECONDARY Value 3: TWOD	ALWAYS	AUTO	
Acquisition Date	0008,0022	DA		ALWAYS	AUTO	
Content Date	0008,0023	DA		ALWAYS	AUTO	
Acquisition Time	0008,0032	TM		ALWAYS	AUTO	
Content Time	0008,0033	TM		ALWAYS	AUTO	
Instance Number	0020,0013	IS	1	ALWAYS	AUTO	
Patient Orientation	0020,0020	CS		EMPTY		
Burned In Annotation	0028,0301	CS	YES	ALWAYS	FIXED	

Table 92: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Samples per Pixel	0028,0002	US	3	ALWAYS	FIXED	
Photometric Interpretation	0028,0004	CS	RGB	ALWAYS	FIXED	
Planar Configuration	0028,0006	US		ALWAYS	AUTO	
Rows	0028,0010	US	512	ALWAYS	AUTO	
Columns	0028,0011	US	828	ALWAYS	FIXED	
Bits Allocated	0028,0100	US	8	ALWAYS	FIXED	
Bits Stored	0028,0101	US	8	ALWAYS	FIXED	
High Bit	0028,0102	US	7	ALWAYS	FIXED	
Pixel Representation	0028,0103	US	0	ALWAYS	AUTO	
Pixel Data	7FE0,0010	OW		ALWAYS	FIXED	

Table 93: SC Image Module

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

**Table 94: SOP Common Module**

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

## 8.1.2. Usage of Attributes from Received IOD

**Table 95: Functionalities**

Functionality	Type1	Optional	Private
Viewer	X		

## 8.1.3. Attribute Mapping

Not applicable

## 8.1.4. Coerced/Modified fields

Not applicable

## 8.2. Data Dictionary of Private Attributes

Not applicable

## 8.3. Coded Terminology and Templates

Not applicable

### 8.3.1. Context Groups

Not applicable

### 8.3.2. Template Specifications

Not applicable

### 8.3.3. Private code definitions

Not applicable

## 8.4. Grayscale Image consistency

Not applicable

## 8.5. Standard Extended/Specialized/Private SOPs

Not applicable

## 8.6. Private Transfer Syntaxes

Not applicable