DICOM CONFORMANCE STATEMENT

FOR

X-RAY ANGIOGRAPHY

Alphenix
(INFX-8000F, INFX-8000C, INFX-8000V , INFX-8000H)

V9.6

CANON MEDICAL SYSTEMS CORPORATION

Mar. 2025

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1 Overview

Alphenix is X-Ray Angiography system and implements DICOM Workflow management, Storage, Query/Retrieve, Print Management and Media services by Figure 1-1.
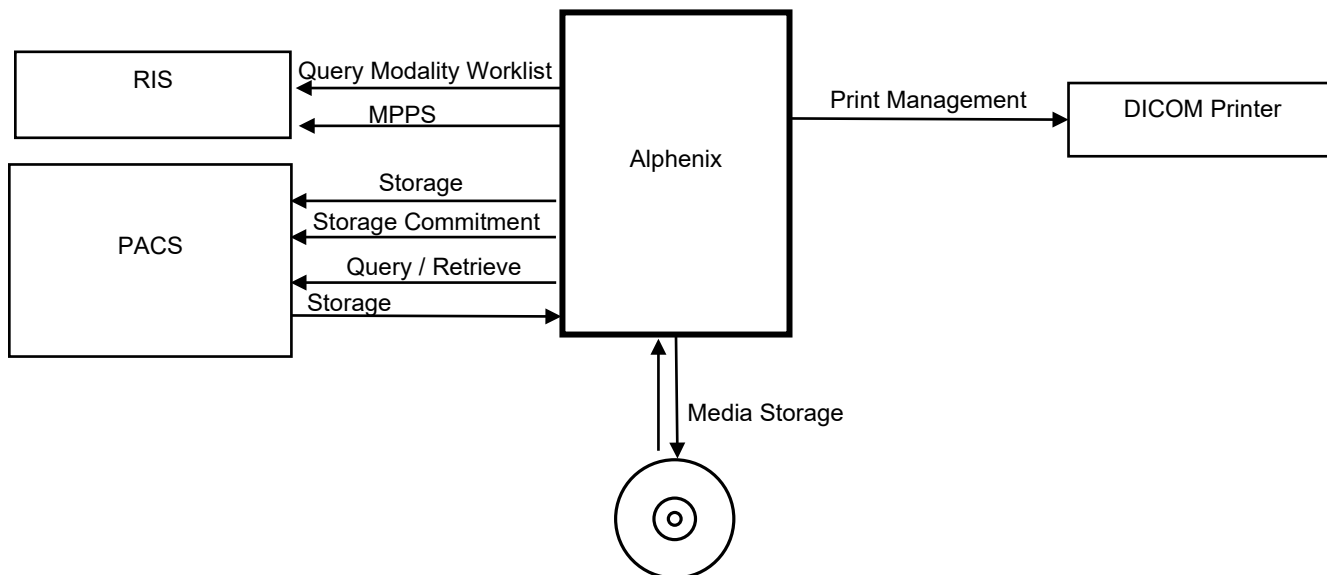

Figure 1-1 Overview of Implemented Services

1.1 Content and Transfer

Table 1-1 lists all Storage SOP Classes and the supported transfer mechanisms as well as the usage scenarios for those instances.

The "Transfer Syntax Set" column lists the sets of Transfer Syntaxes defined in Table 1-2 that are applicable to each SOP Class. The "DIMSE", "DICOM Web" and "Media Services" columns indicate the roles supported for each SOP Class.

The "Function" columns indicate how the instances are used by the system:

• Create: The system creates instances of the SOP Class. The type of the created SOP Class is indicated by one of the following abbreviations:

  • S: Standard SOP Class

  • SE: Standard Extended SOP Class

  • SP: Specialized SOP Class

  • P: Private SOP Class

• Display: The system displays the instances of the SOP Class to the user, either by displaying the SOP Instances natively or by applying instances of another suitable SOP Class to the image instances (e.g., a Presentation State or CAD SR).

• Process: The system processes the instances of the SOP Class to derive some further information that is made available to the user (e.g., a CAD processing algorithm, or a 3D Rendering).

• Archive: The system stores the instances of the SOP Class and makes them available again.

Table 1-1 Storage SOP Classes

SOP Classes		Transfer Syntax Set	DIMSE Services		DICOM Web Services		Media Services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
Media Storage Directory Storage	1.2.840.10008. 1.3.10	MS	N	N	N	N	Y	N	Y	SE	N	N	N
X-Ray Angiographic Image Storage	1.2.840.10008. 5.1.4.1.1.12.1	ITS	Y*	Y	N	N	Y	N	Y	SE	Y	N	N
X-Ray Radiation Dose SR Storage	1.2.840.10008. 5.1.4.1.1.88.67	NI	Y*	N	N	N	N	N	N	See Table 1-3			

*Option

Table 1-2 Supported Transfer Syntaxes

Transfer Syntax Set	Transfer Syntax Name	Transfer Syntax UID	DICOM Web Service Bulkdata Media Type
Media Transfer Syntax Set (**MS**)	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70	N/A
	Explicit VR Little Endian	1.2.840.10008.1.2.1	N/A
Image Transfer Syntax Set (**ITS**)	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70	N/A
	Implicit VR Little Endian	1.2.840.10008.1.2	N/A
	Explicit VR Little Endian	1.2.840.10008.1.2.1	N/A
Non-Image Transfer Syntax Set (**NI**)	Implicit VR Little Endian	1.2.840.10008.1.2	N/A
	Explicit VR Little Endian	1.2.840.10008.1.2.1	N/A

1.1.1　Structured Reporting Root Template IDs

Table 1-3 lists all Template IDs (TID) of Root Templates that are supported by the system. The "Function" column indicates how the system uses the content of the DICOM SR:

• CREATE: The system creates instances using the specified TID.

• RENDER: The system displays the content of the SR, without using the data for any processing.

• EXTRACT_DATA: The system can extract structured data from the content and use the data for subsequent processing (e.g., reporting).

• OVERLAY: The system uses the information in the SR to display information directly on the images (e.g., Mammography CAD markers).

• ARCHIVE: The system stores instances for later retrieval.

The "SOP Class UID" column indicates which of the SR Storage SOP Classes are used to encode the information or to store it. If multiple SOP Classes are supported the "Condition" column describes the conditions for using the different SOP Classes.

Table 1-3 Supported Root SR Template IDs (TIDs)

Name	Root TID	Function	SOP Classes		Condition
Projection X-Ray Radiation Dose	10001	CREATE	X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67	N/A

1.2 DIMSE Services

1.2.1 Verification

Table 1-4 lists support for the Verification SOP Class.

Table 1-4 Verification SOP Class

SOP Classes		Transfer Syntax		SCU	SCP
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	Y
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	Y

1.2.2 Storage

For details on supported Storage SOP Classes, see Section 1.1.

1.2.3 Workflow Management

Table 1-5 lists all supported Workflow Management SOP Classes.

Table 1-5 Workflow Management SOP Classes

SOP Classes		Transfer Syntax		SCU	SCP
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	Implicit VR Little Endian	1.2.840.10008.1.2	Y*	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y*	N
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	Implicit VR Little Endian	1.2.840.10008.1.2	Y*	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y*	N

*Option

1.2.4 Query/Retrieve
Table 1-6 lists all supported Query/Retrieve SOP Classes.

Table 1-6 Query/Retrieve SOP Classes

SOP Classes		Transfer Syntax		SCU	SCP
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	Y*	N
		Implicit VR Little Endian	1.2.840.10008.1.2	Y*	N
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	Y*	N
		Implicit VR Little Endian	1.2.840.10008.1.2	Y*	N

*Option

1.2.5 Printing
Table 1-7 lists all supported Printing SOP Classes.

Table 1-7 Printing SOP Classes

SOP Classes		Transfer Syntax		SCU	SCP
Basic Grayscale Print Management Meta	1.2.840.10008.5.1.1.9	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
Basic Film Session	1.2.840.10008.5.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
Basic Film Box	1.2.840.10008.5.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
Basic Grayscale Image Box	1.2.840.10008.5.1.1.4	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
Print Job	1.2.840.10008.5.1.1.14	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
Printer	1.2.840.10008.5.1.1.16	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N

1.3 DICOM Web Services - N/A
N/A

1.4 Media Services
Table 1-8 lists all supported Media Application Profiles.

Table 1-8 Supported Media Application Profiles

Media Storage Application Profile	FSC	FSR	FSU
Compact Disk - Recordable			
STD-XABC-CD	Y	Y	N
AUG-XABC-CD	Y	Y	N

STD-GEN-DVD-JPEG	Y	Y	N

1.5 Real Time Video Service - N/A

N/A

1.6 De-identification Profiles

Table 1-9 lists all supported de-identification profiles and options.

Table 1-9 De-Identification Profiles

Profile	Option
Basic Application-Level Confidentiality	Basic Profile

1.7 Specific Character Sets

Table 1-10 Supported Specific Character Sets

Defined Term	IANA	Description
Single-Byte Character Sets without Code Extensions		
none	ISO-646 or US-ASCII	Default Repertoire
ISO_IR 100	ISO-8859-1	Latin Alphabet No.1 (West Europe)
ISO_IR 144	ISO-8859-5	Cyrillic
Single-Byte Character Sets with Code Extension		
ISO 2022 IR 6	ISO-646 or US-ASCII	Default Repertoire
Multi-Byte Character Sets without Code Extensions		
GB18030	GB18030	GB18030-2022 Implementation Level 1
Multi-Byte Character Sets with Code Extensions		
ISO 2022 IR 87	ISO-2022-JP	JIS X 0208: Japanese Kanji
ISO 2022 IR 159	JIS_X0212-1990	JIS X 0212: Japanese Supplementary Kanji set

2 Table of Contents

3 Introduction

3.1 Revision History

Revision	Date	Product Version(s)	Change
	Mar. 2025	V9.6	Initial Version

3.2 Audience

This document is intended for the audience listed below. It is assumed that the reader has a working knowledge of the DICOM Standard.

The document structure was designed for easier access to relevant information for different user groups:

- Clinical Users, who want to get an overview of the implemented interoperability features of the system can see Section 4 Implementation Model.

- Personnel involved in Sales can use the information in Section 1 to assess the compatibility between different systems involved in a sales situation.

- System Integrators can use information in Section 6 during system installation and also information from Section 5 Service and Interoperability Description for details regarding the implemented services.

- Field Service Engineers can use the details from Section 5 Service and Interoperability Description and from Section 7 Network and Media Communication Details for troubleshooting.

- Hospital IT staff focusing on security can use the details provided in Section 8 Security regarding implemented Security features.

- Research Personnel may be interested in using information provided in Annex A Information Object Definitions (IODs) or Annex B Structured Report Content Encoding to get detailed imaging and measurement information.

3.3 Remarks

The scope of this DICOM Conformance Statement is to facilitate integration between Alphenix and other DICOM products. The Conformance Statement should be read and understood in conjunction with the DICOM Standard [1]. DICOM by itself does not guarantee interoperability.

- The Conformance Statement does, however, facilitate a first-level comparison for interoperability between different applications supporting compatible DICOM functionality.

- This Conformance Statement should not replace validation with other DICOM equipment to ensure proper exchange of intended information. In fact, it is the user's responsibility to perform the following validation activities:

  - The comparison of Conformance Statements from Alphenix and other DICOM conformant equipment is the first step towards assessing interconnectivity and interoperability between those systems.

  - Test procedures should be defined and executed to validate the required level of interoperability with specific DICOM conformant equipment, as established by the healthcare facility.

Alphenix has participated in an industry-wide testing program sponsored by Integrating the Healthcare Enterprise (IHE). The IHE Integration Statement of Alphenix together with the IHE Technical Framework may facilitate the process of validation testing.

3.4 Terms and Definitions

The following list includes DICOM Terms, that are used throughout this Conformance Statement:

Abstract Syntax	The information agreed to be exchanged between applications, generally equivalent to a Service/Object Pair (SOP) Class. Examples: Verification SOP Class, Modality Worklist Information Model Find SOP Class, Computed Radiography Image Storage SOP Class.
Application Entity	A representation of the external behavior of an application process in terms of DICOM Network Services, Web Services and/or media exchange capabilities implemented in one or more roles. A single device may have multiple Application Entities.
Application Entity Title	The externally known name of an Application Entity, used to identify a DICOM application to other DICOM applications on the network.
Application Context	The specification of the type of communication used between Application Entities. Example: DICOM network protocol.
Association	A network communication channel set up between Application Entities.
Attribute	A unit of information in an Information Object Definition; a Data Element identified by a tag. The information may be a complex data structure (Sequence), itself composed of lower-level data elements. Examples: Patient ID (0010,0020), Accession Number (0008,0050), Photometric Interpretation (0028,0004), Procedure Code Sequence (0008,1032).
Data Element	A unit of information as defined by a single entry in the data dictionary. An encoded Information Object Definition (IOD) Attribute that is composed of, at a minimum, three fields: a Data Element Tag, a Value Length, and a Value Field. For some specific Transfer Syntaxes, a Data Element also contains a VR Field where the Value Representation of that Data Element is specified explicitly
Information Object Definition	The specified set of Attributes that comprise a type of data object; does not represent a specific instance of the data object, but rather a class of similar data objects that have the same properties. Examples: MR Image IOD, CT Image IOD, Print Job IOD. The Attributes within an IOD may be specified as Mandatory (Type 1), Required but possibly unknown (Type 2), or Optional (Type 3), and there may be conditions associated with the use of an Attribute (Types 1C and 2C).
Media Application Profile	The specification of DICOM information objects and encoding exchanged on removable media (e.g., CDs).
Module	A set of Attributes within an Information Object Definition that are logically related to each other. Example: Patient Module includes Patient's Name, Patient ID, Patient' Birth Date, and Patient's Sex.
Negotiation	First phase of Association establishment that allows Application Entities to agree on the types of data to be exchanged and how that data will be encoded.
Origin Server	Refers to the program that can originate authoritative responses to HTTP requests for a given Target Resource. The term "server" refers to any implementation that receives a web service request message from a user agent.
Presentation Context	The set of DICOM Network Services used over an Association, as negotiated between Application Entities; includes Abstract Syntaxes and Transfer Syntaxes.
Private SOP Class	A SOP Class that is not defined in the DICOM Standard but is published in an implementation's Conformance Statement.
Protocol Data Unit	A packet (piece) of a DICOM message sent across the network. Devices must specify the maximum size packet they can receive for DICOM messages.
Security Profile	A set of mechanisms, such as encryption, user authentication, or digital signatures, used by an Application Entity to ensure confidentiality, integrity, and/or availability of exchanged DICOM data.
Service Class Provider	Role of an Application Entity that provides a DICOM network service; typically, a server that performs operations requested by another Application Entity (Service Class User). Examples: Picture Archiving and Communication System (image storage SCP, and image query/retrieve SCP), Radiology Information System (modality worklist SCP).

Service Class User	Role of an Application Entity that uses a DICOM Network Service; typically, a client. Examples: imaging modality (image storage SCU, and modality worklist SCU), imaging workstation (image query/retrieve SCU).
SOP Class	The specification of the network or media transfer (service) of a particular type of data (object) ; the fundamental unit of a DICOM interoperability specification. Examples: Ultrasound Image Storage Service, Basic Grayscale Print Management.
SOP Instance	An information object; a specific occurrence of information exchanged in a SOP Class. E.g., a specific X-ray image.
Specialized SOP Class	A SOP Class that is derived from the Standard that is specialized by additional type 1, 1C, 2, 2C, or 3 Attributes, by enumeration of specific permitted Values for Attributes, or by enumeration of specific permitted Templates. The additional Attributes may either be drawn from the Data Dictionary in PS3.6 or may be Private Attributes.
Standard SOP Class	A SOP Class defined in the Standard, and that is implemented and used without any modifications.
Standard Extended SOP Class	A SOP Class that is defined in the standard, and that is extended by additional type 3 Attributes. The additional Attributes may either be drawn from the DICOM Data Dictionary in PS3.6 or may be Private Attributes.
Tag	A 32-bit identifier for a Data Element, represented as a pair of four-digit hexadecimal numbers, the "group" and the "element". If the "group" number is odd, the tag is for a private (manufacturer-specific) data element. Examples: (0010,0020) [Patient ID], (07FE,0010) [Pixel Data], (0019,0210) [private data element].
Transfer Syntax	The encoding used for exchange of DICOM information objects and messages. Examples: JPEG compressed (images), Little Endian Explicit Value Representation.
TLS-Secured Port	TCP port on which an implementation accepts TLS connections to exchange DICOM information.
Unique Identifier	A globally unique "dotted decimal" string that identifies a specific object or a class of objects; an ISO-8824 Object Identifier. Examples: Study Instance UID, SOP Class UID, SOP Instance UID.
User Agent	A client in a network protocol used in communications within a client-server distributed computing system. In particular, the Hypertext Transfer Protocol (HTTP) identifies the client software originating the request, using a user-agent header, even when the client is not operated by a user.
Value Representation	The format type of an individual DICOM data element, such as text, an integer, a person's name, or a code. DICOM information objects can be transmitted with either explicit identification of the type of each data element (Explicit VR), or without explicit identification (Implicit VR) ; with Implicit VR, the receiving application must use a DICOM data dictionary to look up the format of each data element.

3.5 Abbreviations

Abbreviations that are used in this DICOM Conformance Statement are listed here.

AE	Application Entity
AET	Application Entity Title
ARTIM	Application Request/Reject/Release Timer
CAD	Computer Aided Detection
CDA	Clinical Document Architecture
CID	Context Identifier
DCS	DICOM Conformance Statement
DHCP	Dynamic Host Configuration Protocol

DICOM	Digital Imaging and Communications in Medicine
ELE	Explicit VR Little Endian
FSC	File-Set Creator
FSU	File-Set Updater
FSR	File-Set Reader
IANA	Internet Assigned Numbers Authority
IHE	Integrating the Healthcare Enterprise
ILE	Implicit VR Little Endian
IOD	Information Object Definition
ISO	International Organization for Standardization
MPPS	Modality Performed Procedure Step
MWL	Modality Worklist
NEMA	National Electrical Manufacturers Association
NTP	Network Time Protocol
OS	Origin Server
PACS	Picture Archiving and Communication System
PDU	Protocol Data Unit
PPS	Performed Procedure Step
QIDO-RS	Query based on ID for DICOM Objects by RESTful Services
RIS	Radiological Information System
RTV	Real-Time Video
SCP	Service Class Provider
SCU	Service Class User
SOP	Service-Object Pair
SPS	Scheduled Procedure Step
SR	Structured Reporting
TCP/IP	Transmission Control Protocol/Internet Protocol
TID	Template Identifier
UA	User Agent
UI	User Interface
UID	Unique Identifier
UL	Upper Layer
VR	Value Representation

3.6 References

[1]National Electrical Manufacturers Association (NEMA), Rosslyn, VA USA. PS3 / ISO 12052 Digital Imaging and Communications in Medicine (DICOM) Standard. https://www.dicomstandard.org/ .

[2]Integrating the Healthcare Enterprise (IHE). IHE Radiology Technical Framework.
https://www.ihe.net/Resources/technical_frameworks/#radiology .

4 Implementation Model

Alphenix is a digital radiography/fluoroscopy system used in a diagnostic and interventional angiography configuration. The system is indicated for use in diagnostic and angiographic procedures for blood vessels in the heart, brain, abdomen and lower extremities.

4.1 Application Entities and Data Flow

The network and media interchange application model for the Alphenix is shown in Figure 4-1 Alphenix Application Data Flow Diagram.
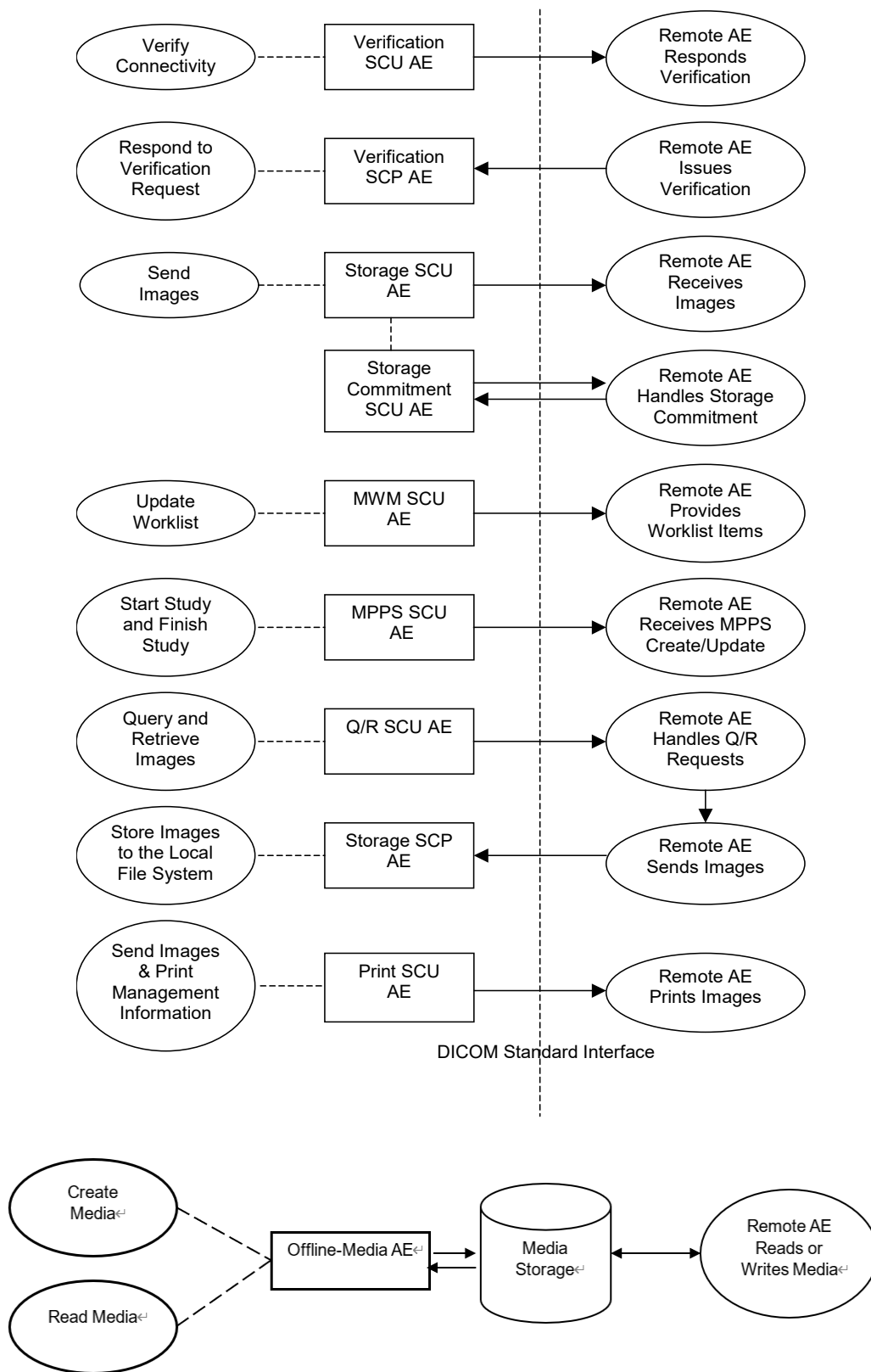
Figure 4-1 Alphenix Application Data Flow Diagram

This section describes the organization of the supported Services into Application Entities based on the default configuration of the system. This may change based on the actual setup at the customer site. See Section 6 for details about the configurability of Services into AEs.

4.1.1   Functional Definition of Verification SCU AE

The Verification SCU AE issues a C-ECHO to verify a DICOM connection to a remote AE. It is performed via the Service Tool and the local real-world activity "Send Images". Before sending images, the Verification SCU AE can be issue a C-ECHO to verify a DICOM connection to a remote AE with "ping" function.

4.1.2   Functional Definition of Verification SCP AE

The Verification SCP AE responds successfully to C-ECHO requests from known AE Titles, port numbers.

4.1.3   Functional Definition of Storage SCU AE

The existence of a send-job queue entry with associated network destination will activate the Storage SCU AE. An Association request is sent to the destination AE and upon successful negotiation of a Presentation Context the image transfer is started. If the image transfer fails, the Storage SCU AE will not retry this send-job automatically. If the remote AE is configured as an archive device, the storage SCU AE will send a storage commitment request to the Storage Commitment SCU AE. The Storage SCU AE can also issue C-ECHO requests as a Verification SCU before the image transfer independently.

4.1.4   Functional Definition of Storage Commitment SCU AE

Receiving the storage commitment request from the Storage SCU AE, the Storage Commitment SCU AE will request Storage Commitment and if a commitment is successfully obtained will record this information in the local database.

4.1.5   Functional Definition of MWM SCU AE

The MWM SCU AE attempts to download a worklist from a remote node. If the MWM SCU AE establishes an Association to a remote AE, it will transfer patient's information and worklist items via the open Association. The results will be displayed in a separate list. The patient's information will be used for the patient registration.

4.1.6   Functional Definition of MPPS SCU AE

The MPPS SCU AE performs the creation of an MPPS instance automatically when a study started. Further updates on the MPPS data can be performed automatically or interactively after finish study.

4.1.7   Functional Definition of Q/R SCU AE

The Q/R SCU AE is activated when the user selects a remote node to query and enters some key information, Patient's Name, Patient ID, Study Date, Study Time and Modality. The user can select patient, studies, series and images to be retrieved. The images will be received at the Storage SCP AE.

4.1.8   Functional Definition of Storage SCP AE

The Storage SCP AE waits for another application to connect at the presentation address configured for its AE Title. The Storage SCP AE will accept associations with Presentation Contexts for SOP Classes of the Storage Service Classes. Any images received on such Presentation Contexts will be stored to the local file system.

4.1.9   Functional Definition of Print AE

The existence of a print-job in the print queue will activate the Print SCU AE. An association is established with the printer and the printer's status determined. If the printer is operating normally, the film sheets described within the print-job will be printed. If the printer is not operating normally, this print-job can be canceled or restarted by the user operations.

4.1.10   Functional Definition of Offline-Media AE

The Offline-Media AE is performed upon user request for selected studies /series/images to/from an offline DICOM CD-R or DVD-R medium. It therefore performs the following tasks:

Export:

— Builds DICOM Information Objects.

— Creates a DICOMDIR file that represents the contents of the DICOM Information Objects to be recorded.

— Records DICOM Information Objects and the DICOMDIR file to the CD-R or the DVD-R medium.

Import:

— Reads the DICOMDIR file that represents the contents of the data as recorded.

— Displays the ordered list of studies/series/images, identifying information.

— Loads the selected studies/series/images from a CD-R or a DVD-R medium and displays them on the screen.

Note: The Offline-Media AE can update files created by the product itself.

5 Service and Interoperability Description

5.1 Mapping of Services to Application Entities

Table 5-1 provides an overview of the Application Entities and the Services supported by each AE.

Table 5-1 Service to AE Mapping

Application Entity	Supported Services	Role								
		DIMSE		DICOM Web		DICOM Media			Real-Time Video	
		SCU	SCP	Origin Server	User Agent	FSC	FSU	FSR	SCU	SCP
Verification SCU	Verification	Y								
Verification SCP	Verification		Y							
Storage SCU	Storage	Y								
Storage Commitment SCU	Storage Commitment	Y								
MWM SCU	Basic Worklist Management	Y								
MPPS SCU	Modality Performed Procedure Step	Y								
Q/R SCU	Query/Retrieve	Y								
Storage SCP	Storage		Y							
Print AE	Print Management	Y								
Offline-Media	Media Storage					Y		Y		

5.2 DIMSE Services

5.2.1 Basic Worklist Management Service

5.2.1.1 SCU of the Modality Worklist Information Model - FIND SOP Class

As a Service Class User of the Modality Worklist Information Model - FIND SOP Class, the Alphenix uses the C-FIND-RQ message to query the SCP. It supports the Query Keys listed in Table 5-2.

In the "Matching Type" column, the following Values can be used:

• SINGLE_VALUE: SCU can request single Value matching on this Attribute.

• UID: SCU can request List of UID matching on this Attribute.

• WILDCARD: SCU can request Wildcard matching on this Attribute.

• RANGE: SCU can request Range matching on this Attribute.

- SEQUENCE: SCU can request sequence matching on this Attribute.

- UNIVERSAL: SCU can request that the Attribute be a return Value (universal matching).

In the "Query Value Source" column, the following Values can be used:

- FIXED: The query Value cannot be modified by the user or by configuration.

- GENERAT GENERATED ED: The query Value is generated by the system (e.g., current date as the study date).

- CONFIGURATION: The query Value is dependent on system configuration.

- USER: The query Value is entered by the user.

- SCANNED: The query Value is read from a barcode scanner or similar device.

- EMPTY: The query Value is sent with a zero-length Value to indicate it is a return key only.

In the "Display on UI" column the following Values can be used:

- D: the return Value is displayed on the main UI by default.

- C: the return Value is displayed on the main UI if configured.

- N: the return Value is never displayed.

Table 5-2 Supported C-FIND Query Parameters for Modality Worklist - SCU

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Scheduled Procedure Step						
Scheduled Procedure Step Sequence	(0040,0100)	SEQUENCE	GENERATED			
>Scheduled Station AE Title	(0040,0001)	SINGLE_VALUE; UNIVERSAL	CONFIGURATION	e.g. "MWMSCU_AE"	D	Configured by SCU AE settings.
>Scheduled Procedure Step Start Date	(0040,0002)	SINGLE_VALUE; RANGE	GENERATED	e.g. "20240711-20240713"	D	User can select Today or 1 Week or 1 Month or All, and so on.
>Scheduled Procedure Step Start Time	(0040,0003)	UNIVERSAL	EMPTY		D	
>Scheduled Procedure Step End Date	(0040,0004)	UNIVERSAL	EMPTY		N	
>Scheduled Procedure Step End Time	(0040,0005)	UNIVERSAL	EMPTY		N	
>Modality	(0008,0060)	SINGLE_VALUE; UNIVERSAL	FIXED	e.g. "XA"	D	User can select "XA", "US", "NM" or ""(ALL)
>Scheduled Performing Physician's Name	(0040,0006)	WILDCARD; UNIVERSAL	EMPTY	e.g. "PerformingPhysicianName"	D	User can enter the value, wildcard character(*) will be automatically set it before after.
>Scheduled Procedure Step Description	(0040,0007)	UNIVERSAL	EMPTY		D	

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>Scheduled Station Name	(0040,0010)	UNIVERSAL	EMPTY		N	
>Scheduled Procedure Step Location	(0040,0011)	UNIVERSAL	EMPTY		D	
>Pre-Medication	(0040,0012)	UNIVERSAL	EMPTY		N	
>Scheduled Procedure Step ID	(0040,0009)	UNIVERSAL	EMPTY		D	
>Requested Contrast Agent	(0032,1070)	UNIVERSAL	EMPTY		N	
>Scheduled Procedure Step Status	(0040,0020)	UNIVERSAL	EMPTY		N	
>Comments on the Scheduled Procedure Step	(0040,0400)	UNIVERSAL	EMPTY		N	
>Scheduled Protocol Code Sequence	(0040,0008)	SEQUENCE	GENERATED			
>>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
Requested Procedure						
Requested Procedure ID	(0040,1001)	WILDCARD; UNIVERSAL	USER		D	User can enter the value and do pertial match search.
Reason for the Requested Procedure	(0040,1002)	UNIVERSAL	EMPTY		N	
Requested Procedure Comments	(0040,1400)	UNIVERSAL	EMPTY			
Requested Procedure Description	(0032,1060)	UNIVERSAL	EMPTY		D	
Requested Procedure Code Sequence	(0032,1064)	SEQUENCE	GENERATED			
>Code Value	(0008,0100)	UNIVERSAL	EMPTY		D	
>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		D	
Study Instance UID	(0020,000D)	UNIVERSAL	EMPTY		N	
Referenced Study Sequence	(0008,1110)	SEQUENCE	GENERATED			
>Referenced SOP Class UID	(0008,1150)	UNIVERSAL	EMPTY		N	
>Referenced SOP Instance UID	(0008,1155)	UNIVERSAL	EMPTY		N	

Requested Procedure Priority	(0040,1003)	UNIVERSAL	EMPTY		N	
Patient Transport Arrangements	(0040,1004)	UNIVERSAL	EMPTY		N	
Requested Procedure Location	(0040,1005)	UNIVERSAL	EMPTY		N	
Confidentiality Code	(0040,1008)	UNIVERSAL	EMPTY		N	
Reporting Priority	(0040,1009)	UNIVERSAL	EMPTY		N	
Names of Intended Recipients of Results	(0040,1010)	UNIVERSAL	EMPTY		N	
Imaging Service Request						
Accession Number	(0008,0050)	WILDCARD; UNIVERSAL	EMPTY	e.g. "*12345*"	D	User can enter the value, wildcard character("*") will be automatically set it before after.
Issuer of Accession Number Sequence	(0008,0051)	SEQUENCE	GENERATED			
>Local Namespace Entity ID	(0040,0031)	UNIVERSAL	EMPTY		N	
>Universal Entity ID	(0040,0032)	UNIVERSAL	EMPTY		N	
>Universal Entity ID Type	(0040,0033)	UNIVERSAL	EMPTY		N	
Requesting Physician	(0032,1032)	UNIVERSAL	EMPTY		D	
Referring Physician's Name	(0008,0090)	UNIVERSAL	EMPTY		D	
Imaging Service Request Comments	(0040,2400)	UNIVERSAL	EMPTY		N	
Requesting Service	(0032,1033)	UNIVERSAL	EMPTY		D	
Reason for the Imaging Service Request	(0040,2001)	UNIVERSAL	EMPTY		N	
Issue Date of Imaging Service Request	(0040,2004)	UNIVERSAL	EMPTY		N	
Issue Time of Imaging Service Request	(0040,2005)	UNIVERSAL	EMPTY		N	
Placer Order Number / Imaging Service Request	(0040,2016)	UNIVERSAL	EMPTY		N	
Filler Order Number / Imaging Service Request	(0040,2017)	UNIVERSAL	EMPTY		N	
Order Entered By	(0040,2008)	UNIVERSAL	EMPTY		N	
Order Enterer's Location	(0040,2009)	UNIVERSAL	EMPTY		N	
Order Callback Phone Number	(0040,2010)	UNIVERSAL	EMPTY		N	
Visit Identification						
Admission ID	(0038,0010)	UNIVERSAL	EMPTY		N	

Institution Name	(0008,0080)	UNIVERSAL	EMPTY		N	
Institution Address	(0008,0081)	UNIVERSAL	EMPTY		N	
Institution Code Sequence	(0008,0082)	SEQUENCE	GENRATED			
>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
Visit Status						
Visit Status ID	(0038,0008)	UNIVERSAL	EMPTY		N	
Current Patient Location	(0038,0300)	UNIVERSAL	EMPTY		D	
Patient's Institution Residence	(0038,0400)	UNIVERSAL	EMPTY		N	
Visit Comments	(0038,4000)	UNIVERSAL	EMPTY		N	
Visit Relationship						
Referenced Patient Sequence	(0008,1120)	SEQUENCE	GENRATED			
>Referenced SOP Class UID	(0008,1150)	UNIVERSAL	EMPTY		N	
>Referenced SOP Instance UID	(0008,1155)	UNIVERSAL	EMPTY		N	
Visit Admission						
Referring Physician's Address	(0008,0092)	UNIVERSAL	EMPTY		N	
Referring Physician's Telephone Numbers	(0008,0094)	UNIVERSAL	EMPTY		N	
Admitting Diagnoses Description	(0008,1080)	UNIVERSAL	EMPTY		D	
Admitting Diagnoses Code Sequence	(0008,1084)	SEQUENCE	GENRATED			
>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
Issuer of Admission ID	(0038,0011)	UNIVERSAL	EMPTY		N	
Route of Admissions	(0038,0016)	UNIVERSAL	EMPTY		N	
Admitting Date	(0038,0020)	UNIVERSAL	EMPTY		N	
Admitting Time	(0038,0021)	UNIVERSAL	EMPTY		N	
Patient Relationship						
Referenced Study Sequence	(0008,1110)	SEQUENCE	GENRATED			

>Referenced SOP Class UID	(0008,1150)	UNIVERSAL	EMPTY		N	
>Referenced SOP Instance UID	(0008,1155)	UNIVERSAL	EMPTY		N	
Referenced Patient Alias Sequence	(0038,0004)	SEQUENCE	GENRATED			
>Referenced SOP Class UID	(0008,1150)	UNIVERSAL	EMPTY		N	
>Referenced SOP Instance UID	(0008,1155)	UNIVERSAL	EMPTY		N	
Patient Identification						
Patient's Name	(0010,0010)	WILDCARD; UNIVERSAL	USER	e.g. "*PatientName*"	D	User can enter the value and do pertial match search.
Patient ID	(0010,0020)	SINGLE_VALUE; UNIVERSAL	USER	e.g. "PatientID"	D	User can enter the value.
Issuer of Patient ID	(0010,0021)	UNIVERSAL	EMPTY		N	
Issuer of Patient ID Qualifiers Sequence	(0010,0024)	SEQUENCE	GENRATED			
>Universal Entity ID	(0040,0032)	UNIVERSAL	EMPTY		N	
>Universal Entity ID Type	(0040,0033)	UNIVERSAL	EMPTY		N	
>Identifier Type Code	(0040,0035)	UNIVERSAL	EMPTY		N	
>Assigning Facility Sequence	(0040,0036)	SEQUENCE	GENRATED			
>>Local Namespace Entity ID	(0040,0031)	UNIVERSAL	EMPTY		N	
>>Universal Entity ID	(0040,0032)	UNIVERSAL	EMPTY		N	
>>Universal Entity ID Type	(0040,0033)	UNIVERSAL	EMPTY		N	
>Assigning Jurisdiction Code Sequence	(0040,0039)	SEQUENCE	GENRATED			
>>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
>>Mapping Resource	(0008,0105)	UNIVERSAL	EMPTY		N	
>>Context Group Version	(0008,0106)	UNIVERSAL	EMPTY		N	
>>Context Group Local Version	(0008,0107)	UNIVERSAL	EMPTY		N	
>>Context Group Extension Flag	(0008,010b)	UNIVERSAL	EMPTY		N	
>>Context Group Extension Creator UID	(0008,010d)	UNIVERSAL	EMPTY		N	

>>Context Identifier	(0008,010f)	UNIVERSAL	EMPTY		N	
>>Context UID	(0008,0117)	UNIVERSAL	EMPTY		N	
>>Mapping Resource UID	(0008,0118)	UNIVERSAL	EMPTY		N	
>>Equivalent Code Sequence	(0008,0121)	SEQUENCE	GENRATED			
>>>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>>>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>>>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>>>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
>>>Mapping Resource	(0008,0105)	UNIVERSAL	EMPTY		N	
>>>Context Group Version	(0008,0106)	UNIVERSAL	EMPTY		N	
>>>Context Group Local Version	(0008,0107)	UNIVERSAL	EMPTY		N	
>>>Context Group Extension Flag	(0008,010b)	UNIVERSAL	EMPTY		N	
>>>Context Group Extension Creator UID	(0008,010d)	UNIVERSAL	EMPTY		N	
>>>Context Identifier	(0008,010f)	UNIVERSAL	EMPTY		N	
>>>Context UID	(0008,0117)	UNIVERSAL	EMPTY		N	
>>>Mapping Resource UID	(0008,0118)	UNIVERSAL	EMPTY		N	
>>>Mapping Resource Name	(0008,0122)	UNIVERSAL	EMPTY		N	
>>Mapping Resource Name	(0008,0122)	UNIVERSAL	EMPTY		N	
>Assigning Agency Or Department Code Sequence	(0040,003a)	SEQUENCE	GENRATED			
>>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
>>Mapping Resource	(0008,0105)	UNIVERSAL	EMPTY		N	
>>Context Group Version	(0008,0106)	UNIVERSAL	EMPTY		N	
>>Context Group Local Version	(0008,0107)	UNIVERSAL	EMPTY		N	
>>Context Group Extension Flag	(0008,010b)	UNIVERSAL	EMPTY		N	
>>Context Group Extension Creator UID	(0008,010d)	UNIVERSAL	EMPTY		N	

>>Context Identifier	(0008,010f)	UNIVERSAL	EMPTY		N	
>>Context UID	(0008,0117)	UNIVERSAL	EMPTY		N	
>>Mapping Resource UID	(0008,0118)	UNIVERSAL	EMPTY		N	
>>Equivalent Code Sequence	(0008,0121)	SEQUENCE	GENRATED			
>>>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>>>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>>>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>>>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
>>>Mapping Resource	(0008,0105)	UNIVERSAL	EMPTY		N	
>>>Context Group Version	(0008,0106)	UNIVERSAL	EMPTY		N	
>>>Context Group Local Version	(0008,0107)	UNIVERSAL	EMPTY		N	
>>>Context Group Extension Flag	(0008,010b)	UNIVERSAL	EMPTY		N	
>>>Context Group Extension Creator UID	(0008,010d)	UNIVERSAL	EMPTY		N	
>>>Context Identifier	(0008,010f)	UNIVERSAL	EMPTY		N	
>>>Context UID	(0008,0117)	UNIVERSAL	EMPTY		N	
>>>Mapping Resource UID	(0008,0118)	UNIVERSAL	EMPTY		N	
>>>Mapping Resource Name	(0008,0122)	UNIVERSAL	EMPTY		N	
>>Mapping Resource Name	(0008,0122)	UNIVERSAL	EMPTY		N	
Other Patient IDs Sequence	(0010,1002)	SEQUENCE	GENRATED			
>Patient ID	(0010,0020)	UNIVERSAL	EMPTY		N	
>Issuer Of Patient ID	(0010,0021)	UNIVERSAL	EMPTY		N	
>Type Of Patient ID	(0010,0022)	UNIVERSAL	EMPTY		N	
>Issuer Of Patient ID Qualifiers Sequence	(0010,0024)	SEQUENCE			N	
>>Universal Entity ID	(0040,0032)	UNIVERSAL	EMPTY		N	
>>Universal Entity ID Type	(0040,0033)	UNIVERSAL	EMPTY		N	
>>Identifier Type Code	(0040,0035)	UNIVERSAL	EMPTY		N	
>>Assigning Facility Sequence	(0040,0036)	SEQUENCE	GENRATED			
>>>Local Namespace Entity ID	(0040,0031)	UNIVERSAL	EMPTY		N	
>>>Universal Entity ID	(0040,0032)	UNIVERSAL	EMPTY		N	

>>>Universal Entity ID Type	(0040,0033)	UNIVERSAL	EMPTY		N	
>>Assigning Jurisdiction Code Sequence	(0040,0039)	SEQUENCE	GENRATED			
>>>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>>>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>>>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>>>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
>>>Mapping Resource	(0008,0105)	UNIVERSAL	EMPTY		N	
>>>Context Group Version	(0008,0106)	UNIVERSAL	EMPTY		N	
>>>Context Group Local Version	(0008,0107)	UNIVERSAL	EMPTY		N	
>>>Context Group Extension Flag	(0008,010b)	UNIVERSAL	EMPTY		N	
>>>Context Group Extension Creator UID	(0008,010d)	UNIVERSAL	EMPTY		N	
>>>Context Identifier	(0008,010f)	UNIVERSAL	EMPTY		N	
>>>Context UID	(0008,0117)	UNIVERSAL	EMPTY		N	
>>>Mapping Resource UID	(0008,0118)	UNIVERSAL	EMPTY		N	
>>>Equivalent Code Sequence	(0008,0121)	SEQUENCE	GENRATED			
>>>>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>>>>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>>>>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>>>>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
>>>>Mapping Resource	(0008,0105)	UNIVERSAL	EMPTY		N	
>>>>Context Group Version	(0008,0106)	UNIVERSAL	EMPTY		N	
>>>>Context Group Local Version	(0008,0107)	UNIVERSAL	EMPTY		N	
>>>>Context Group Extension Flag	(0008,010b)	UNIVERSAL	EMPTY		N	
>>>>Context Group Extension Creator UID	(0008,010d)	UNIVERSAL	EMPTY		N	
>>>>Context Identifier	(0008,010f)	UNIVERSAL	EMPTY		N	
>>>>Context UID	(0008,0117)	UNIVERSAL	EMPTY		N	
>>>>Mapping Resource UID	(0008,0118)	UNIVERSAL	EMPTY		N	

>>>>Mapping Resource Name	(0008,0122)	UNIVERSAL	EMPTY		N	
>>>Mapping Resource Name	(0008,0122)	UNIVERSAL	EMPTY		N	
>>Assigning Agency Or Department Code Sequence	(0040,003a)	SEQUENCE	GENRATED			
>>>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>>>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>>>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>>>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
>>>Mapping Resource	(0008,0105)	UNIVERSAL	EMPTY		N	
>>>Context Group Version	(0008,0106)	UNIVERSAL	EMPTY		N	
>>>Context Group Local Version	(0008,0107)	UNIVERSAL	EMPTY		N	
>>>Context Group Extension Flag	(0008,010b)	UNIVERSAL	EMPTY		N	
>>>Context Group Extension Creator UID	(0008,010d)	UNIVERSAL	EMPTY		N	
>>>Context Identifier	(0008,010f)	UNIVERSAL	EMPTY		N	
>>>Context UID	(0008,0117)	UNIVERSAL	EMPTY		N	
>>>Mapping Resource UID	(0008,0118)	UNIVERSAL	EMPTY		N	
>>>Equivalent Code Sequence	(0008,0121)	SEQUENCE	GENRATED			
>>>>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>>>>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>>>>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>>>>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
>>>>Mapping Resource	(0008,0105)	UNIVERSAL	EMPTY		N	
>>>>Context Group Version	(0008,0106)	UNIVERSAL	EMPTY		N	
>>>>Context Group Local Version	(0008,0107)	UNIVERSAL	EMPTY		N	
>>>>Context Group Extension Flag	(0008,010b)	UNIVERSAL	EMPTY		N	
>>>>Context Group Extension Creator UID	(0008,010d)	UNIVERSAL	EMPTY		N	
>>>>Context Identifier	(0008,010f)	UNIVERSAL	EMPTY		N	
>>>>Context UID	(0008,0117)	UNIVERSAL	EMPTY		N	

>>>>Mapping Resource UID	(0008,0118)	UNIVERSAL	EMPTY		N	
>>>>Mapping Resource Name	(0008,0122)	UNIVERSAL	EMPTY		N	
>>>Mapping Resource Name	(0008,0122)	UNIVERSAL	EMPTY		N	
Other Patient Names	(0010,1001)	UNIVERSAL	EMPTY			
Patient's Birth Name	(0010,1005)	UNIVERSAL	EMPTY		N	
Patient's Mother's Birth Name	(0010,1060)	UNIVERSAL	EMPTY		N	
Patient Demographic						
Patient's Birth Date	(0010,0030)	UNIVERSAL	EMPTY		D	
Patient's Sex	(0010,0040)	UNIVERSAL	EMPTY		D	
Patient's Weight	(0010,1030)	UNIVERSAL	EMPTY		D	
Patient's Size	(0010,1020)	UNIVERSAL	EMPTY		D	
Medical Record Locator	(0010,1090)	UNIVERSAL	EMPTY		N	
Confidentiality constraint on patient data	(0040,3001)	UNIVERSAL	EMPTY		N	
Patient's Age	(0010,1010)	UNIVERSAL	EMPTY		D	
Occupation	(0010,2180)	UNIVERSAL	EMPTY		D	
Patient's Birth Time	(0010,0032)	UNIVERSAL	EMPTY		N	
Patient's Insurance Plan Code Sequence	(0010,0050)	SEQUENCE	GENRATED			
>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
Patient's Address	(0010,1040)	UNIVERSAL	EMPTY		N	
Military Rank	(0010,1080)	UNIVERSAL	EMPTY		N	
Branch of Service	(0010,1081)	UNIVERSAL	EMPTY		N	
Country of Residence	(0010,2150)	UNIVERSAL	EMPTY		N	
Region of Residence	(0010,2152)	UNIVERSAL	EMPTY		N	
Patient's Telephone Numbers	(0010,2154)	UNIVERSAL	EMPTY		N	
Ethnic Group	(0010,2160)	UNIVERSAL	EMPTY		D	
Patient's Religious Preference	(0010,21F0)	UNIVERSAL	EMPTY		N	
Patient Comments	(0010,4000)	UNIVERSAL	EMPTY		D	
Patient Medical						
Patient State	(0038,0500)	UNIVERSAL	EMPTY		N	
Pregnancy Status	(0010,21C0)	UNIVERSAL	EMPTY		D	
Medical Alerts	(0010,2000)	UNIVERSAL	EMPTY		D	
Allergies	(0010,2110)	UNIVERSAL	EMPTY		D	

Special Needs	(0038,0050)	UNIVERSAL	EMPTY		N	
Smoking Status	(0010,21A0)	UNIVERSAL	EMPTY		N	
Additional Patient History	(0010,21B0)	UNIVERSAL	EMPTY		D	
Last Menstrual Date	(0010,21D0)	UNIVERSAL	EMPTY		N	

The product issues C-FIND CANCEL requests in the following scenarios:

・Configurable maximum of matches detected. (Default: 1000)

・Initiated by user.

Non-supported characters in response are not displayed correctly.

5.2.1.2   SCP of the Modality Worklist Information Model - FIND SOP Class - N/A
N/A

5.2.2   Modality Performed Procedure Step Service

5.2.2.1   SCU of the Modality Performed Procedure Step SOP Class

As a Service Class User of the Modality Performed Procedure Step SOP Class, the Alphenix supports the Attributes listed in Table 5-3 Table 5-4 in the N-CREATE-RQ and N-SET-RQ messages, if it creates the message.

In the "Source" column the following Values can be used:

• FIXED: the Value is pre-defined and cannot be modified.

• GENERATED: the Value is generated by the system.

• CONFIGURATION: the Value is copied from system configuration.

• MWL: the Value is copied from modality worklist entry.

• USER: the Value is entered by the user.

• SCANNED: the Value is read from a barcode scanner or similar device.

• EMPTY: The Attribute is sent with a zero-length Value

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Table 5-3 Supported N-CREATE and N-SET Attributes for Modality Performed Procedure Step - SCU

Attribute Name	Tag	Source	Value N-CREATE	Value N-SET	Comments
Specific Character Set	(0008,0005)	GENERATED			Only if the character except for ASCII is used
Performed Procedure Step Relationship					
Scheduled Step Attribute Sequence	(0040,0270)	GENERATED			Always Set
>Study Instance UID	(0020,000D)	GENERATED; MWL	e.g. "1.2.392.200036.9116 ...."		
>Referenced Study Sequence	(0008,1110)	GENERATED	<Empty>		
>>Referenced SOP Class UID	(0008,1150)	MWL			
>>Referenced SOP Instance UID	(0008,1155)	MWL			
>Accession Number	(0008,0050)	MWL; USER	e.g. "AccessionNo"		
>Issuer of Accession Number Sequence	(0008,0051)	MWL; EMPTY	<Empty>		
>Placer Order Number/Imaging Service Request	(0040,2016)	EMPTY	<Empty>		
>Filler Order Number/Imaging Service Request	(0040,2017)	EMPTY	<Empty>		
>Requested Procedure ID	(0040,1001)	GENERATED; MWL	e.g. "ProcedureID"		
>Requested Procedure Description	(0032,1060)	MWL; USER	e.g. "ProcedureDescription "		
>Scheduled Procedure Step ID	(0040,0009)	MWL; USER	e.g. "ProcedureStepID"		
>Scheduled Procedure Step Description	(0040,0007)	MWL; USER	e.g. "StudyType"		
>Scheduled Protocol Code Sequence	(0040,0008)	GENERATED		N/A	
>>Code Value	(0008,0100)	MWL	e.g. "1111"		
>>Coding Scheme Designator	(0008,0102)	MWL	e.g. "cmsc		
>>Coding Scheme Version	(0008,0103)	MWL	e.g. "1.0"		
>>Code Meaning	(0008,0104)	MWL	e.g. "Test Code Meaning"		
Patient's Name	(0010,0010)	MWL; USER	e.g. "LastName^FirstName "		
Patient ID	(0010,0020)	MWL; USER	e.g. "PatientID"		

Issuer of Patient ID	(0010,0021)	EMPTY	<Empty>		
Issuer of Patient ID Qualifiers Sequence	(0010,0024)	EMPTY	<Empty>		
Patient's Birth Date	(0010,0030)	MWL; USER	e.g. "19890108"		
Patient's Sex	(0010,0040)	MWL; USER	e.g. "F"		
Referenced Patient Sequence	(0008,1120)	EMPTY	<Empty>		
Performed Procedure Step Information					
Performed Procedure Step ID	(0040,0253)	GENERATED	e.g. "ProcedureStepID"		Copied from (0040,0009) Scheduled Procedure Step ID
Performed Station AE Title	(0040,0241)	GENERATED	e.g. "MPPSSCU_AE"		Copied from (0040,0001) Scheduled Station AE Title
Performed Station Name	(0040,0242)	CONFIGURATION	e.g. "StationName"		Configured by Site Information
Performed Location	(0040,0243)	GENERATED	e.g. "ExaminationRoom"		Copied from (0040,0011) Scheduled Procedure Step Location
Performed Procedure Step Start Date	(0040,0244)	GENERATED	e.g. "20240613"		Actual start date
Performed Procedure Step Start Time	(0040,0245)	GENERATED	e.g. "180419.049"		Actual start time
Performed Procedure Step Status	(0040,0252)	GENERATED	e.g. "IN PROGRESS"	"COMPLETED" or "DISCONTINUED"	
Performed Procedure Step Description	(0040,0254)	GENERATED	e.g. "StudyType"	e.g. "StudyType"	Copied from (0040,0007) Scheduled Procedure Step Description
Performed Procedure Type Description	(0040,0255)	EMPTY	<Empty>	<Empty>	
Procedure Code Sequence	(0008,1032)	GENERATED			
>Code Value	(0008,0100)	MWL	e.g. "PCSQValue"	e.g. "PCSQValue"	Copied from (0032,1064) Requested Procedure.
>Coding Scheme Designator	(0008,0102)	MWL	e.g. "UNKNOWN"	e.g. "UNKNOWN"	Copied from (0032,1064) Requested Procedure.
>Coding Scheme Version	(0008,0103)	MWL	e.g. "UNKNOWN"	e.g. "UNKNOWN"	Copied from (0032,1064) Requested Procedure.

>Code Meaning	(0008,0104)	MWL	e.g. "PCSQMeaning"	e.g. "PCSQMeaning"	Copied from (0032,1064) Requested Procedure.
Performed Procedure Step End Date	(0040,0250)	GENERATED	<Empty>	e.g. "20240613"	Actual end date
Performed Procedure Step End Time	(0040,0251)	GENERATED	<Empty>	e.g. "181146.092000"	Actual end time
Comments on the Performed Procedure Step	(0040,0280)	GENERATED; USER	<Empty>	e.g. "MPPSInformationComment"	
Image Acquisition Results					
Modality	(0008,0060)	GENERATED	e.g. "XA"		
Study ID	(0020,0010)	GENERATED; MWL	e.g. "ProcedureID"		
Performed Protocol Code Sequence	(0040,0260)	GENERATED	<Empty>		
>Code Value	(0008,0100)	GENERATED		e.g. "ActionCode"	Copied from (0040,0008) Scheduled Protocol Code Sequence
>Coding Scheme Designator	(0008,0102)	CONFIGURATION		e.g. "UNKNOWN"	
>Coding Scheme Version	(0008,0103)	CONFIGURATION		e.g. "UNKNOWN"	
>Code Meaning	(0008,0104)	GENERATED		e.g. "ActionItem"	Copied from (0040,0008) Scheduled Protocol Code Sequence
Performed Series Sequence	(0040,0340)	GENERATED			
>Performing Physician's Name	(0008,1050)	GENERATED	e.g. "CathPhysician"	e.g. "CathPhysician"	Copied from (0040,0006) Scheduled Protocol Performing Physician's Name
>Protocol Name	(0018,1030)	USER	e.g. "Coronary"	e.g. "Coronary"	
>Operators' Name	(0008,1070)	USER	e.g. "Operator"	e.g. "Operator"	
>Series Instance UID	(0020,000E)	GENERATED	e.g. "1.2.392.200036.9116...."	e.g. "1.2.392.200036.9116...."	
>Series Description	(0008,103E)	EMPTY	<Empty>	<Empty>	
>Retrieve AE Title	(0008,0054)	EMPTY	<Empty>	<Empty>	
>Referenced Image Sequence	(0008,1140)	EMPTY	<Empty>	<Empty>	
>>Referenced SOP Class UID	(0008,1150)	GENERATED			

>>Referenced SOP Instance UID	(0008,1155)	GENERATED		e.g. "1.2.392.200036.9116 ...."	
>Referenced Non-Image Composite SOP Instance Sequence	(0040,0220)	GENERATED	<Empty>	<Empty>	
>>Referenced SOP Class UID	(0008,1150)	GENERATED			
>>Referenced SOP Instance UID	(0008,1155)	GENERATED			
Billing Procedure Step Sequence	(0040,0320)	GENERATED	<Empty>		
>Code Value	(0008,0100)	GENERATED		e.g. "BillingCode"	
>Coding Scheme Designator	(0008,0102)	CONFIGURATION		e.g "UNKNOWN"	
>Coding Scheme Version	(0008,0103)	CONFIGURATION		e.g. "UNKNOWN"	
>Code Meaning	(0008,0104)	GENERATED		e.g. "ProcedureType"	
Film Consumption Sequence	(0040,0321)	GENERATED	<Empty>		
>Number of Films	(2100,0170)	USER		e.g. "1618"	
>Medium Type	(2000,0030)	USER		e.g. "BLUE FILM"	
>Film Size ID	(2010,0050)	USER		e.g. "24CMX30CM"	
Billing Supplies and Devices Sequence	(0040,0324)	GENERATED	<Empty>		
>Billing Item Sequence	(0040,0296)	GENERATED			
>>Code Value	(0008,0100)	USER		e.g. "Code"	
>>Coding Scheme Designator	(0008,0102)	CONFIGURATION		e.g. "UNKNOWN"	
>>Coding Scheme Version	(0008,0103)	CONFIGURATION		e.g. "UNKNOWN"	
>>Code Meaning	(0008,0104)	USER		e.g. "Material"	
>Quantity Sequence	(0040,0293)	GENERATED			
>>Quantity	(0040,0294)	USER		e.g. "99.900000"	
>>Measuring Units Sequence	(0040,0295)	GENERATED			
>>>Code Value	(0008,0100)	GENERATED; USER		e.g. "UnitCode"	
>>>Coding Scheme Designator	(0008,0102)	CONFIGURATION		e.g. "UNKNOWN"	
>>>Coding Scheme Version	(0008,0103)	CONFIGURATION		e.g. "UNKNOWN"	
>>>Code Meaning	(0008,0104)	USER		e.g. "UnitDescription"	
Anatomic Structure Space or Region Sequence	(0008,2229)	GENERATED; EMPTY	<Empty>	<Empty>	
Total Time of Fluoroscopy	(0040,0300)	GENERATED	<Empty>	e.g. 6	

Total Number of Exposures	(0040,0301)	GENERATED	\<Empty\>	e.g. 41	
Distance Source to Detector	(0018,1110)	EMPTY	\<Empty\>	\<Empty\>	
Distance Source to Entrance	(0040,0306)	EMPTY	\<Empty\>	\<Empty\>	
Entrance Dose	(0040,0302)	GENERATED	\<Empty\>	e.g. 0	
Entrance Dose in mGy	(0040,8302)	GENERATED	\<Empty\>	\<Empty\>	Send to N-SET value by system setting changed
Exposed Area	(0040,0303)	EMPTY	\<Empty\>	\<Empty\>	
Image and Fluoroscopy Area Dose Product	(0018,115E)	GENERATED	\<Empty\>	e.g. "3.950000"	
Comments on Radiation Dose	(0040,0310)	USER	\<Empty\>	e.g. "DoseComments"	
Exposure Dose Sequence	(0040,030E)	GENERATED	\<Empty\>	\<Empty\>	
>KVP	(0018,0060)	GENERATED	\<Empty\>	e.g. "61.88"	Send to N-SET value by system setting changed
>X-Ray Tube Current	(0018,1151)	GENERATED	\<Empty\>	e.g. "160"	Send to N-SET value by system setting changed
>Exposure Time	(0018,1150)	GENERATED	\<Empty\>	e.g. "32"	Send to N-SET value by system setting changed
Fluoro Dose Sequence	(0040,030F)*	GENERATED	\<Empty\>	\<Empty\>	Send to N-SET value by system setting changed
>KVP	(0018,0060) or (0040,0308)*	GENERATED	\<Empty\>	e.g. "61.88"	Send to N-SET value by system setting changed
>X-Ray Tube Current	(0018,1151) or (0040,030A)*	GENERATED	\<Empty\>	e.g. "160"	Send to N-SET value by system setting changed
>Exposure Time	(0018,1150) or (0040,030C)*	GENERATED	\<Empty\>	e.g. "32"	Send to N-SET value by system setting changed

Note that tags with * are private tags that are not regulated by DICOM standards.

This product sends N-CREATE requests when first exposure after study was started, and sends N-SET requests after study was finished.

5.2.2.2   SCP of the Modality Performed Procedure Step SOP Class - N/A
N/A

5.2.3   Unified Worklist and Procedure Step Service - N/A
N/A

5.2.4   Instance Availability Notification Service - N/A
N/A

5.2.5 Storage Service

5.2.5.1 SCU of the Storage SOP Classes

As a Service Class User of the Storage Service Class, the Alphenix uses the C-STORE-RQ message to request storage of DICOM objects by a remote SCP. See Section 1.1 Content and Transfer in the Overview for the list of supported SOP Classes.

For details regarding the content of SOP Instances that are created by the system, see Annex A, which describes the underlying IOD of the supported SOP Classes.

This product sends C-STORE requests by the following triggering.
・Initiated by user.

・Automatically when an instance is stored as auto transfer setting.

・Automatically when the study is closed as auto transfer setting.

5.2.5.1.1   Transcoding of Transfer Syntaxes

Table 5-4 describes supported transcodings between the locally stored encoding of SOP Instances and the negotiated Transfer Syntax. The following Values can be used:

• SUPPORTED: Transcoding is possible and same SOP Instance UID is re-used.

• NEW_UID: Transcoding is possible; however a new SOP Instance is created for transfer, e.g., due to lossy compression.

• NOT_SUPPORTED: Transcoding is not possible.

Table 5-4 Transcoding of Transfer Syntaxes

Stored Transfer Syntax	Sent Transfer Syntax		
	Implicit VR Little Endian	**Explicit VR Little Endian**	**JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14)**
Internal Private Transfer Syntax	SUPPORTED	SUPPORTED	SUPPORTED

5.2.5.2 SCP of the Storage SOP Classes

As a Service Class Provider of the Storage Service Class, the Alphenix receives the C-STORE-RQ message from remote SCUs. See Section 1.1 Content and Transfer in the Section 1 for the list of supported SOP Classes.
Table 5-5 Table 5-9 defines the conformance levels of Alphenix.

Table 5-5 Levels of Conformance

Levels of Storage Support	2
Level of Digital Signature Support	1

See PS3.4 B.4.1 Conformance as an SCP for level definition.

The Alphenix does not coerces Attributes upon receiving from other systems.

No restriction to display or post processing apply.

Table 5-6 lists the actions performed upon receiving instances from a remote AE and the system behavior when certain conditions are encountered

Table 5-6 Behavior when storing Instances

Action upon Receiving	Condition	System Behavior
Perform Attribute Validation	Minor DICOM inconsistencies	Fix error and log warning message: • Incorrect characters are replaced with "?" • Attributes exceeding length of VR are truncated • Type 2 Attributes not present are inserted with zero length
	Duplicate Instance	Overwrite Instances
	DICOM Validation error	Send failure code on Association
	Success	Instances are stored in an internal database
Add to an existing study	Mismatch in patient identifying information detected	Instances are stored and logged warning/error
	Duplicate Study	Overwrite Study if the first component group of Patient's Name, Patient ID, Patient's Birth Date and Patient's Sex are same
	Success	Instances are stored in a local database
Localize Patient Information	Patient mismatch detected	Instances are stored and display message
	Success	Instances are stored in an internal database

Table 5-7describes how the SCP handles compression for stored instances.

The following Values are used in the "Behavior" column:

• AS_IS: Images are stored as received.

• CONFIGURATION: Images are compressed based on internal configuration settings.

• OTHER: All other conditions, which are further described in the "Comments" column.

The Transfer Syntax is used to describe the compression mechanism applied.

Table 5-7 Image Compression by Storage SCP

SOP Class		Behavior	Transfer Syntax		Comments
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	CONFIGURATION	Internal Private Transfer Syntax (Decompressed)		The compressed instance is stored after decompression.

5.2.6 Storage Commitment Service

5.2.6.1 SCU of the Storage Commitment SOP Class

This product receives the N-EVENT-REPORT request on the different Association as the N-ACTION. However, it can receive the N-EVENT-REPORT request on the same Association as the N-ACTION by configuration change.

Table 5-8Table 5-14 lists the behavior of Alphenix for each possible Failure Reason (0008,1197) in the Failed SOP Sequence (0008,1198) upon receiving an N-EVENT-REPORT request from the SCP with an Event Type ID of 2 (Storage Commitment Request Complete - Failures Exist).

Table 5-8 Failure Behavior for Storage Commitment SCU

Status Code	Description	Behavior
0110H	Processing failure: A general failure in processing the operation was encountered.	The request for storage commitment is marked as failed. A warning is displayed if the user tries to delete affected instances
0112H	No such object instance: One or more of the elements in the Referenced SOP Instance Sequence was not available.	The instance is re-sent, and the N-ACTION request is repeated.
0119H	Class / Instance conflict: The SOP Class of an element in the Referenced SOP Instance Sequence did not correspond to the SOP Class registered for this SOP Instance at the SCP.	Code is ignored by the system
0122H	Referenced SOP Class not supported: Storage Commitment has been requested for a SOP Instance with a SOP Class that is not supported by the SCP.	The request for storage commitment is marked as failed. A warning is displayed if the user tries to delete affected instances
0131H	Duplicate Transaction UID: The Transaction UID of the Storage Commitment Request is already in use.	The request for storage commitment is marked as failed. A warning is displayed if the user tries to delete affected instances
0213H	Resource limitation: The SCP does not currently have enough resources to store the requested SOP Instance(s).	The request for storage commitment is marked as failed. A warning is displayed if the user tries to delete affected instances

Alphenix expects to receive the N-EVENT-REPORT request in a configurable time frame after the N-ACTION is sent. If the N-EVENT-REPORT is not received within this configurable timeframe it fails the N-ACTION.

5.2.6.2   SCP of the Storage Commitment SOP Class - N/A
N/A

5.2.7   Query/Retrieve Service Class

5.2.7.1   SCU of the Study Root Q/R Information Model - FIND SOP Class – N/A

N/A

5.2.7.2   SCU of the Patient Root Q/R Information Model - FIND SOP Class

As a Service Class User of the Patient Root Q/R - Information Model - FIND SOP Class, the Alphenix uses the C-FIND-RQ message and supports the Query Keys listed in Table 5-9 for hierarchical queries.

In the "Matching Type" column the following Values can be used:

- SINGLE_VALUE: SCU can request Single Value matching on this Attribute.

- UID: SCU can request List of UID matching on this Attribute.

- WILDCARD: SCU can request Wildcard matching on this Attribute.

- RANGE: SCU can request Range matching on this Attribute.

- SEQUENCE: SCU can request Sequence matching on this Attribute.

- UNIVERSAL: SCU can request that the Attribute be a return Value (universal matching).

In the "Query Value Source" column the following Values can be used:

- FIXED: The query Value cannot be modified by the user or by configuration.

- GENERATED: The query Value is generated by the system (e.g., current date as the study date).

- CONFIGURATION: The query Value is dependent on system configuration.

- USER: The query Value is entered by the user.

- SCANNED: The query Value is read from a barcode scanner or similar device.

- EMPTY: The query Value is sent with a zero-length value to indicate it is a return key only.

In the "Display on UI" column the following Values can be used:

- D: the return Value is displayed on the main UI by default.

- C: the return Value is displayed on the main UI if configured.

- N: the return Value is never displayed.

Table 5-9 Supported C-FIND Attribute Matching for Patient Root Q/R Model -SCU

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Patient Level						
Retrieve AE Title	(0008,0054)	UNIVERSAL	EMPTY		N	
Referenced Patient Sequence	(0008,1120)	SEQUENCE	GENERATED		N	
>Referenced SOP Class UID	(0008,1150)	UNIVERSAL	EMPTY		N	
>Referenced SOP Instance UID	(0008,1155)	UNIVERSAL	EMPTY		N	
Patient's Name	(0010,0010)	WILDCARD; UNIVERSAL	USER		D	
Patient ID	(0010,0020)	WILDCARD; UNIVERSAL	USER		D	
Patient's Birth Date	(0010,0030)	UNIVERSAL	EMPTY		D	
Patient's Birth Time	(0010,0032)	UNIVERSAL	EMPTY		N	
Patient's Sex	(0010,0040)	UNIVERSAL	EMPTY		D	
Other Patient IDs (Retired)	(0010,1000)	UNIVERSAL	EMPTY		N	
Other Patient Names	(0010,1001)	UNIVERSAL	EMPTY		N	
Ethnic Group	(0010,2160)	UNIVERSAL	EMPTY		N	
Patient Comments	(0010,4000)	UNIVERSAL	EMPTY		N	
Number of Patient Related Studies	(0020,1200)	UNIVERSAL	EMPTY		N	
Number of Patient Related Series	(0020,1202)	UNIVERSAL	EMPTY		N	
Number of Patient Related Instances	(0020,1204)	UNIVERSAL	EMPTY		N	
Study Level						
Study Date	(0008,0020)	UNIVERSAL	EMPTY		D	
Study Time	(0008,0030)	UNIVERSAL	EMPTY		D	
Accession Number	(0008,0050)	UNIVERSAL	EMPTY		D	

Retrieve AE Title	(0008,0054)	UNIVERSAL	EMPTY		N	
Modalities in Study	(0008,0061)	UNIVERSAL	EMPTY		N	
Referring Physician's Name	(0008,0090)	UNIVERSAL	EMPTY		N	
Study Description	(0008,1030)	UNIVERSAL	EMPTY		D	
Procedure Code Sequence	(0008,1032)	SEQUENCE	GENERATED		N	
>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
Name of Physician(s) Reading Study	(0008,1060)	UNIVERSAL	EMPTY		D	
Referenced Study Sequence	(0008,1110)	SEQUENCE	GENERATED		N	
>Referenced SOP Class UID	(0008,1150)	UNIVERSAL	EMPTY		N	
>Referenced SOP Instance UID	(0008,1155)	UNIVERSAL	EMPTY		N	
Patient ID	(0010,0020)	SINGLE_VALUE			N	
Patient's Age	(0010,1010)	UNIVERSAL	EMPTY		N	
Patient's Size	(0010,1020)	UNIVERSAL	EMPTY		N	
Patient's Weight	(0010,1030)	UNIVERSAL	EMPTY		N	
Occupation	(0010,2180)	UNIVERSAL	EMPTY		N	
Additional Patient History	(0010,21b0)	UNIVERSAL	EMPTY		N	
Study Instance UID	(0020,000d)	UNIVERSAL	EMPTY		D	
Study ID	(0020,0010)	UNIVERSAL	EMPTY		D	
Other Study Numbers (Retired)	(0020,1070)	UNIVERSAL	EMPTY		N	
Number of Study Related Series	(0020,1206)	UNIVERSAL	EMPTY		N	
Number of Study Related Instances	(0020,1208)	UNIVERSAL	EMPTY		N	
Interpretation Author (Retired)	(4008,010c)	UNIVERSAL	EMPTY		N	
Series Level						
Series Date	(0008,0021)	UNIVERSAL	EMPTY		N	
Series Time	(0008,0031)	UNIVERSAL	EMPTY		N	
Accession Number	(0008,0050)	UNIVERSAL	EMPTY		N	
Retrieve AE Title	(0008,0054)	UNIVERSAL	EMPTY		N	
Modality	(0008,0060)	UNIVERSAL	EMPTY		D	
Institutional Department Name	(0008,1040)	UNIVERSAL	EMPTY		N	
Performing Physician's Name	(0008,1050)	UNIVERSAL	EMPTY		N	

Operators' Name	(0008,1070)	UNIVERSAL	EMPTY		N	
Body Part Examined	(0018,0015)	UNIVERSAL	EMPTY		N	
Study Instance UID	(0020,000d)	SINGLE_VALUE	GENERATED		N	
Series Instance UID	(0020,000e)	UNIVERSAL	EMPTY		D	
Study ID	(0020,0010)	UNIVERSAL	EMPTY		N	
Series Number	(0020,0011)	UNIVERSAL	EMPTY		D	
Number of Series Related Instances	(0020,1209)	UNIVERSAL	EMPTY		N	
Instance Level						
SOP Class UID	(0008,0016)	UNIVERSAL	EMPTY		N	
SOP Instance UID	(0008,0018)	UNIVERSAL	EMPTY		D	
Content Date	(0008,0023)	UNIVERSAL	EMPTY		N	
Content Time	(0008,0033)	UNIVERSAL	EMPTY		N	
Retrieve AE Title	(0008,0054)	UNIVERSAL	EMPTY		N	
Referenced Patient Sequence	(0008,1120)	SEQUENCE	GENERATED		N	
>Referenced SOP Class UID	(0008,1150)	UNIVERSAL	EMPTY		N	
>Referenced SOP Instance UID	(0008,1155)	UNIVERSAL	EMPTY		N	
Study Instance UID	(0020,000d)	SINGLE_VALUE	GENERATED		N	
Series Instance UID	(0020,000e)	SINGLE_VALUE	GENERATED		N	
Instance Number	(0020,0013)	UNIVERSAL	EMPTY		D	
Overlay Number (Retired)	(0020,0022)	UNIVERSAL	EMPTY		N	
Curve Number (Retired)	(0020,0024)	UNIVERSAL	EMPTY		N	
LUT Number (Retired)	(0020,0026)	UNIVERSAL	EMPTY		N	
Private Creator	(0029,0010)	SINGLE_VALUE	FIXED	e.g. "PMTF INFORMATION DATA"	N	
	(0029,xx34)	UNIVERSAL	EMPTY		N	

The product issues C-FIND CANCEL requests in the following scenarios:

・Initiated by user.

If the cancellation request is ignored by the SCP and the SCP continues sending responses, this product waits till receiving the C-FIND-RSP that status is Cancel or other and continue to display the received items.

Non-supported characters in response are not displayed correctly.

5.2.7.3   SCU of the Study Root Q/R Information Model - MOVE SOP Class – N/A

N/A

5.2.7.4 SCU of the Patient Root Q/R Information Model - MOVE SOP Class

This product can retrieve instances to own AE only and doesn't support C-MOVE-CANCEL request.

5.2.7.5 SCP of the Study Root Q/R Information Model - FIND SOP Class - N/A

N/A

5.2.7.6 SCP of the Patient Root Q/R Information Model - FIND SOP Class - N/A

N/A

5.2.7.7 SCP of the Study Root Q/R Information Model - MOVE SOP Class - N/A

N/A

5.2.7.8 SCP of the Patient Root Q/R - Information Model - MOVE SOP Class - N/A

N/A

5.2.8 Print Management Service

5.2.8.1 SCU of the Basic Grayscale Print Management Meta SOP Class

The Basic Grayscale Print Management Meta SOP Class is composed of the mandatory SOP Classes listed in Table 5-10.

Table 5-10 Basic Grayscale Print Management Meta SOP Classes - SCU

SOP Class Name	SOP Class UID
Basic Film Session	1.2.840.10008.5.1.1.1
Basic Film Box	1.2.840.10008.5.1.1.2
Basic Grayscale Image Box	1.2.840.10008.5.1.1.4
Printer	1.2.840.10008.5.1.1.16

5.2.8.1.1 Basic Film Session SOP Class

Table 5-11 lists the supported DIMSE Services for the Basic Film Session SOP Class:

Table 5-11 Services for the Basic Film Session SOP Class - SCU

DIMSE Service Element	Purpose
N-CREATE	Create the Film Session
N-DELETE	Delete the Film Session

Table 5-12 lists the supported N-CREATE Attributes for Basic Film Session:

Table 5-12 Supported N-CREATE Attributes for the Basic Film Session SOP Class - SCU

Attribute Name	Tag	Values	Default
Number of Copies	(2000,0010)	1..99	User selection
Medium Type	(2000,0030)	BLUE FILM CLEAR FILM PAPER	Service Configurable
Film Destination	(2000,0040)	MAGAZINE PROCESSOR	Service Configurable

5.2.8.1.2 Basic Film Box SOP Class

Table 5-13 lists the supported DIMSE Services for the Basic Film Box SOP Class:

Table 5-13 Supported Services for the Basic Film Box SOP Classes

DIMSE Service Element	Purpose
N-CREATE	Create the Film Box in a previously created Film Session
N-ACTION	Print the Film Box

Table 5-14 lists the supported N-CREATE Attributes for Basic Film Box:

Table 5-14 Supported N-CREATE Attributes for the Basic Film Box SOP Class - SCU

Attribute Name	Tag	Values	Default
Image Display Format	(2010,0010)	STANDARD\1,1	User selection
Film Orientation	(2010,0040)	PORTRAIT LANDSCAPE	User selection
Film Size ID	(2010,0050)	8INX10IN 8INX11IN 11INX14IN 11INX11IN 14INX14IN 14INX17IN Etc	User selection
Magnification Type	(2010,0060)	REPLICATE BILINEAR CUBIC NONE	Service Configurable
Border Density	(2010,0100)	BLACK WHITE	Service Configurable
Minimum Density	(2010,0120)	0..99	Service Configurable
Maximum Density	(2010,0130)	0..99	Service Configurable
Referenced Film Session Sequence	(2010,0500)		
>Referenced SOP Class UID	(0008,1150)	1.2.840.10008.5.1.1.2	Auto
>Referenced SOP Instance UID	(0008,1155)	From created Film Session SOP Instance	Auto

5.2.8.1.3   Basic Grayscale Image Box SOP Class

Table 5-15 lists the supported DIMSE Service for the Basic Grayscale Image Box SOP Class:

Table 5-15 Services for the Basic Grayscale Image Box SOP Class

DIMSE Service Element	Purpose
N-SET	Set Image Attributes for a previously created Film Box

Table 5-16 lists the supported N-SET Attributes for Basic Grayscale Image Box:

Table 5-16 Supported N-SET Attributes for the Basic Grayscale Image Box SOP Class -SCU

Attribute Name	Tag	Values	Default
Image Box Position	(2020,0010)	1..36	Auto
Basic Grayscale Image Sequence	(2020,0110)		
>Samples per Pixel	(0028,0002)	1	Auto

Attribute Name	Tag	Values	Default
>Photometric Interpretation	(0028,0004)	MONOCHROME2	Auto
>Rows	(0028,0010)		Auto
>Columns	(0028,0011)		Auto
>Pixel Aspect Ratio	(0028,0034)	1\1	Auto
>Bits Allocated	(0028,0100)	8	Auto
>Bits Stored	(0028,0101)	8	Auto
>High Bit	(0028,0102)	7	Auto
>Pixel Representation	(0028,0103)	0	Auto
>Pixel Data	(7FE0,0010)		Auto

5.2.8.1.4   Printer SOP Class

Table 5-17 lists the supported DIMSE Services for the Printer SOP Class:

Table 5-17 Services for the Printer SOP Class

DIMSE Service Element	Purpose
N-EVENT-REPORT	Report the printer status in an asynchronous way
N-GET	Retrieve printer information and status.

An N-EVENT-REPORT request can be received by the SCU at any time during an Association.
Table 5-18 summarizes the behavior of the SCU when receiving Event Types within the N-EVENT-REPORT.

Table 5-18 Printer SOP Class N-EVENT-REPORT Behavior

Event Type Name	Event Type ID	Behavior
Normal	1	The print-job continues to be printed.
Warning	2	The print-job continues to be printed. The contents of Printer Status Info (2110,0020) is logged and reported to the user via the job-control application.
Failure	3	The print-job is marked as failed. The contents of Printer Status Info (2110,0020) is logged and reported to the user via the job-control application.
*	*	An invalid Event Type ID will cause a status code of 0113H to be returned in a N-EVENT-REPORT response.

Table 5-19 lists the supported N-GET Attributes for Printer SOP Class:

Table 5-19 Supported N-GET Attributes for the Printer SOP Class - SCU

Attribute Name	Tag	Behavior
Printer Status	(2110,0010)	NORMAL: the print-job continues to be printed. FAILURE: the print-job is marked as failed. The contents of Printer Status Info (2110,0020) is logged and reported to the user via the job control application. WARNING: the print-job continues to be printed. The contents of Printer Status Info (2110,0020) is logged and reported to the user via the job control application.

Attribute Name	Tag	Behavior
		(empty) or other, the print-job continues to be printed. The contents of Printer Status Info (2110,0020) is logged as NOT READY and reported to the user via the job control application.
Printer Status Info	(2110,0020)	NORMAL: print job was success. other: The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

5.2.8.2   SCU of the Basic Color Print Management Meta SOP Class – N/A

N/A

5.2.8.3   SCU of the Basic Annotation Box SOP Class – N/A

N/A

5.2.8.4   SCU of the Print Job SOP Class – N/A

N/A

5.2.8.5   SCU of the Presentation LUT SOP Class – N/A

N/A

5.2.8.6   SCU of the Printer Configuration Retrieval SOP Class - N/A

N/A

5.2.8.7   SCP of the Basic Grayscale Print Management Meta SOP Class - N/A

N/A

5.2.8.8   SCP of the Basic Color Print Management Meta SOP Class - N/A

N/A

5.2.8.9   SCP of the Basic Annotation Box SOP Class - N/A

N/A

5.2.8.10   SCP of the Print Job SOP Class - N/A

N/A

5.2.8.11   SCP of the Presentation LUT SOP Class - N/A

N/A

5.2.8.12   SCP of the Printer Configuration Retrieval SOP Class - N/A

N/A

5.3 DICOM Web Services - N/A

N/A

5.4 Media Service

5.4.1   File Set Creator (FSC)

Alphenix supports creating the Basic Directory IOD as a File Set Creator as defined in Annex A.4.

For a list of supported Media Application Profiles, see Section 1.4 in the Overview.

For a list of supported SOP Classes, see Section 1.1 in the Overview.

5.4.2 File Set Reader (FSR)

Alphenix supports the Media Application Profiles listed in Section 1.4 in the Overview.

For a list of supported SOP Classes, see Section 1.1 in the Overview.

To display or process DICOM Instances contained on the Media, see Section 5.2.5.2.

5.4.3 File Set Updater (FSU) - N/A
N/A

5.5 Real Time Video Service - N/A
N/A

5.6 Cross Service Considerations

This section describes interaction between the implementation of different DICOM Services in this product. Details internal to an individual service are addressed in previous Service Sections.

Note

Note: The DICOM Standard typically does not define cross-service requirements. Therefore, this section provides an implementation description and is not strictly required DICOM Conformance.

5.7 Specific Character Sets

See Section 1.7 for supported Values for Specific Character Set (0008,0005).

Generic configuration for Specific Character Sets is covered in . Service specific configuration for Specific Character Sets is addressed in respective subsections of Section 6.2 or Section 6.3.

Alphenix supports displaying character sets beyond the default character repertoire (ISO-IR 6) for all displayed attributes. Alphenix supports editing character sets beyond the default character repertoire (ISO-IR 6) for the attributes listed in Table 5-20.

Table 5-20 Specific Character Set – Supported Attributes

Attribute Name	Tag	VR
Referring Physician's Name	(0008,0090)	PN
Performing Physician's Name	(0008,1050)	PN
Name of Physician(s) Reading Study	(0008,1060)	PN
Operators' Name	(0008,1070)	PN
Patient's Name	(0010,0010)	PN
Patient Comments	(0010,4000)	LT
Contrast/Bolus Agent	(0018,0010)	LO
Contrast/Bolus Route	(0018,1040)	LO
Image Comments	(0020,4000)	LT
Requesting Service	(0032,1033)	LO

6 Configuration

Throughout all subsections the following Values can be used in the "Configurable" column:

• USER: The parameter is configurable by the user.

• SERVICE: The parameter is configurable by service personnel.

• FIXED: The parameter is not configurable (it has a fixed Value). The Value is required for the configuration of the remote system.

• N/A: The parameter is not applicable for the local or the remote system.

6.1 General Configuration Parameters

Table 6-1 lists general configuration parameters applicable across all supported DICOM Services.

Table 6-1 General Configuration Parameters

Parameter	Configurable	Default Value	Comments
Network Parameters			
Physical Network Interface	FIXED	1000BASE-T 100BASE-TX 10BASE-T	Auto negotiation
General Parameters			
Max PDU Receive Size	SERVICE	28KB [4KB-512KB]	
Max PDU Send Size	SERVICE	28KB [4KB-512KB]	
Timeout waiting for acceptance or rejection Response to an Association Open Request. (Application-Level timeout)	SERVICE	60 sec [1-999999]	
Timeout waiting for a response to an Association release request (Application Level Timeout)	SERVICE	60 sec [1-999999]	
Timeout awaiting a Response to a DIMSE Request (Low-Level Timeout)	SERVICE	15 sec [1-999999]	
TCP/IP Settings			
Time-out waiting for completion of a TCP/IP connect request (Low-level timeout)	SERVICE	60 sec [1-999999]	
Time-out for waiting for data between TCP/IP-packets (Low Level Timeout)	SERVICE	60 sec [1-999999]	

6.2 Configuration of DIMSE Services

The tables in the following subsections show the configuration parameters required for DIMSE Services.

In order to identify whether Alphenix is an SCP and / or an SCU, the following applies:

• SCP: The (Secured) Local Called AET and Remote Calling AET parameters are present.

• SCU: The (Secured) Local Calling AET and Remote Called AET parameters are present.

6.2.1 Basic Worklist Management Service Configuration

Table 6-2 lists Worklist Service configuration parameters:

Table 6-2 Worklist Service Parameters

Local Configuration Parameters - Worklist Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE	MWMSCU_AE	
Default Modality type	USER	XA	Used to query the MWL SCP.possible choices are "XA" or ""(ALL)
Default Scheduled Station AE Title	SERVICE	MWMSCU_AE	Used to query the remote MWL SCP
Modality Worklist SCU time-out waiting for the final response to a C-FIND-RQ	SERVICE	180 sec [1-999999]	
Maximum number of simultaneously initiated Associations by the MWM SCU AE	FIXED	1	
Remote Configuration Parameters - Worklist Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Called AE Title (SCP)	SERVICE		Can connect up to 1 RIS
Port	SERVICE		
Host	SERVICE		

6.2.2 Modality Performed Procedure Step Service Configuration

Table 6-3 lists Modality Performed Procedure Step Service configuration parameters:

Table 6-3 MPPS Service Parameters

Local Configuration Parameters - MPPS Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE	MPPSSCU_AE	
MPPS SCU time-out waiting for a response to a N-CREATE-RQ	SERVICE	180 sec [1-999999]	
MPPS SCU time-out waiting for a response to a N-SET-RQ	SERVICE	180 sec [1-999999]	
MPPS SCU time-out waiting for a response to a N-GET-RQ	SERVICE	180 sec [1-999999]	
Maximum number of simultaneously initiated Associations by the MPPS SCU AE	FIXED	1	
Supported Transfer Syntaxes for MPPS	SERVICE	Implicit VR Little Endian	Implicit VR Little Endian Explicit VR Little Endian
Behavior when receiving the Warning "Attribute Value Out of Range" as service status.	SERVICE	Considered as Failure	Considered as Failure Considered as Success
Remote Configuration Parameters - MPPS Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Called AE Title (SCP)	SERVICE		
Port	SERVICE		
Host	SERVICE		

6.2.3 Unified Worklist and Procedure Step Service Configuration - N/A

N/A

6.2.4 Instance Availability Notification Service Configuration - N/A

N/A

6.2.5 Storage Service Configuration

Table 6-6 lists Storage Service configuration parameters:

Table 6-4 Storage Service Parameters

Local Configuration Parameters - Storage Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE	DICOM_LOCAL_SCU	The same Calling AET is used for Verification SCU
Called AE Title (SCP)	SERVICE	DICOM_LOCAL_SCP	The same Called AET is used for Verification SCP
Port	SERVICE	104	The same Port is used for Verification SCP
TLS-Secured Port	SERVICE	2762	The same TLS-Secured Port is used for Verification SCP
Storage SCU time-out waiting for a response to a C-STORE-RQ	SERVICE	180 sec [1-999999]	
Number of times a failed send job may be retried	FIXED	Forever	Until the job succeeds or user deletes the job.
Maximum number of simultaneously initiated Associations by the Storage SCU AE	SERVICE	10	
Behavior when receiving the Warning "Coercion of Data Elements" as service status.	SERVICE	Considered as Failure	Considered as Success / Failure
Behavior when receiving the Warning "Data Set does not match SOP Class" as service status.	SERVICE	Considered as Failure	Considered as Success / Failure
Behavior when receiving the Warning "Elements Discarded" as service status.	SERVICE	Considered as Failure	Considered as Success / Failure
Maximum number of simultaneously accepted Associations by the Storage SCP AE	FIXED	1	
Remote Configuration Parameters - Storage Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Called AE Title (SCP)	SERVICE		
Port	SERVICE		
Host	SERVICE		

6.2.6 Storage Commitment Service Configuration

Table 6-7 lists Storage Commitment Service configuration parameters:

Table 6-5 Storage Commitment Service Parameters

Local Configuration Parameters - Storage Commitment Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE	DICOM_LOCAL_SCU	The system uses the same Calling AE Title as for the Storage SCU service by default
Called AE Title	SERVICE	DICOM_LOCAL_SCP	
Port	SERVICE	104	
TLS-Secured Port	FIXED	2762	
Storage Commitment SCU time-out waiting for a response to a N-ACTIION-RQ	SERVICE	30 sec [1-999999]	
Maximum number of simultaneously initiated Associations by the Storage Commitment SCU AE	FIXED	1	
Timeout waiting for a Storage Commitment Notification (maximum duration of applicability for a Storage Commitment Transaction UID).	FIXED	Forever	
Maximum number of simultaneously accepted Associations by the Storage Commitment SCU AE	FIXED	1	
Remote Configuration Parameters - Storage commitment Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE		
port	SERVICE		
Host	SERVICE		

6.2.7 Query/Retrieve Service Configuration

Table 6-8 lists Query/Retrieve Service configuration parameters:

Table 6-6 Query/Retrieve Service Parameters

Local Configuration Parameters - Query/Retrieve Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE	DICOM_LOCAL_SCU	
Remote Configuration Parameters - Query/Retrieve Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Called AE Title (SCP)	SERVICE		
Port	SERVICE		
TLS-Secured Port	SERVICE		
Host	SERVICE		

6.2.8 Print Management Service Configuration

Table 6-8 lists Print Management Service configuration parameters:

Table 6-7 Print Management Service Parameters

Local Configuration Parameters - Print Management Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE	PrintSCU_AE	
Print SCU time-out waiting for a response to a N-GET-RQ	SERVICE	180 sec [1-999999]	
Print SCU time-out waiting for a response to a N-CREATE-RQ	SERVICE	180 sec [1-999999]	
Print SCU time-out waiting for a response to a N-SET-RQ	SERVICE	180 sec [1-999999]	
Print SCU time-out waiting for a response to a N-ACTION-RQ	SERVICE	180 sec [1-999999]	
Maximum number of simultaneously initiated Associations by the Print SCU AE	FIXED	1	
Behavior when receiving the Warning "Attribute Value Out of Range" as service status of the Film Session N-CREATE.	SERVICE	Considered as Failure	Considered as Failure / Success
Behavior when receiving the Warning "Attribute List Error" as service status of the Film Session N-CREATE.	SERVICE	Considered as Failure	Considered as Failure / Success
Behavior when receiving the Warning "Requested Min Density or Max Density outside of printer's operating range" as service status of the Film Box N-CREATE.	SERVICE	Considered as Failure	Considered as Failure / Success
Behavior when receiving the Warning "Film Box SOP Instance hierarchy does not contain Image Box SOP Instances (empty page)" as service status of the Film Box N-ACTION.	SERVICE	Considered as Failure	Considered as Failure / Success

Local Configuration Parameters - Print Management Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Behavior when receiving the Warning "Image size is larger than Image Box size. The image has been demagnified." as service status of the Film Box N-ACTION.	SERVICE	Considered as Failure	Considered as Failure / Success
Behavior when receiving the Warning "Image size is larger than Image Box size. The image has been cropped to fit." as service status of the Film Box N-ACTION.	SERVICE	Considered as Failure	Considered as Failure / Success
Behavior when receiving the Warning "Image size or Combined Print Image Size is larger than Image Box size. The image or combined Print Image has been decimated to fit." as service status of the Film Box N-ACTION.	SERVICE	Considered as Failure	Considered as Failure / Success
Behavior when receiving the Warning "Image size is larger than Image Box size. The image has been demagnified. " as service status of the Grayscale Image Box N-SET.	SERVICE	Considered as Failure	Considered as Failure / Success
Behavior when receiving the Warning "Requested Min Density or Max Density outside of printer's operating range." as service status of the Grayscale Image Box N-SET.	SERVICE	Considered as Failure	Considered as Failure / Success
Behavior when receiving the Warning "Image size is larger than Image Box size. The image has been cropped to fit." as service status of the Grayscale Image Box N-SET.	SERVICE	Considered as Failure	Considered as Failure / Success
Behavior when receiving the Warning "Image size or Combined Print Image Size is larger than Image Box size. The image or combined Print Image has been decimated to fit." as service status of the Grayscale Image Box N-SET.	SERVICE	Considered as Failure	Considered as Failure / Success
Remote Configuration Parameters - Print Management Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Called AE Title (SCP)	SERVICE		
Port	SERVICE		
Host	SERVICE		
Supported Transfer Syntaxes (separately configurable for each remote printer)	SERVICE	Implicit VR Little Endian	Implicit VR Little Endian Explicit VR Little Endian
printer template	SERVICE		A pre-defined printer template can be selected in a drop down list. Select "default" if the printer template does not exist
Film sizes supported by the Print SCP	USER	Equal to the default value in selected printer template.	Select the film sizes which are relevant for the selected printer template.

6.3 Configuration of DICOM Web Services - N/A
N/A

6.4 Configuration of Media Storage Service
There is no configuration parameters for the Media Storage service.

6.5 Configuration of Real Time Video Service - N/A
N/A

6.6 Configuration of Audit Trail - Syslog

Table 6-8 lists configuration parameters for the Audit Trail Originator.

Table 6-8 Audit Trail Originator Parameters

Originator Audit Trail Message Transmission-SYSLOG Parameters			
Parameter	**Configurable**	**Default Value**	**Comments**
Remote Port number	SERVICE	6514	
Remote Host name/IP	SERVICE		
UDP/TLS Protocol	SERVICE		Select the protocol as the follow. RFC 3164 UDP RFC 5425 TLS RFC 5426 UDP
Maximum Size sent	N/A		
<Specific Originator Audit Trail Message Transmission-SYSLOG parameters>	N/A		

7 Network and Media Communication Details

7.1 General

The cross interaction between the AEs is depicted in the diagrams below.
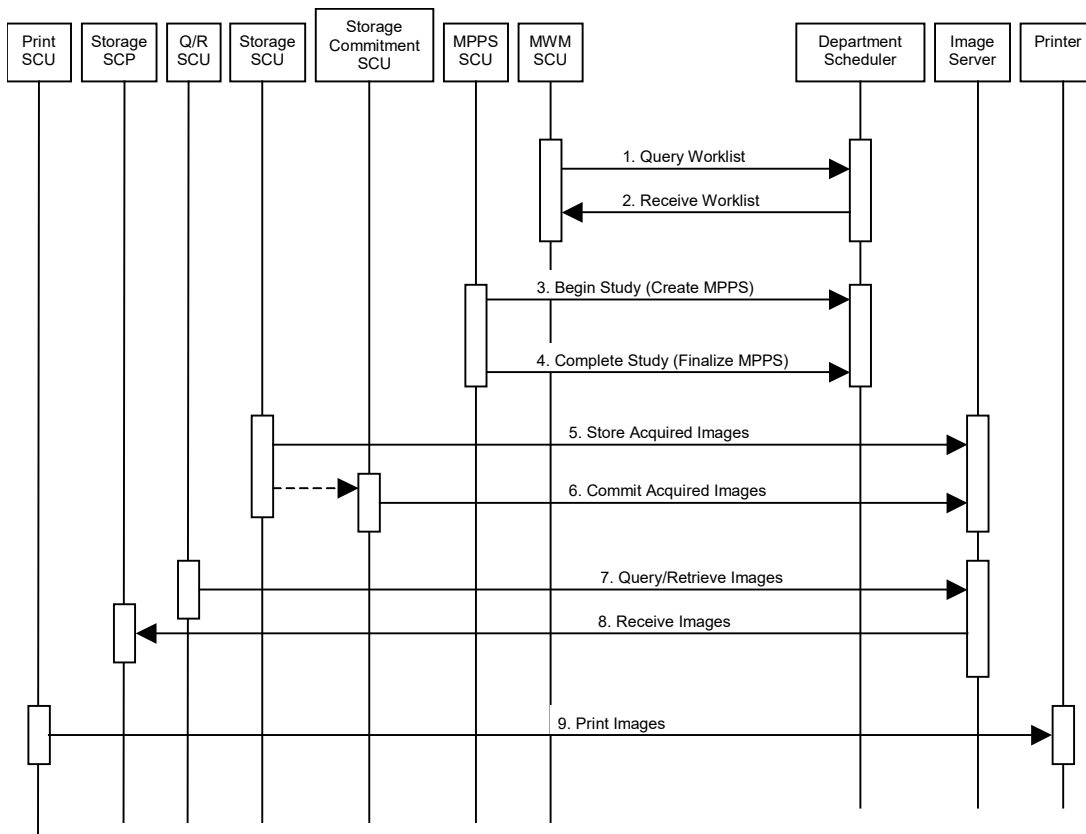
Figure 7-1 Real-World Activity and Cross AE interaction

7.1.1 General Association Parameters
Table 7-1 lists Association parameters applicable to all AEs on the system.

Table 7-1 General Association Parameters

	Name	Value
Networking Services	Application Context Name	1.2.840.10008.3.1.1.1
	Implementation Class UID	1.2.392.200036.9116.7.8.12.10.31.1.1
	Implementation Version Name	CM_VL_DCM_V3.0
	Maximum PDU Length	Default: 64234
	Time-out waiting for A-ASSOCIATE RQ PDU on open TCP/IP connection. (ARTIM timeout)	30s
	Maximum number of simultaneous Associations as Association Initiator	1
	Maximum number of simultaneous Associations as Association Acceptor	1
	Maximum number of outstanding asynchronous Transactions	1
Media Services	File Meta Information Version	1

	Name	Value
	Implementation Class UID	1.2.392.200036.9116.7.8.12.10.31.1.1
	Implementation Version Name	CM_VL_DCM_V3.0

7.2 Specifications

7.2.1 Verification SCU Application Entity

7.2.1.1   Sequencing of Real-World Activities for Verification SCU AE
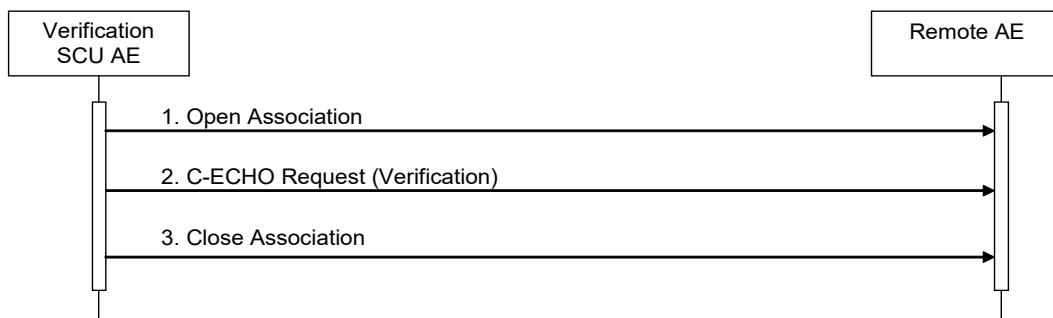
Figure 7-2 Sequencing of Real-World Activities for Verification SCU AE(C-ECHO)

1. The Verification SCU AE opens an Association with a remote AE.

2. The Verification SCU AE issues a Verification request (C-ECHO) and a remote AE replies with a C-ECHO response (status success).

3. The Verification SCU AE closes the Association with a remote AE.

7.2.1.2   Association Parameters of Verification SCU AE
Table 7-2 lists Association parameters applicable to Verification SCU AE

Table 7-2 Association Parameters for Verification SCU AE

	Name	Value
Networking Services	Maximum number of simultaneous Associations as Association Initiator	0 (unlimited)

7.2.1.3   Association Initiation

This section details the Association policies of the Application Entity when it is initiating an Association.

7.2.1.3.1   Real-World Activity "Verify Connectivity (C-ECHO)"

This AE creates an Association with presentation context of Verification SOP Class with the supported Transfer Syntaxes(See Table 1-4).

Extended Negotiation – N/A

N/A

Role Negotiation – N/A

N/A

7.2.2 Verification SCP Application Entity

7.2.2.1 Sequencing of Real-World Activities for Verification SCP AE
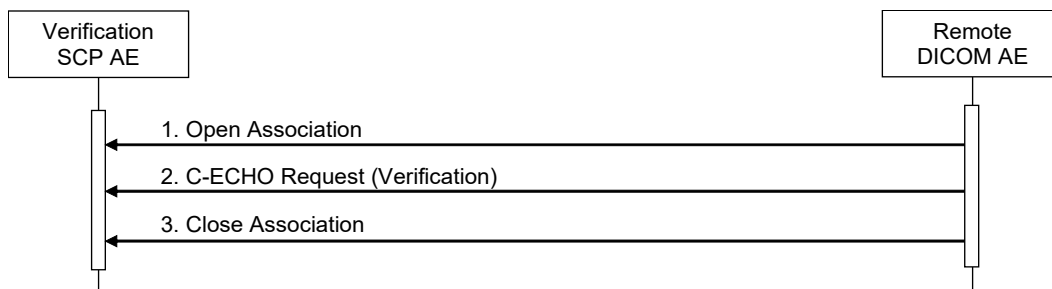
Figure 7-3 Sequencing of Real-World Activities for Verification SCP AE

1. The remote DICOM AE opens an Association with the Verification SCP AE.

2. The remote DICOM AE issues a Verification request (C-ECHO), and the Verification SCP AE replies with a C-ECHO response (status success).

3. The remote DICOM AE closes the Association with the Verification SCP AE.

7.2.2.2 Association Parameters of Verification SCP AE
Table 7-3 lists Association parameters applicable to Verification SCP AE.

Table 7-3 Association Parameters for Storage SCP AE

	Name	Value
Network Services	Maximum number of simultaneous Associations as Association Acceptor	0 (unlimited)

7.2.2.3 Association Initiation – N/A

N/A

7.2.2.4 Association Acceptance

This section details the Association policies of the Application Entity when it is the acceptor of an Association.

7.2.2.4.1 Real-World Activity "Respond to Verification Request"
This AE receives a verification request from remote AE, then, it returns the response of success/failure.

Extended Negotiation – N/A

N/A

Transfer Syntax Selection Policies

This section provides tables that describe the Transfer Syntax preference for different SOP Classes or SOP Class groups when there are multiple Transfer Syntaxes provided by the Association initiator for Real-World Activity "Respond to Verification Request" of Verification SCP AE.

Table 7-4 Transfer Syntax Selection Preference Order - Image SOP Classes

Preference Order	Transfer Syntax	UID	Comments
1	Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2.1	
2	Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2	

7.2.3 Storage SCU Application Entity

7.2.3.1 Sequencing of Real-World Activities for Storage SCU AE

7.2.3.2
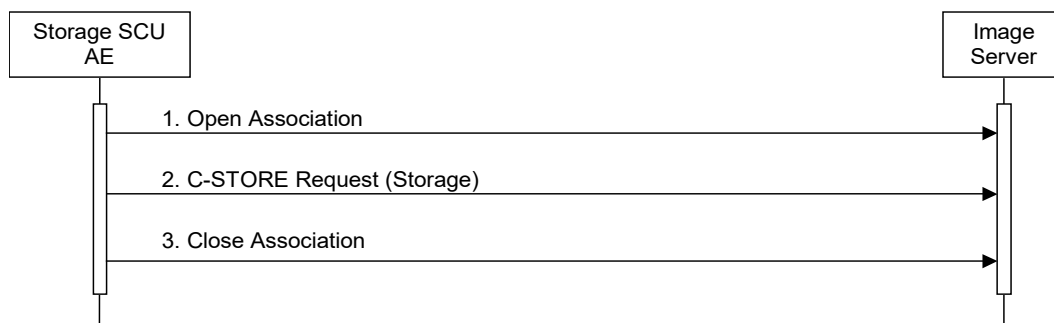
Figure 7-4 Sequencing of Real-World Activities for Storage SCU AE

1. The Storage SCU AE opens an Association with the Image Server

2. Acquired images are transmitted to the Image Server using a Storage request (C-STORE) and the Image Server replies with a C-STORE response (status success).

3. The Storage SCU AE closes the Association with the Image Server.

7.2.3.3 Association Parameters of Storage SCU AE

See Table 7-1 for Association parameters applicable to Storage SCU AE.

7.2.3.4 Association Initiation

This section details the Association policies of the Application Entity when it is initiating an Association.

7.2.3.4.1 Real-World Activity – "Send Images"

For image instance this AE creates an Association with presentation context of the SOP Class to send with the supported Transfer Syntaxes for this Image.

This AE initiates a new Association request for each instance. The association policy is same in case Transfer is triggered manually and when transfer occurs automatically (based on auto-send configuration).

If this AE can not establish an Association with remote SCP, the job queue is marked as Fail. User can retry it via the job control application.

Extended Negotiation – N/A

N/A

Role Negotiation – N/A

N/A

7.2.3.5 Association Acceptance – N/A

N/A

7.2.4 Storage Commitment SCU Application Entity

7.2.4.1 Sequencing of Real-World Activities for Storage Commitment SCU AE

Figure 7-5 Sequencing of Real-World Activities for Storage Commitment SCU AE

1. The Storage Commitment SCU AE opens an Association with the Image Server.

2. A Storage Commitment request (N-ACTION) is transmitted to the Image Server to obtain Storage Commitment of previously transmitted image. The Image Server replies with an N-ACTION response indicating the request has been received and is being processed.

3. The Storage Commitment AE closes the Association with the Image Server.

4. The Image Server opens a new Association with the Storage Commitment SCU AE.

5. The Image Server sends an N-EVENT-REPORT request notifying the Storage SCU AE of the status of a previous Storage Commitment Request. The Storage SCU AE replies with a N-EVENT-REPORT response confirming receipt.

6. The Image Server closes the Association with the Storage Commitment SCU AE.

7.2.4.2 Association Parameters of Storage Commitment SCU AE
See Table 7-1 for Association parameters applicable to Storage Commitment SCU AE.

7.2.4.3 Association Initiation

This section details the Association policies of the Application Entity when it is initiating an Association.

7.2.4.3.1 Real-World Activity – "Send Images"

After sending the instances by Storage service, this AE creates an Association with presentation context of the Storage Commitment Push model SOP Class to send N-ACTION request for these instances.

Extended Negotiation – N/A

N/A

Role Negotiation – N/A

N/A

7.2.4.4   Association Acceptance

This section details the Association policies of the Application Entity when it is the acceptor of an Association.

7.2.4.4.1   Real-World Activity

This AE accepts the Association request of a Storage Commitment Push model. then, it receives N-EVENT-REPORT request and return success/failure.

This AE expects the N-EVENT-REPORT request on a different Association of N-ACTION request.

7.2.5 MWM SCU Application Entity

7.2.5.1   Sequencing of Real-World Activities for MWM SCU AE
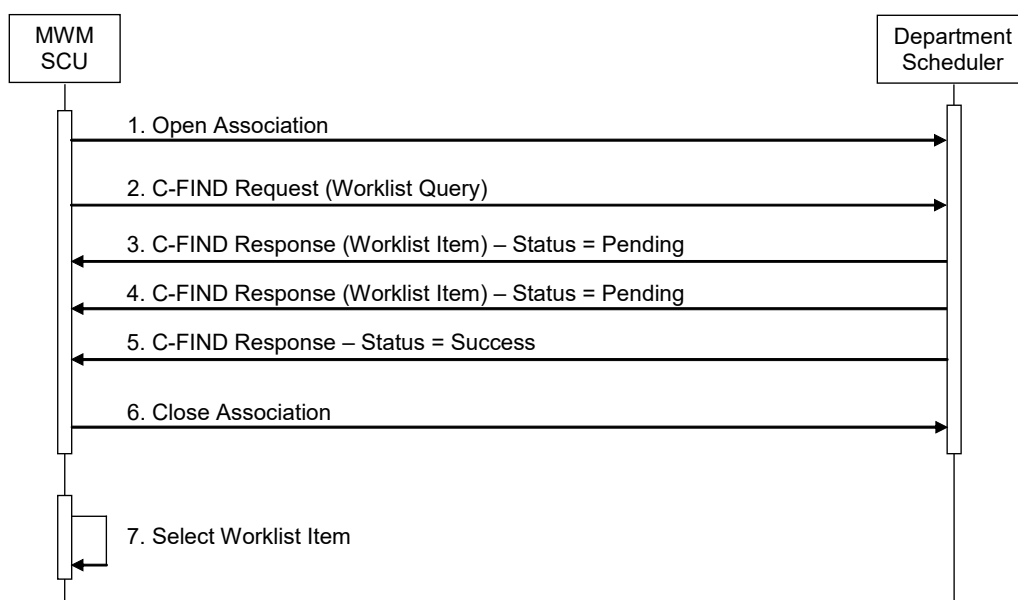
Figure 7-6 Sequencing of Real-World Activities for MWM SCU AE

1.   The MWM SCU AE opens an association with the Department Scheduler

2.   The MWM SCU AE sends a C-FIND request to the Department Scheduler containing the Worklist Query attributes.

3.   The Department Scheduler returns a C-FIND response containing the requested attributes of the first matching Worklist Item.

4.   The Department Scheduler returns another C-FIND response containing the requested attributes of the second matching Worklist Item.

5.   The Department Scheduler returns another C-FIND response with status Success indicating that no further matching Worklist Items exist. This example assumes that only 2 Worklist items match the Worklist Query.

6.   The MWM SCU AE closes the association with the Department Scheduler.

7.   The user selects a Worklist Item from the Worklist and prepares to acquire new images.

7.2.5.2 Association Parameters of MWM SCU AE

See Table 7-1 for Association parameters applicable to MWM SCU AE.

7.2.5.3 Association Initiation

This section details the Association policies of the Application Entity when it is initiating an Association.

7.2.5.3.1 Real-World Activity "Update Worklist"

This AE creates an Association that includes only MWM abstract syntax with the supported Transfer Syntaxes.

Extended Negotiation – N/A

N/A

Role Negotiation – N/A

N/A

7.2.5.4 Association Acceptance – N/A

N/A

7.2.6 MPPS SCU Application Entity

7.2.6.1 Sequencing of Real-World Activities for MPPS SCU AE
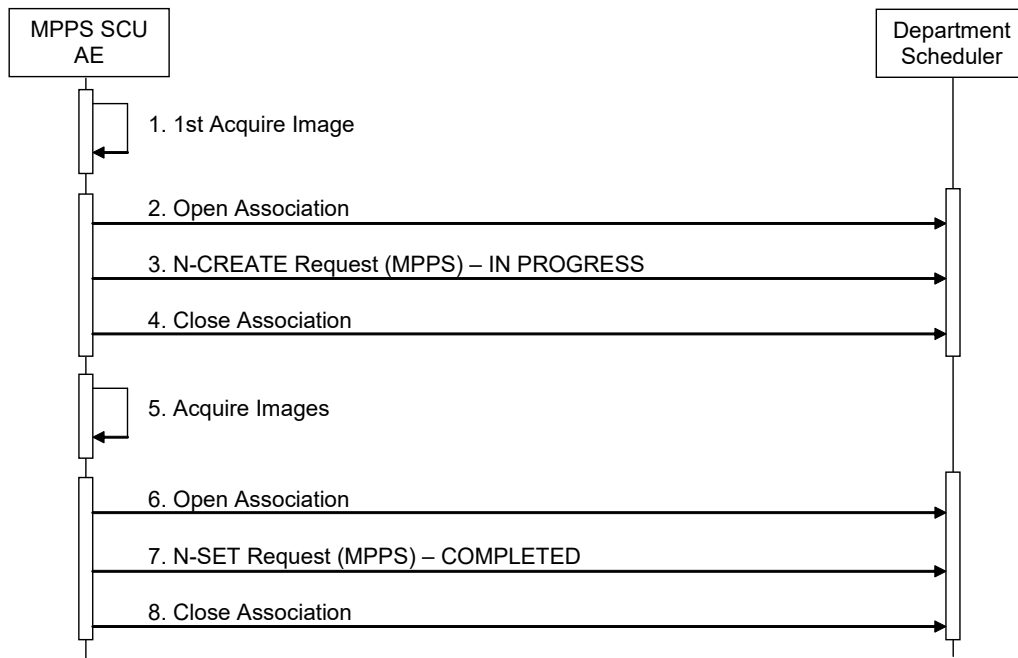
Figure 7-7 Sequencing of Real-World Activities for MPPS SCU AE

7.2.6.1.1 Real-World Activity "Start Study and Finish Study"

This AE creates an Association that includes only MPPS abstract syntax with the supported Transfer Syntaxes.

Extended Negotiation – N/A

N/A

Role Negotiation – N/A

N/A

7.2.6.2 Association Acceptance – N/A

N/A

7.2.7 Q/R SCU Application Entity

7.2.7.1 Sequencing of Real-World Activities for Q/R SCU AE
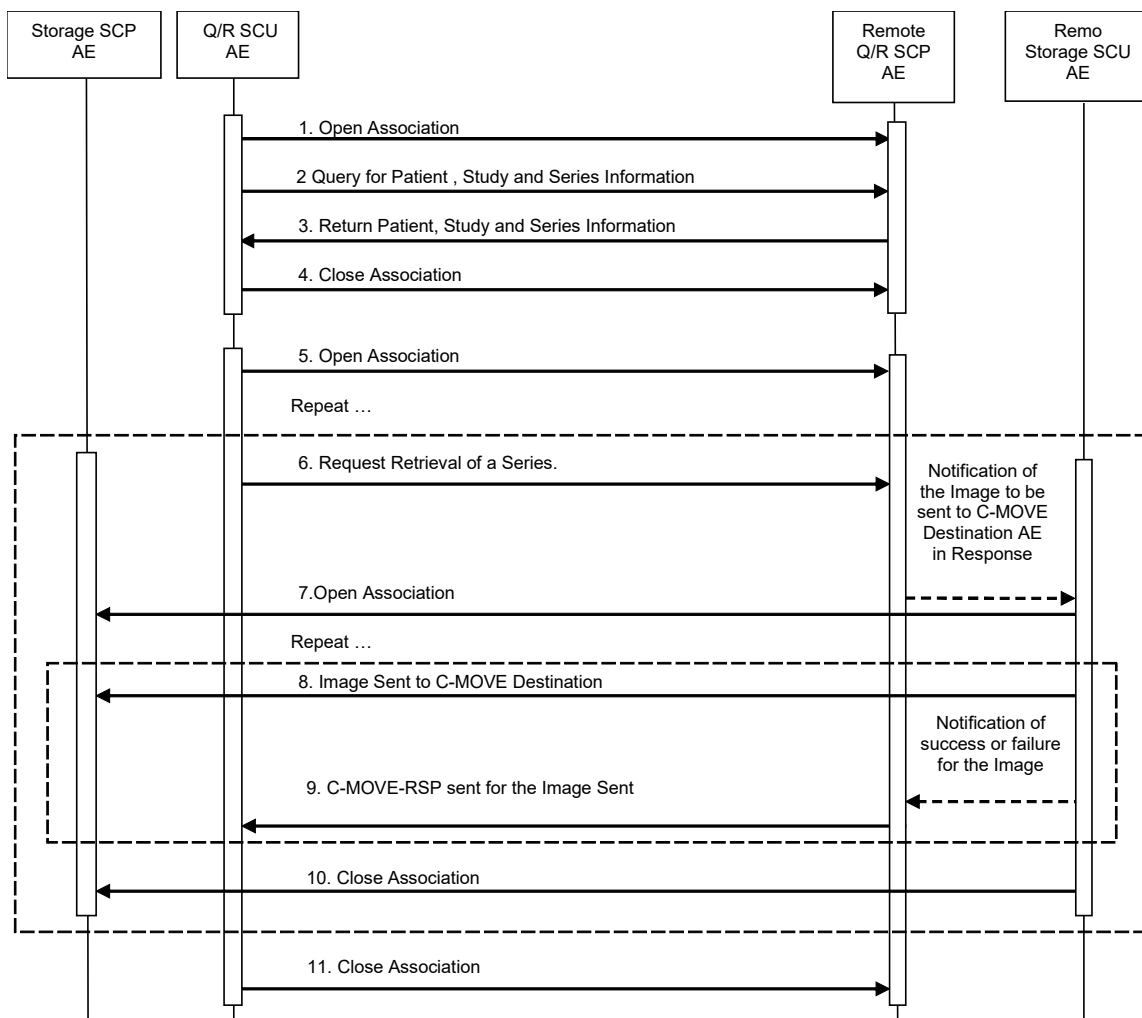
Figure 7-8 Sequencing of Real-World Activities for Q/R SCU AE

1. The Q/R SCU AE opens an Association with the remote Q/R SCP AE.

2. The Q/R SCU AE sends a C-FIND-RQ Message

3. The remote Q/R SCP AE returns a C-FIND-RSP Message to the Q/R SCU AE with matching information. A C-FIND-RSP is sent for each entity matching the identifier specified in the C-FIND-RQ. A final C-FIND-RSP is sent indicating that the matching is complete.

4. The Q/R SCU AE closes the Association.

5. The Q/R SCU AE opens an Association with the remote Q/R SCP AE.

6. The Q/R SCU AE sends a C-MOVE-RQ Message. The remote Q/R SCP AE notifies the remote Storage SCU AE to send the Composite SOP Instances to the peer C-MOVE Destination AE as indicated in the C-MOVE-RQ.

7. The remote Storage SCU AE opens an Association with the C-MOVE Destination AE.

8. The remote Storage SCU AE sends images to the C-MOVE Destination AE. The remote Storage SCU AE indicates to the remote Q/R SCP AE whether the transfer succeeded or failed.

9. The remote Q/R SCP AE then returns a C-MOVE-RSP indicating this success or failure.

10. The remote Storage SCU AE closes the Association.

11. The Q/R SCU AE closes the Association.

7.2.7.2 Association Parameters of Q/R SCU AE
See Table 7-1 for Association parameters applicable to Q/R SCU AE.

7.2.7.3 Association Initiation

This section details the Association policies of the Application Entity when it is initiating an Association.

7.2.7.3.1 Real-World Activity "Query and Retrieve Images"

This AE creates an Association that includes presentation contexts of the supported Query/Retrieve abstract syntax with the supported Transfer Syntaxes.

This AE does not support a retry mechanism for Query/Retrieve.

Extended Negotiation – N/A

N/A

Role Negotiation – N/A

N/A

7.2.7.4 Association Acceptance – N/A

N/A

7.2.8 Storage SCP Application Entity

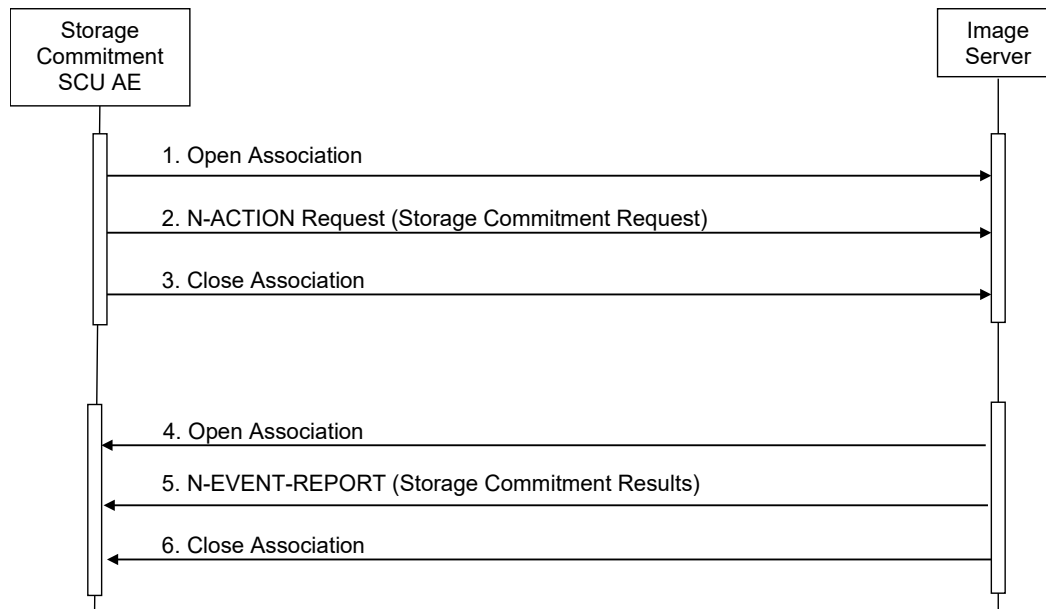### 7.2.8.1   Sequencing of Real-World Activities for Storage SCP AE
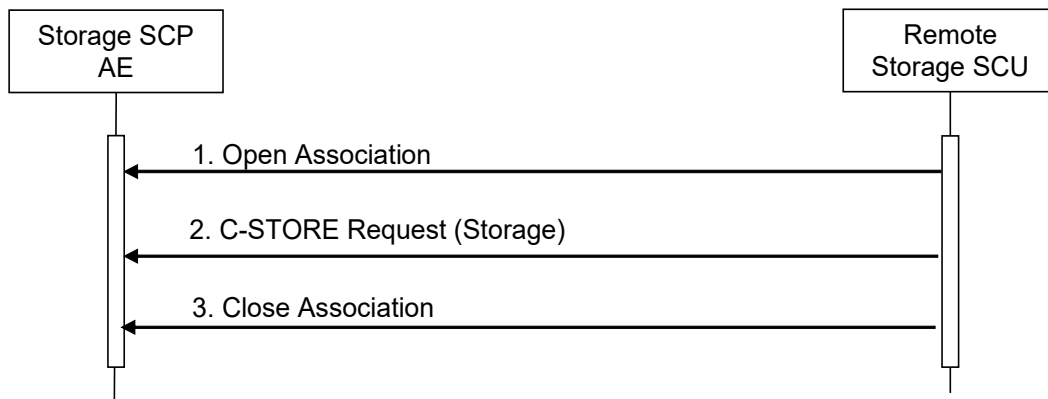
Figure 7-9 Sequencing of Real-World Activities for Storage SCP AE - Storage

1.   The remote Storage SCU AE opens an Association with the Storage SCP AE.

2.   The remote Storage SCU AE sends images to the Storage SCP AE using a Storage request (C-STORE) and the Storage SCP AE replies with a C-STORE response (status success).

3.   The remote Storage SCU AE closes the Association with the Storage SCP AE.

7.2.8.2   Association Parameters of Storage SCP AE

Table 7-7 lists Association parameters applicable to Storage SCP AE.

Table 7-5 Association Parameters for Storage SCP AE

	Name	Value
Networking Services	Application Context Name	N/A
	Implementation Class UID	N/A
	Implementation Version Name	N/A
	Maximum PDU Length	N/A
	ARTIM Timeout	N/A
	Maximum number of simultaneous Associations as Association Initiator	N/A
	Maximum number of simultaneous Associations as Association Acceptor	1
	Maximum number of outstanding asynchronous Transactions	1

7.2.8.3   Association Initiation – N/A

N/A

7.2.8.4   Association Acceptance

This section details the Association policies of the Application Entity when it is the acceptor of an Association.

7.2.8.4.1   Real-World Activity "Store Images to the Local File System"

This AE receives instances from remote AE, then, it saves into local file system.

Extended Negotiation – N/A

N/A

Transfer Syntax Selection Policies

This section provides tables that describe the Transfer Syntax preference for different SOP Classes or SOP Class groups when there are multiple Transfer Syntaxes provided by the Association initiator for Real-World Activity "Store Local File System" of Storage SCP AE of the system.

Table 7-6 Transfer Syntax Selection Preference Order - Image SOP Classes for Storage SCP AE

Preference Order	Transfer Syntax	UID	Comments
1	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1]):	1.2.840.10008.1.2.4.70	
2	Explicit VR Little-Endian Transfer Syntax	1.2.840.10008.1.2.1	
3	Implicit VR Little-Endian Transfer Syntax	1.2.840.10008.1.2	

7.2.9 Print SCU Application Entity

7.2.9.1   Sequencing of Real-World Activities for Print SCU AE
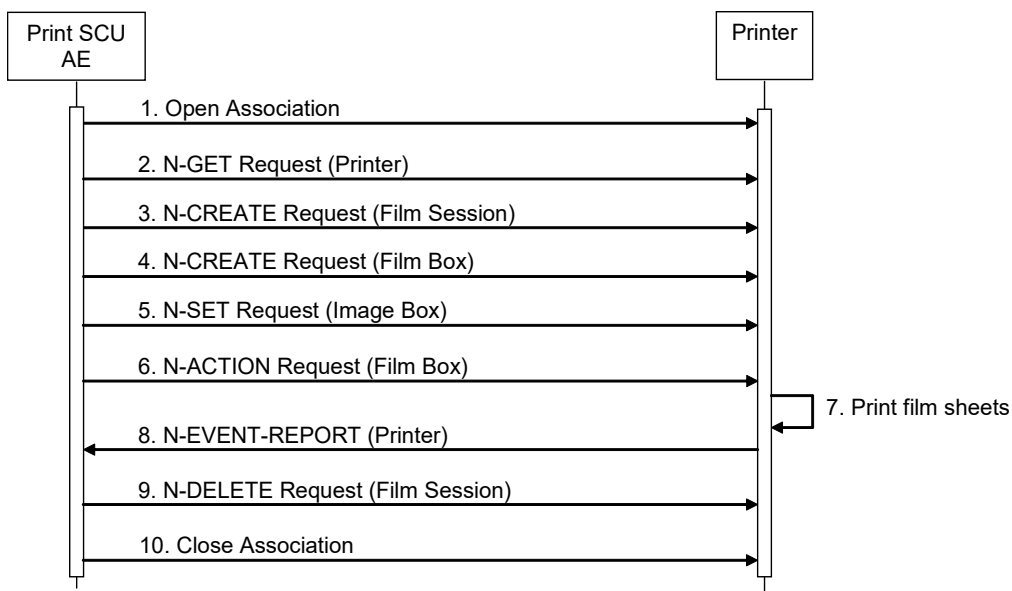
Figure 7-10 Sequencing of Real-World Activities "Print Images" for Print SCU AE

Print Images:
A user composes images onto film sheets and requests them to be sent to a specific hardcopy device. The user can select the desired film size.
1. The Print SCU AE opens an Association with the Printer.

2. 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 SCU closes the Association and waits and retries from the beginning.

3. N-CREATE on the Film Session SOP Class creates a Film Session.

4. N-CREATE on the Film Box SOP Class creates a Film Box linked to the Film Session.

5. N-SET on the Image Box SOP Class transfers the contents of the film sheet to the printer.

6. N-ACTION on the Film Box SOP Class instructs the Printer to print the Film Box.

7. The printer prints the requested number of film sheets.

8. The Printer asynchronously reports its status via N-EVENT-REPORT notification (Printer SOP Class). The printer can send this message at any time. The Print SCU AE does not require the N-EVENT-REPORT to be sent. The Print SCU AE is capable of receiving an N-EVENT-REPORT notification at any time during an association. If the Printer reports a status of FAILURE, the print-job is switched to a failed state and the user informed.

9. N-DELETE on the Film Session SOP Class deletes the complete Film Session SOP Instance hierarchy.

10. The Print SCU AE closes the Association with the Printer.

7.2.9.2 Association Parameters of Print SCU AE
See Table 7-1 for Association parameters applicable to Print SCU AE.

7.2.9.3 Association Initiation

This section details the Association policies of the Application Entity when it is initiating an Association.

7.2.9.3.1 Real-World Activity "Send Images & Print Management Information"

This AE creates an Association that includes presentation contexts of the Basic Grayscale Print Management Meta SOP Class and Print Job SOP Class with the supported Transfer Syntaxes.

If print job is fail, the print request are sent again by a retry mechanism

Extended Negotiation – N/A

N/A

Role Negotiation – N/A

N/A

7.2.9.4 Association Acceptance – N/A

N/A

7.2.10 Offline-Media Application Entity

7.2.10.1 Sequencing of Real-World Activities for Offline Media

See Figure 4-1.

7.2.10.2 Association Parameters of Offline Media AE
Table 7-5 lists Association parameters applicable to Offline Media AE.

Table 7-7 Association Parameters for Offline Media AE

	Name	Value
Media Services	File Meta Information Version	N/A
	Implementation Class UID	N/A
	Implementation Version Name	N/A

7.2.10.3 Association Initiation – N/A

N/A

7.2.10.4 Association Acceptance – N/A
N/A

7.3 Status Codes

The following sections describe the Status Codes supported by the system for each implemented service as well as the reason for issuing specific Status Codes or the associated behavior when receiving it.

7.3.1 General AE Communication and Failure Behavior and Handling

7.3.1.1 Communication Failure Behavior as Association Initiator
Table 7-6 describes behavior of the AE if a communication failure occurs when it initiated an Association.

Table 7-8 DICOM Communication Failure Behavior as Association Initiator

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the service is marked as failed. The reason is logged and reported to the user.
Association aborted by the SCP or network layers	The service is marked as failed. The reason is logged and reported to the user.

7.3.1.2 Communication Failure Handling as Association Acceptor
Table 7-7 describes how the AE responds when it receives an Association request that leads to a failure in communication.

Table 7-9 DICOM Communication Failure Handling as Association Acceptor

Exception	Failure response
Failure during processing of an Association request	ABORT message is sent out and the connection is closed
Unrecognized Called AE	AE responds with Association-RJ
Exceed limit for number of connections supported	AE responds with Association-RJ

7.3.2 DIMSE Services

7.3.2.1 Basic Worklist Management Service

7.3.2.1.1 SCU of the Modality Worklist Information Model Find SOP Class - C-FIND
Table 7-8 lists the Status Codes that the SCU of the Modality Worklist Information Model Find SOP Class supports for the C-FIND message and defines the application behavior when encountering the listed Status Codes.

Table 7-10 Status Codes for C-FIND of the Modality Worklist Information Model SOP Class - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Matching is complete	0000	The SCP has completed the matches. Worklist items are available for display or further processing.
Refused	Out of Resources	A700H	The Association is aborted using A-ABORT and the worklist query is marked as failed. The status meaning is logged and reported to the user if an interactive query. Any additional error information in the Response will be logged.
Failed	Identifier does not match SOP Class	A900H	The Association is aborted using A-ABORT and the worklist query is marked as failed. The status meaning is logged and reported to the user if an interactive query. Any additional error information in the Response will be logged.
Failed	Unable to Process	CxxxH	The Association is aborted using A-ABORT and the worklist query is marked as failed. The status meaning is logged and reported to the user if an interactive query. Any additional error information in the Response will be logged.
Cancel	Matching terminated due to Cancel request	FE00H	If the query was cancelled due to too may worklist items then the SCP has completed the matches. Worklist items are available for display or further processing. Otherwise, the Association is aborted using A-ABORT and the worklist query is marked as failed. The status meaning is logged and reported to the user if an interactive query.
Pending	Matches are continuing	FF00H	The worklist item contained in the Identifier is collected for later display or further processing.
Pending	Matches are continuing – Warning that one or more Optional Keys were not supported	FF01H	The worklist item contained in the Identifier is collected for later display or further processing. The status meaning is logged only once for each C-FIND operation.
*	*	Any other status code.	The Association is aborted using A-ABORT and the worklist is marked as failed. The status meaning is logged and reported to the user if an interactive query. Any additional error information in the Response will be logged.

7.3.2.1.2 SCP of the Modality Worklist Information Model Find SOP Class - C-FIND - N/A
N/A

7.3.2.2   Modality Performed Procedure Step Service

7.3.2.2.1   SCU of the Modality Performed Procedure Step SOP Class - N-CREATE
Table 7-9 lists the Status Codes that the SCU of the Modality Performed Procedure Step SOP Class supports for the N-CREATE message and defines the application behavior when encountering the listed Status Codes.

Table 7-11 Status Codes for N-CREATE of the Modality Performed Procedure Step SOP Class - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
Failure	Processing Failure – Performed Procedure Step Object may no longer be updated	0110H	The Association is aborted using A-ABORT and the MPPS is marked as failed. The status meaning is logged and reported to the user. Additional information in the Response will be logged (i.e. Error Comment and Error ID).
Warning	Attribute Value Out of Range	0116H	The MPPS operation is considered successful if it is configured that the status would be considered successful.
*	*	Any other status code.	The Association is aborted using A-ABORT and the MPPS is marked as failed. The status meaning is logged and reported to the user.

7.3.2.2.2   SCU of the Modality Performed Procedure Step SOP Class - N-SET
See Table 7-9 for the Status Codes that the SCU of the Modality Performed Procedure Step SOP Class supports for the N-SET message and defines the application behavior when encountering the listed Status Codes.

7.3.2.2.3   SCP of the Modality Performed Procedure Step SOP Class - N-CREATE - N/A
N/A

7.3.2.2.4   SCP of the Modality Performed Procedure Step SOP Class - N-SET - N/A
N/A

7.3.2.3   Unified Worklist und Procedure Step Service - N/A
N/A

7.3.2.4   Instance Availability Notification Service - N/A
N/A

7.3.2.5   Storage Service

7.3.2.5.1   SCU of the Storage SOP Classes - C-STORE

 Table 7-10 lists the Status Codes that the SCU of the Storage SOP Class supports for the C-STORE message and defines the application behavior when encountering the listed Status Codes.

Table 7-12 Status Codes C-STORE for the Storage SOP Classes – SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The Storage SCU AE judges the remote AE is present and active on the network.
*	*	Any other status code	The Association is aborted using A-ABORT and the send job is marked as failed. The reason is logged and the job failure is reported to the user via the job control application.

7.3.2.5.2   SCP of the Storage SOP Classes - C-STORE

Table 7-11 lists the Status Codes that the SCP of the Storage SOP Classes supports for the C-STORE message and defines conditions in which the listed Status Codes are sent.

Table 7-13 Status Codes C-STORE of the Storage SOP Classes – SCP

Service Status	Further Meaning	Status Code	Related Field	Reason
Success	Success	0000	N/A	The Composite SOP Instance was successfully received, verified, and stored in the system database.
Refused	Out of Resources	A700H	N/A	Indicates that there were not enough local resources.
Error	Data Set does not match SOP Class	A900H	N/A	Indicates that the Data Set does not encode a valid instance of the SOP Class specified.
	Cannot understand	C000H	N/A	Indicates that the Storage SCP AE cannot parse the Data Set into Elements.

7.3.2.6   Storage Commitment Service

7.3.2.6.1   SCU of the Storage Commitment Push Model SOP Class - N-ACTION

Table 7-12 lists the Status Codes that the SCU of the Storage Commitment Push Model SOP Class supports for the N-ACTION message and defines the application behavior when encountering the listed Status Codes.

Table 7-14 Status Codes for N-ACTION of the Storage Commitment Push Model SOP Class - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The request for storage commitment is considered successfully sent. A timer is started which will expire if no N-EVENT-REPORT for the Transaction UID is received within a configurable timeout period.
*	*	Any other status code.	The Association is aborted using A-ABORT and the request for storage commitment is marked as failed.

7.3.2.6.2   SCU of the Storage Commitment Push Model SOP Class - N-EVENT-REPORT

Table 7-13 lists the Status Codes that the SCU of the Storage Commitment Push Model SOP Class supports for the N-EVENT-REPORT message and defines the application behavior when encountering the listed Status Codes.

Table 7-15 Status Codes for N-EVENT-REPORT for the Storage Commitment Push Model SOP Class - SCU

Service Status	Further Meaning	Status Code	Reasons
Success	Success	0000	The storage commitment result has been successfully received.
Failure	Unrecognized Operation	0211H	The Transaction UID in the N-EVENT-REPORT request is not recognized (was never issued within an N-ACTION request).
Failure	Resource Limitation	0213H	The Transaction UID in the N-EVENT-REPORT request has expired (no N-EVENT-REPORT was received within a configurable time limit).
Failure	No Such Event Type	0113H	An invalid Event Type ID was supplied in the N-EVENT-REPORT request.
Failure	Processing Failure	0110H	An internal error occurred during processing of the N-EVENT-REPORT. A short description of the error will be returned in Error Comment (0000,0902).
Failure	Invalid Argument Value	0115H	One or more SOP Instance UIDs with the Referenced SOP Sequence (0008,1199) or Failed SOP Sequence (0008,1198) was not included in the Storage Commitment Request associated with this Transaction UID. The unrecognized SOP Instance UIDs will be returned within the Event Information of the N-EVENT-REPORT response.

7.3.2.6.3   SCP of the Storage Commitment Push Model SOP Class - N-ACTION - N/A
N/A

7.3.2.6.4   SCP of the Storage Commitment Push Model SOP Class - N-EVENT-REPORT - N/A
N/A

7.3.2.7   Query/Retrieve Service

7.3.2.7.1   SCU of the Query/Retrieve FIND SOP Classes - C-FIND

Table 7-14 lists the Status Codes that the SCU of any of the Query/Retrieve FIND SOP Class supports for the C-FIND message and defines the application behavior when encountering the listed Status Codes.

Table 7-16 Status Codes C-FIND for Query/Retrieve FIND SOP Classes - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Matching is complete	0000	The SCP has completed the matches. Worklist items are available for display or further processing.
Refused	Out of Resources	A700H	The Association is aborted using A-ABORT and the worklist query is marked as failed. The status meaning is logged and reported to the user if an interactive query. Any additional error information in the Response will be logged.
Failed	Identifier does not match SOP Class	A900H	The Association is aborted using A-ABORT and the worklist query is marked as failed. The status meaning is logged and reported to the user if an interactive query. Any additional error information in the Response will be logged.
Failed	Unable to Process	CxxxH	The Association is aborted using A-ABORT and the worklist query is marked as failed. The status meaning is logged and reported to the user if an interactive query. Any additional error information in the Response will be logged.
Cancel	Matching terminated due to Cancel request	FE00H	If the query was cancelled due to too may worklist items then the SCP has completed the matches. Worklist items are available for display or further processing. Otherwise, the Association is aborted using A-ABORT and the worklist query is marked as failed. The status meaning is logged and reported to the user if an interactive query.
Pending	Matches are continuing	FF00H	The worklist item contained in the Identifier is collected for later display or further processing.
Pending	Matches are continuing – Warning that one or more Optional Keys were not supported	FF01H	The worklist item contained in the Identifier is collected for later display or further processing. The status meaning is logged only once for each C-FIND operation.
*	*	Any other status code.	The Association is aborted using A-ABORT and the worklist is marked as failed. The status meaning is logged and reported to the user if an interactive query. Any additional error information in the Response will be logged.

7.3.2.7.2   SCU of the Query/Retrieve MOVE SOP Classes - C-MOVE

Table 7-15 lists the Status Codes that the SCU of any of the Query/Retrieve MOVE SOP Class supports for the C-MOVE message and defines the application behavior when encountering the listed Status Codes.

Table 7-17 Status Codes C-MOVE for Query/Retrieve MOVE SOP Classes - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Sub-operations complete – No Failures	0000	The Storage SCP AE has successfully received the SOP Instance. If all SOP Instances in a move job have status success then the job is marked as complete.

Refused	Out of Resources – Unable to calculate number of matches	A701H	The Association is aborted using A-ABORT and the move job is marked as failed. The status meaning is logged and the job failure is reported to the user via the job control application. This is a transient failure.
	Out of Resources – Unable to perform sub-operations	A702H	The Association is aborted using A-ABORT and the move job is marked as failed. The status meaning is logged and the job failure is reported to the user via the job control application.
	Move destination unknown	A801H	The Association is aborted using A-ABORT and the move job is marked as failed. The status meaning is logged and the job failure is reported to the user via the job control application.
Failed	Identifier does not match SOP Class	A900H	The Association is aborted using A-ABORT and the move job is marked as failed. The status meaning is logged and the job failure is reported to the user via the job control application.
Warning	Sub-operations complete but one or more failures.	B000H	The Association is aborted using A-ABORT and the move job is marked as failed. The status meaning is logged and the job failure is reported to the user via the job control application.

7.3.2.7.3   SCP of the Query/Retrieve FIND SOP Classes - C-FIND - N/A
N/A

7.3.2.7.4   SCP of the Query/Retrieve MOVE SOP Classes - C-MOVE - N/A
N/A

7.3.2.8   Print Management Service

7.3.2.8.1   SCU of the Basic Film Session SOP Class

7.3.2.8.1.1   SCU of the Basic Film Session SOP Class - N-CREATE

Table 7-16 lists the Status Codes that the SCU of the Basic Film Session SOP Class supports for the N-CREATE message and defines the application behavior when encountering the listed Status Codes.

Table 7-18 Status Codes for N-CREATE of the Basic Film Session SOP Class - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
Warning	Attribute Value Out of Range	0116H	The N-CREATE operation is considered successful if it is configured that the status would be considered successful.
Warning	Attribute List Error	0107H	The N-CREATE operation is considered successful if it is configured that the status would be considered successful.
*	*	Any other status code.	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

7.3.2.8.1.2   SCU of the Basic Film Session SOP Class - N-SET – N/A

N/A

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7.3.2.8.1.3   SCU of the Basic Film Session SOP Class - N-DELETE

Table 7-17 lists the Status Codes that the SCU of the Basic Film Session SOP Class supports for the N-DELETE message and defines the application behavior when encountering the listed Status Codes.

Table 7-19 Status Codes for N-DELETE of the Basic Film Session SOP Class - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
*	*	Any other status code.	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

7.3.2.8.1.4   SCU of the Basic Film Session SOP Class - N-ACTION – N/A

N/A

7.3.2.8.2   SCU of the Basic Box Session SOP Class

7.3.2.8.2.1   SCU of the Basic Box Session SOP Class - N-CREATE

Table 7-16 lists the Status Codes that the SCU of the Basic Film Box SOP Class supports for the N-CREATE message and defines the application behavior when encountering the listed Status Codes.

Table 7-20 Status Codes for N-CREATE of the Basic Film Box SOP Class - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
Warning	Requested Min Density or Max Density outside of printer's operating range	B605H	The N-CREATE operation is considered successful if it is configured that the status would be considered successful.
*	*	Any other status code.	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

7.3.2.8.2.2   SCU of the Basic Box Session SOP Class - N-SET – N/A

N/A

7.3.2.8.2.3   SCU of the Basic Box Session SOP Class - N-ACTION
Table 7-19 lists the Status Codes that the SCU of the Basic Film Box SOP Class supports for the N-ACTION message and defines the application behavior when encountering the listed Status Codes.

Table 7-21 Status Codes for N-ACTION of the Basic Film Box SOP Class - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully. The film has been accepted for printing.
Warning	Film Box SOP Instance hierarchy does not contain Image Box SOP Instances (empty page)	B603H	The N-ACTION operation is considered successful if it is configured that the status would be considered successful.
Warning	Image size is larger than Image Box size. The image has been demagnified.	B604H	The N-ACTION operation is considered successful if it is configured that the status would be considered successful.
Warning	Image size is larger than Image Box size. The image has been cropped to fit.	B609H	The N-ACTION operation is considered successful if it is configured that the status would be considered successful.
Warning	Image size or Combined Print Image Size is larger than Image Box size. The image or combined Print Image has been decimated to fit.	B60AH	The N-ACTION operation is considered successful if it is configured that the status would be considered successful.
Failure	Unable to create Print Job SOP Instance; print queue is full.	C602H	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.
Failure	Image size is larger than Image Box size.	C603H	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.
Failure	Combined Print Image Size is larger than Image Box size.	C613H	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.
*	*	Any other status code.	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

7.3.2.8.3   SCU of the Basic Grayscale Image Box SOP Class - N-SET

Table 7-20 lists the Status Codes that the SCU of the Basic Grayscale Image Box SOP Class supports for the N-SET message and defines the application behavior when encountering the listed Status Codes.

Table 7-22 Status Codes for N-SET of the Grayscale Image Box SOP Class - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully. Image successfully stored in Image Box.
Warning	Image size is larger than Image Box size. The image has been demagnified.	B604H	The N-SET operation is considered successful if it is configured that the status would be considered successful.
Warning	Requested Min Density or Max Density outside of printer's operating range.	B605H	The N-SET operation is considered successful if it is configured that the status would be considered successful.
Warning	Image size is larger than Image Box size. The image has been cropped to fit.	B609H	The N-SET operation is considered successful if it is configured that the status would be considered successful.
Warning	Image size or Combined Print Image Size is larger than Image Box size. The image or combined Print Image has been decimated to fit.	B60AH	The N-SET operation is considered successful if it is configured that the status would be considered successful.
Failure	Image size is larger than Image Box size.	C603H	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.
Failure	Insufficient memory in printer to store the image.	C605H	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.
Failure	Combined Print Image Size is larger than Image Box size.	C613H	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.
*	*	Any other status code.	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

7.3.2.8.4   SCU of the Basic Color Image Box SOP Class - N-SET – N/A

N/A

7.3.2.8.5   SCU of the Printer SOP Class

7.3.2.8.5.1   SCU of the Printer SOP Class - N-EVENT-REPORT

 Table 7-21 lists the Status Codes that the SCU of Printer SOP Class supports for the N-EVENT-REPORT message and defines the application behavior when encountering the listed Status Codes.

Table 7-23 Status Codes for N-EVENT-REPORT of the Printer SOP Class - SCU

Service Status	Further Meaning	Status Code	Reasons
Success	Success	0000	The notification event has been successfully received.
Failure	No Such Event Type	0113H	An invalid Event Type ID was supplied in the N-EVENT-REPORT request.
Failure	Processing Failure	0110H	An internal error occurred during processing of the N-EVENT-REPORT. A short description of the error will be returned in Error Comment (0000,0902).

7.3.2.8.5.2   SCU of the Printer SOP Class - N-GET

 Table 7-22 lists the Status Codes that the SCU of the Printer SOP Class supports for the N-GET message and defines the application behavior when encountering the listed Status Codes.

Table 7-24 Status Codes for N-GET of the Printer SOP Class - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The request to get printer status information was success.
*	*	Any other status code.	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

7.3.2.8.6   SCU of the Basic Annotation Box SOP Class - N-SET – N/A
N/A

7.3.2.8.7   SCU of the Print Job SOP Class – N/A
N/A

7.3.2.8.8   SCU of the Presentation LUT SOP Class – N/A
N/A

7.3.2.8.9   SCU of the Printer Configuration Retrieval SOP Class - N-GET – N/A
N/A

7.3.2.8.10   SCP of the Basic Film Session SOP Class - N/A
N/A

7.3.2.8.11   SCP of the Basic Film Box SOP Class - N/A
N/A

7.3.2.8.12   SCP of the Basic Grayscale Image Box SOP Class - N-SET - N/A
N/A

7.3.2.8.13   SCP of the Basic Color Image Box SOP Class - N-SET - N/A
N/A

7.3.2.8.14   SCP of the Printer SOP Class - N/A
N/A

7.3.2.8.15   SCP the Basic Annotation Box SOP Class - N-SET - N/A
N/A

7.3.2.8.16   SCP of the Print Job SOP Class - N/A
N/A

7.3.2.8.17   SCP of the Presentation LUT SOP Class - N/A
N/A

7.3.2.8.18   SCP of the Printer Configuration Retrieval SOP Class - N-GET - N/A
N/A

7.3.3   DICOM Web Services - N/A
N/A

8 Security

8.1 Introduction

The security section describes security features implemented by this product. It includes descriptions of non-DICOM network protocols, information to configure firewalls and application whitelists, lists of supported DICOM security profiles as well as Web Security features. Additionally, secured media storage, VPN, etc. are also specified in this security section.

8.2 External Network Requirements

Table 8-1 describes additional non-DICOM network protocols that are used by Alphenix.

Table 8-1 External Network Requirements

Profile	Actor	Transaction	Protocol Used	RFCs	Security Support	Reference
Basic Time Synchronization	NTP Client	Maintain Time	NTP	RFC5905		C.1.1

8.3 TCP Port Configuration

See Section 6 Configuration for information on the usage of ports for DICOM and other protocols. This section contains helpful information for product administrators to configure firewalls, application whitelists, etc.

8.4 DICOM Security Profiles Support

8.4.1 Secure Use and User Identity Profiles

Table 8-2 lists the Secure Use and User Identity Profiles:

Table 8-2 Secure Use and User Identity Profiles

Profile	Creator/Sender	Consumer/Receiver	Reference
Audit Trail Message Format	Y	N	C.2.2
Audit Trail Message Transmission Profile - SYSLOG-TLS	Y	N	C.2.3
Audit Trail Message Transmission Profile - SYSLOG-UDP	Y	N	C.2.4

8.4.2 Secure Transport Connection Profiles

Table 8-3 describes the Secure Transport Connection Profiles supported by the product. Accepted cipher suites are described in the section listed in the "Reference" column.

Table 8-3 Secure Transport Connection Profiles

Profile	Secured AE	Sender	Receiver	Reference
BCP195 TLS Secure Transport Connection (TLS 1.2)	Verification SCP, Verification SCU, Storage SCP, MWM SCU, MPPS SCU, Print SCU, Q/R SCU, Storage Commitment SCU, Storage SCU	Y	Y	C.2.5
Non-Downgrading BCP195 TLS Secure Transport Connection		Y	Y	C.2.5
Extended BCP195 TLS Profile Secure Transport Connection		Y	Y	C.2.5

8.4.3 Media Storage Security Profiles - N/A

N/A

8.4.4 Attribute Confidentiality Profiles

Table 8-4 lists supported Attribute Confidentiality Profiles and options:

Table 8-4 Attribute Confidentiality Profiles

Profile	Option	AE	De-identifier	Re-identifier	Configurable
Basic Application Level Confidentiality		ALL	Y	N	N
	Basic Profile	ALL	Y	N	N

See Annex C.2.6 for implementation details.

8.4.5 Digital Signature Profiles – N/A
N/A

8.4.6 Additional DICOM Security Profiles – N/A
N/A

8.5 User Identity Negotiation Support – N/A
N/A

8.6 Web Services Security Features - N/A
N/A

8.7 Other Security Features – N/A

N/A

Annexes

A Information Object Definitions (IODs)

This section describes all the SOP Instances natively created by Alphenix, e.g., images created by an acquisition modality or evidence documents created on a review workstation (i.e., all SOP Classes that are marked in the "Created" column in Table 1-1). Details on Attribute coercion are defined in Section 5.2.5.2.

In the "Source" column, the following Values can be used:

* FIXED: The Value is pre-defined and cannot be modified.

* GENERATED: The Value is generated by the system.

* CONFIGURATION: The Value is copied from the system configuration.

* MWL: The Value is copied from a Modality Worklist entry.

* QUERY: The Value is determined by performing a query of any of the supported Query/Retrieve Services.

* USER: The Value is entered by the user.

* SCANNED: The Value is read from a barcode scanner or similar device.

* EMPTY: The Attribute is sent with a zero-length Value.

* SRC_INSTANCE: The Value is copied from previously created/received SOP Instances.

The "Presence" columns reflect the usage of the Module, Functional Group Macro, Attributes, or Value in the Alphenix Implementation and is not necessarily the same as defined in the DICOM Standard. For the "Presence" column the following Values can be used:

* ALWAYS: the module, functional group macro, Attributes or Value is always present.

* CONDITIONAL: the presence of the module, functional group macro, Attributes or Value is dependent on a condition. The condition must be listed in the "Conditions" column.

* SRC_COPY: The presence of the Attributes and Values depends on the availability of these in the source instances, which are used for copying this information.

* EMPTY: The Attribute is present but without a Value (zero length).

* NEVER: the module or functional group macro is not present.

A.1   Information Shared Across Multiple IODs – N/A

N/A

A.2 X-Ray Angiographic Image IOD

Table below defines the structure of X-Ray Angiographic Image IOD.

Table A-1 X-Ray Angiographic Image IOD

IE	Module Name	Presence (Module)	Condition	Reference
Patient	Patient	ALWAYS		Table A-2
	Clinical Trial Subject	NEVER		
Study	General Study	ALWAYS		Table A-3
	Patient Study	ALWAYS		Table A-4
	Clinical Trial Study	NEVER		
Series	General Series	ALWAYS		Table A-5
	Clinical Trial Series	NEVER		
Frame of Reference	Synchronization	NEVER		
Equipment	General Equipment	ALWAYS		Table A-6
Acquisition	General Acquisition	ALWAYS		Table A-7
Image	General Image	ALWAYS		Table A-8
	General Reference	CONDITIONAL	Only if source image is present	Table A-9
	Image Pixel	ALWAYS		Table A-10
	Contrast/Bolus	CONDITIONAL	Only if contrast media was used in this image	Table A-11
	Cine	CONDITIONAL	Only if DSA acquisition is performed	Table A-12
	Multi-frame	ALWAYS		Table A-13 Multi-frame Module for X-Ray Angiographic Image IOD Table A-13
	Frame Pointers	CONDITIONAL	Only if shutter was used in this image	Table A-14
	Mask	NEVER		
	Display Shutter	NEVER		
	Device	CONDITIONAL	Only if device data was used in this image	Table A-15
	Intervention	NEVER		
	Specimen	NEVER		
	X-Ray Image	ALWAYS		Table A-16
	X-Ray Acquisition	ALWAYS		Table A-17
	X-Ray Collimator	NEVER		
	X-Ray Table	CONDITIONAL	Only if table position information is available	Table A-18
	XA Positioner	ALWAYS		Table A-19
	DX Detector	NEVER		

	Overlay Plane	NEVER			
	Multi-frame Overlay	NEVER			
	Modality LUT	NEVER			
	VOI LUT	ALWAYS			Table A-20
	SOP Common	ALWAYS			Table A-21
	Common Instance Reference	NEVER			
	Frame Extraction	NEVER			
	Standard Extended	ALWAYS			Table A-22
	Private Application	ALWAYS			Table A-23

A.2.1 X-Ray Angiographic Image IOD Specific Modules

The following tables list Modules and Attributes specific for X-Ray Angiographic Image IOD:

Table A-2 Patient Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient's Name	(0010,0010)	MWL;USER	ALWAYS	ALWAYS	e.g. "LastName^FirstName^MiddleName=KanjiName1^KanjiName2=KanaName1^KanaName2"		Change the group values in patient name by the language environment and settings.
Patient ID	(0010,0020)	MWL;USER	ALWAYS	ALWAYS	e.g. "PatientID"		
Patient's Birth Date	(0010,0030)	MWL;USER	ALWAYS	ALWAYS	e.g. "19890108"		
Patient's Sex	(0010,0040)	MWL;USER	ALWAYS	ALWAYS	e.g. "F"		
Other Patient Names	(0010,1001)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "OtherPatientNames"		
Ethnic Group	(0010,2160)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "EthnicGroup"		
Patient Comments	(0010,4000)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "PatientComments"		

Table A-3 General Study Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Study Instance UID	(0020,000d)	GENERATED; MWL	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116...."		
Study Date	(0008,0020)	GENERATED	ALWAYS	ALWAYS	e.g. "20240613"		
Study Time	(0008,0030)	GENERATED	ALWAYS	ALWAYS	e.g. "180418.992000"		
Referring Physician's Name	(0008,0090)	MWL;USER	ALWAYS;SRC_COPY	SRC_COPY	e.g. "ReferringPhysician"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Study ID	(0020,0010)	MWL;USER	ALWAYS;SRC_COPY	ALWAYS	e.g. "ProcedureID"		
Accession Number	(0008,0050)	MWL;USER	ALWAYS;SRC_COPY	SRC_COPY	e.g. "AccessionNo"		
Study Description	(0008,1030)	USER	CONDITIONAL	SRC_COPY	e.g. "StudyDescription"	User input only	
Physician(s) of Record	(0008,1048)	USER	CONDITIONAL	SRC_COPY	e.g. "AttendingPhysician"	User input only	
Name of Physician(s) Reading Study	(0008,1060)	USER	CONDITIONAL	SRC_COPY	e.g. "ReadingPhysician"	User input only	
Procedure Code Sequence	(0008,1032)	MWL	SRC_COPY	SRC_COPY			
> Code Value	(0008,0100)	MWL	SRC_COPY	SRC_COPY	e.g. "PCSQValue"		Copied from (0040,0006) Scheduled Protocol Performing Physician's Name
> Coding Scheme Designator	(0008,0102)	CONFIGURATION;MWL	SRC_COPY	SRC_COPY	e.g. "UNKNOWN"		Copied from (0040,0006) Scheduled Protocol Performing Physician's Name
> Coding Scheme Version	(0008,0103)	CONFIGURATION;MWL	SRC_COPY	SRC_COPY	e.g. "UNKNOWN"		Copied from (0040,0006) Scheduled Protocol Performing Physician's Name
> Code Meaning	(0008,0104)	MWL	SRC_COPY	SRC_COPY	e.g. "PCSQMeaning"		Copied from (0040,0006) Scheduled Protocol Performing Physician's Name

Table A-4 Patient Study Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Admitting Diagnoses Description	(0008,1080)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "ProvisDiagnosis"		
Patient's Age	(0010,1010)	GENERATED	ALWAYS	ALWAYS	e.g. "035Y"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient's Size	(0010,1020)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "1.23000000"		
Patient's Weight	(0010,1030)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "45"		
Medical Alerts	(0010,2000)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "MedicalAlerts"		
Allergies	(0010,2110)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "ContrastAllergies"		
Pregnancy Status	(0010,21c0)	MWL;USER	SRC_COPY	SRC_COPY	e.g. 4		
Patient State	(0038,0500)	GENERATED	ALWAYS	ALWAYS	e.g. "/SR_LOCAL_OBJECT/"		
Occupation	(0010,2180)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "Occupation"		
Additional Patient History	(0010,21b0)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "MedicalAlerts/ContrastAllergies/Unknown/PatientComments/AdditionalHistory"		

Table A-5 General Series Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	GENERATED	ALWAYS	ALWAYS	e.g. "XA"		
Series Instance UID	(0020,000e)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116...."		
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		
Series Date	(0008,0021)	GENERATED	ALWAYS	ALWAYS	e.g. "20240613"		
Series Time	(0008,0031)	GENERATED	ALWAYS	ALWAYS	e.g. "180632.455000"		
Performing Physician's Name	(0008,1050)	GENERATED; USER	SRC_COPY	SRC_COPY	e.g. "CathPhysician\CatheterizationPhysician2"		Copied from (0040,0006) Scheduled Protocol Performing Physician's Name
Protocol Name	(0018,1030)	USER	ALWAYS	ALWAYS	e.g. "Coronary"		
Series Description	(0008,103e)	USER	CONDITIONAL	CONDITIONAL	e.g. "SeriesDescription1"	User input only	
Operators' Name	(0008,1070)	USER	CONDITIONAL	CONDITIONAL	e.g. "Operator\Operator2"	User input only	
Referenced Performed Procedure Step Sequence	(0008,1111)	GENERATED	ALWAYS	ALWAYS			
> Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.3.1.2.3.3"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
> Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116 ...."		
Body Part Examined	(0018,0015)	USER	CONDITIONAL	CONDITIONAL	e.g. "TSPINE"	User input only	
Patient Position	(0018,5100)	USER	CONDITIONAL	CONDITIONAL	e.g. "FFDL"	User input only	
Request Attributes Sequence	(0040,0275)	GENERATED	ALWAYS	ALWAYS			

Table A-6 General Equipment Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	FIXED	ALWAYS	ALWAYS	e.g. "CANON_MEC"		
Institution Name	(0008,0080)	CONFIGURATION	ALWAYS	ALWAYS	e.g. "HospitalName"		
Institution Address	(0008,0081)	CONFIGURATION	ALWAYS	ALWAYS	e.g. "1385ShimoishigamiOtawara-shiTochigi324-8550Japan"		
Station Name	(0008,1010)	CONFIGURATION	ALWAYS	ALWAYS	e.g. "StationName"		
Institutional Department Name	(0008,1040)	CONFIGURATION	ALWAYS	ALWAYS	e.g. "Department"		
Manufacturer's Model Name	(0008,1090)	CONFIGURATION	ALWAYS	ALWAYS	e.g. "DFP-8000D"		
Device Serial Number	(0018,1000)	CONFIGURATION	ALWAYS	ALWAYS	e.g. "00000000"		
Software Versions	(0018,1020)	CONFIGURATION	ALWAYS	ALWAYS	e.g. "V9.6 SP0000*"		

Table A-7 General Acquisition Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Date	(0008,0022)	GENERATED	ALWAYS	ALWAYS	e.g. "20240613"		
Acquisition Time	(0008,0032)	GENERATED	ALWAYS	ALWAYS	e.g. "180632.455000"		
Irradiation Event UID	(0008,3010)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116 ...."		

Table A-8 General Image Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "110000"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient Orientation	(0020,0020)	GENERATED; EMPTY	ALWAYS	ALWAYS			
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS	e.g. "20240613"		
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS	e.g. "180632.455000"		
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS	e.g. "ORIGINAL\PRIMARY\SINGLE PLANE\FLUO\ACQ"		
Image Comments	(0020,4000)	USER	CONDITIONAL	CONDITIONAL	e.g. "View Comment"	User input only	
Quality Control Image	(0028,0300)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		

Table A-9 General Reference Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Source Image Sequence	(0008,2112)	GENERATED	CONDITIONAL	CONDITIONAL		Only If the derived image	
> Referenced SOP Class UID	(0008,1150)	GENERATED	CONDITIONAL	CONDITIONAL	e.g. "1.2.840.10008.5.1.4.1.1.12.1"	Only If the derived image	
> Referenced SOP Instance UID	(0008,1155)	GENERATED	CONDITIONAL	CONDITIONAL	e.g. "1.2.392.200036.9116...."	Only If the derived image	

Table A-10 Image Pixel Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Samples per Pixel	(0028,0002)	GENERATED	ALWAYS	ALWAYS	e.g. 1		
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	ALWAYS	e.g. "MONOCHROME2"		
Rows	(0028,0010)	GENERATED	ALWAYS	ALWAYS	e.g. 1024		
Columns	(0028,0011)	GENERATED	ALWAYS	ALWAYS	e.g. 1024		
Bits Allocated	(0028,0100)	GENERATED	ALWAYS	ALWAYS	e.g. 16		
Bits Stored	(0028,0101)	GENERATED	ALWAYS	ALWAYS	e.g. 16		
High Bit	(0028,0102)	GENERATED	ALWAYS	ALWAYS	e.g. 15		
Pixel Representation	(0028,0103)	GENERATED	ALWAYS	ALWAYS	e.g. 0		

Table A-11 Contrast/Bolus Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Contrast/Bolus Agent	(0018,0010)	USER	ALWAYS	CONDITIONAL	e.g. "ContrastMedium1"	User input only	

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Contrast/Bolus Route	(0018,1040)	USER	CONDITIONAL	CONDITIONAL	e.g. "ContrastBolusRoute1"	User input only	
Contrast/Bolus Volume	(0018,1041)	GENERATED	ALWAYS	ALWAYS	e.g. "1.4"		
Contrast/Bolus Start Time	(0018,1042)	GENERATED	ALWAYS	ALWAYS	e.g. "012345"		
Contrast/Bolus Stop Time	(0018,1043)	GENERATED	ALWAYS	ALWAYS	e.g. "123456"		
Contrast Flow Rate	(0018,1046)	GENERATED	ALWAYS	ALWAYS	e.g. "1.7"		
Contrast Flow Duration	(0018,1047)	GENERATED	ALWAYS	ALWAYS	e.g. "3.14"		
Contrast/Bolus Ingredient	(0018,1048)	GENERATED	ALWAYS	ALWAYS	e.g. "ACTIVEINGREDIEN1"		
Contrast/Bolus Ingredient Concentration	(0018,1049)	GENERATED	ALWAYS	ALWAYS	e.g. "1.6"		

Table A-12 Cine Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame Time	(0018,1063)	GENERATED	CONDITIONAL	CONDITIONAL	e.g. "66.6666666666666"	Only if multi-frame pixel data	
Frame Time Vector	(0018,1065)	GENERATED	ALWAYS	ALWAYS	e.g. "0\67\67\67\67\67\67\67\67\67\67\67\67\67\67\67\67\67\67\67\67"		
Recommended Display Frame Rate	(0008,2144)	GENERATED	ALWAYS	ALWAYS	e.g. "15"		

Table A-13 Multi-frame Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Number of Frames	(0028,0008)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		
Frame Increment Pointer	(0028,0009)	GENERATED	CONDITIONAL	CONDITIONAL	e.g. (0018,1065)	Only if multi-frame pixel data	

Table A-14 Frame Pointers Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Representative Frame Number	(0028,6010)	GENERATED	ALWAYS	ALWAYS	e.g. 1		

Table A-15 Device Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Device Sequence	(0050,0010)	GENERATED	ALWAYS	ALWAYS			
> Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS	e.g. "Code1"		
> Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS	e.g. "UnKnown"		
> Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS	e.g. "UnKnown"		
> Device Length	(0050,0014)	GENERATED	ALWAYS	ALWAYS	e.g. "1.23"		
> Device Diameter	(0050,0016)	GENERATED	ALWAYS	ALWAYS	e.g. "12.34"		
> Device Diameter Units	(0050,0017)	GENERATED	ALWAYS	ALWAYS	e.g. "UNITS1"		
> Device Volume	(0050,0018)	GENERATED	ALWAYS	ALWAYS	e.g. "123.45"		
> Inter-Marker Distance	(0050,0019)	GENERATED	ALWAYS	ALWAYS	e.g. "1234.56"		
> Device Description	(0050,0020)	GENERATED	ALWAYS	ALWAYS	e.g. "DeviceDescription1"		

Table A-16 X-Ray Image Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame Increment Pointer	(0028,0009)	GENERATED	CONDITIONAL	CONDITIONAL	e.g. (0018,1065)	Only if multi-frame pixel data	
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS	e.g. "ORIGINAL\PRIMARY\SINGLE PLANE\FLUO\ACQ"		
Pixel Intensity Relationship	(0028,1040)	GENERATED	ALWAYS	ALWAYS	e.g. "LIN"		
Samples per Pixel	(0028,0002)	GENERATED	ALWAYS	ALWAYS	e.g. 1		
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	ALWAYS	e.g. "MONOCHROME2"		
Bits Allocated	(0028,0100)	GENERATED	ALWAYS	ALWAYS	e.g. 16		
Bits Stored	(0028,0101)	GENERATED	ALWAYS	ALWAYS	e.g. 16		
High Bit	(0028,0102)	GENERATED	ALWAYS	ALWAYS	e.g. 15		
Pixel Representation	(0028,0103)	GENERATED	ALWAYS	ALWAYS	e.g. 0		

Table A-17 X-Ray Acquisition Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
KVP	(0018,0060)	GENERATED	ALWAYS	ALWAYS	e.g. "64.75"		
Radiation Setting	(0018,1155)	GENERATED	ALWAYS	ALWAYS	e.g. "SC"		
X-Ray Tube Current	(0018,1151)	GENERATED	ALWAYS	ALWAYS	e.g. "10"		
Exposure Time	(0018,1150)	GENERATED	ALWAYS	ALWAYS	e.g. "2"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Average Pulse Width	(0018,1154)	GENERATED	ALWAYS	ALWAYS	e.g. "2.5"		
Field of View Shape	(0018,1147)	GENERATED	ALWAYS	ALWAYS	e.g. "RECTANGLE"		
Field of View Dimension(s)	(0018,1149)	GENERATED	ALWAYS	ALWAYS	e.g. "298\397"		

Table A-18 X-Ray Table Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Table Motion	(0018,1134)	GENERATED	ALWAYS	ALWAYS	e.g. "STATIC"		
Table Angle	(0018,1138)	GENERATED	ALWAYS	ALWAYS	e.g. "0"		

Table A-19 XA Positioner Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Distance Source to Patient	(0018,1111)	GENERATED	ALWAYS	ALWAYS	e.g. "766"		
Distance Source to Detector	(0018,1110)	GENERATED	ALWAYS	ALWAYS	e.g. "1190"		
Estimated Radiographic Magnification Factor	(0018,1114)	GENERATED	ALWAYS	ALWAYS	e.g. "1.55352480417755"		
Positioner Motion	(0018,1500)	GENERATED	ALWAYS	ALWAYS	e.g. "STATIC" "DYNAMIC"		
Positioner Primary Angle	(0018,1510)	GENERATED	ALWAYS	ALWAYS	e.g. "0"		
Positioner Secondary Angle	(0018,1511)	GENERATED	ALWAYS	ALWAYS	e.g. "0"		
Positioner Primary Angle Increment	(0018,1520)	GENERATED	CONDITIONAL	CONDITIONAL	e.g. "0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0"	Required if Positioner Motion (0018,1500) equals DYNAMIC.	Change FOV and Arm Angles
Positioner Secondary Angle Increment	(0018,1521)	GENERATED	CONDITIONAL	CONDITIONAL	e.g. "0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0"	Required if Positioner Motion (0018,1500) equals DYNAMIC.	Change FOV and Arm Angles

Table A-20 VOI LUT Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Window Center	(0028,1050)	GENERATED	CONDITIONAL	CONDITIONAL	e.g. "128.00"	When the image data	Can be changed by

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
						is exported with gray-scale processing, this tag is not added.	system setting.
Window Width	(0028,1051)	GENERATED	CONDITIONAL	CONDITIONAL	e.g. "255.00"	When the image data is exported with gray-scale processing, this tag is not added.	Can be changed by system setting.
VOI LUT Sequence	(0028,3010)	GENERATED	CONDITIONAL	CONDITIONAL		Required if Window Center (0028,1050) is not present.	
> LUT Descriptor	(0028,3002)	GENERATED	ALWAYS	ALWAYS	e.g. 0,0,16		
> LUT Explanation	(0028,3003)	GENERATED	ALWAYS	ALWAYS	e.g. "CANON Alphenix VOI LUT 1.0"		

Table A-21 SOP Common Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SOP Class UID	(0008,0016)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.5.1.4.1.1.12.1"		
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116...."		
Specific Character Set	(0008,0005)	GENERATED	CONDITIONAL	CONDITIONAL	e.g. "\ISO 2022 IR 87\ISO 2022 IR 159"	Only if the character except for ASCII is used	
Instance Creation Date	(0008,0012)	GENERATED	ALWAYS	ALWAYS	e.g. "20240613"		
Instance Creation Time	(0008,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "180418.990000"		
Instance Creator UID	(0008,0014)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116"		
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "110000"		

Table A-22 Standard Extended Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Other Patient IDs	(0010,1000)	USER	CONDITION AL	CONDITION AL		User input only	
Rescale Intercept	(0028,1052)	GENERATED	ALWAYS	ALWAYS	0		
Rescale Slope	(0028,1053)	GENERATED	ALWAYS	ALWAYS	1		
Rescale Type	(0028,1054)	GENERATED	ALWAYS	ALWAYS	"US"		
Study Status ID	(0032,000a)	GENERATED	SRC_COPY	SRC_COPY	"COMPLETED"		Copy fromPerfor med Procedure Step Status
Study Priority ID	(0032,000c)	USER	CONDITION AL	CONDITION AL		User input only	
Requesting Physician	(0032,1032)	MWL;USER	SRC_COPY	SRC_COPY			
Requesting Service	(0032,1033)	MWL;USER	SRC_COPY	SRC_COPY			
Requested Procedure Description	(0032,1060)	MWL;USER	SRC_COPY	SRC_COPY			
Requested Procedure Code Sequence	(0032,1064)	MWL	SRC_COPY	SRC_COPY			
>Code Value	(0008,0100)	MWL	SRC_COPY	SRC_COPY			
>Coding Scheme Designator	(0008,0102)	MWL	SRC_COPY	SRC_COPY			
>Coding Scheme Version	(0008,0103)	MWL	SRC_COPY	SRC_COPY			
>Code Meaning	(0008,0104)	MWL	SRC_COPY	SRC_COPY			
Study Comments	(0032,4000)	USER	CONDITION AL	CONDITION AL		User input only	
Curve Dimensions	(5000,0005)	GENERATED	ALWAYS	CONDITION AL;EMPTY	2	Curve data is present	
Number of Points	(5000,0010)	GENERATED	ALWAYS	CONDITION AL;EMPTY	253	Curve data is present	
Type of Data	(5000,0020)	GENERATED	ALWAYS	CONDITION AL;EMPTY	"ECG"	Curve data is present	
Axis Units	(5000,0030)	GENERATED	ALWAYS	CONDITION AL;EMPTY	"DPPS\NONE"	Curve data is present	
Data Value Representation	(5000,0103)	GENERATED	ALWAYS	CONDITION AL;EMPTY	0	Curve data is present	
Curve Data Descriptor	(5000,0110)	GENERATED	ALWAYS	CONDITION AL;EMPTY	0\1	Curve data is present	
Coordinate Start Value	(5000,0112)	GENERATED	ALWAYS	CONDITION AL;EMPTY	0	Curve data is present	
Coordinate Step Value	(5000,0114)	GENERATED	ALWAYS	CONDITION AL;EMPTY	240	Curve data is present	
Curve Data	(5000,3000)	GENERATED	ALWAYS	CONDITION AL;EMPTY		Curve data is present	

A.2.2 X-Ray Angiographic Image IOD Functional Group Macros - N/A

N/A

A.2.3 X-Ray Angiographic Image IOD Private Modules

Table below lists private Modules and Attributes for X-Ray Angiographic Image IOD:

Table A-23 Private Module for X-Ray Angiographic Image IOD

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator	(0029,0010)	LO	1		GENERATED	ALWAYS	ALWAYS	"PMTF INFORMATION DATA"		
Private Creator	(7079,00xx)	LO	1		GENERATED	ALWAYS	ALWAYS	"CANON_MEC_XA3"		
	(7079,xx21)	SH	11		GENERATED	ALWAYS	ALWAYS			
	(7079,xx22)	IS	2		GENERATED	ALWAYS	ALWAYS			
	(7079,xx25)	SH	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx26)	DS	2		GENERATED	ALWAYS	ALWAYS			
	(7079,xx27)	US	2		GENERATED	ALWAYS	ALWAYS			
	(7079,xx28)	US	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx2a)	US	4		GENERATED	ALWAYS	ALWAYS			
	(7079,xx2c)	SH	3		GENERATED	ALWAYS	ALWAYS			
	(7079,xx2d)	SS	2		GENERATED	ALWAYS	ALWAYS			
	(7079,xx2e)	SH	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx2f)	SH	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx30)	US	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx32)	SH	2		GENERATED	ALWAYS	ALWAYS			
	(7079,xx34)	SH	2		GENERATED	ALWAYS	ALWAYS			
	(7079,xx35)	SH	2		GENERATED	ALWAYS	ALWAYS			
	(7079,xx36)	SH	2		GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
	(7079,xx37)	US	7		GENERATED	ALWAYS	ALWAYS			
	(7079,xx38)	SS	1		GENERATED	CONDITIONAL	CONDITIONAL			
	(7079,xx39)	SS	1		GENERATED	CONDITIONAL	CONDITIONAL			
	(7079,xx3a)	US	2		GENERATED	ALWAYS	ALWAYS			
	(7079,xx3b)	SH	2		GENERATED	ALWAYS	ALWAYS			
	(7079,xx3c)	DS	4		GENERATED	ALWAYS	ALWAYS			
	(7079,xx3d)	SS	4		GENERATED	ALWAYS	ALWAYS			
	(7079,xx3e)	SH	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx3f)	US	2		GENERATED	ALWAYS	ALWAYS			
	(7079,xx40)	SH	2		GENERATED	ALWAYS	ALWAYS			
	(7079,xx41)	SS	2		GENERATED	ALWAYS	ALWAYS			
	(7079,xx42)	SH	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx43)	SH	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx44)	US	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx45)	SH	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx46)	SS	2		GENERATED	ALWAYS	ALWAYS			
	(7079,xx47)	SS	7		GENERATED	ALWAYS	ALWAYS			
	(7079,xx48)	US	7		GENERATED	ALWAYS	ALWAYS			
	(7079,xx49)	US	3		GENERATED	ALWAYS	ALWAYS			
	(7079,xx4a)	US	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx4b)	LO	10		GENERATED	ALWAYS	ALWAYS			
	(7079,xx4d)	LO	5		GENERATED	ALWAYS	ALWAYS			
	(7079,xx4e)	SL	7		GENERATED	ALWAYS	ALWAYS			
	(7079,xx4f)	SH	3		GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
	(7079,xx52)	US	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx53)	SH	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx54)	US	5		GENERATED	ALWAYS	ALWAYS			
	(7079,xx6c)	US	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx6d)	DS	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx6f)	DS	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx70)	DS	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx73)	SL	4		GENERATED	ALWAYS	ALWAYS			
	(7079,xx74)	SL	7		GENERATED	ALWAYS	ALWAYS			
	(7079,xx75)	SH	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx76)	US	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx77)	SL	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx78)	US	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx79)	US	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx7b)	SH	1		GENERATED	ALWAYS	ALWAYS			
	(7079,xx7c)	SH	2		GENERATED	ALWAYS	ALWAYS			
	(7079,xx7d)	US	7		GENERATED	ALWAYS	ALWAYS			
	(7079,xx7f)	UL	7		GENERATED	ALWAYS	ALWAYS			
	(7079,xx80)	LO	1		GENERATED	CONDITIONAL	CONDITIONAL			
	(7079,xx83)	DS	1		GENERATED	CONDITIONAL	CONDITIONAL			
	(7079,xx92)	SS	7		GENERATED	ALWAYS	ALWAYS			
	(7079,xx93)	OB	1		GENERATED	CONDITIONAL	CONDITIONAL			
	(7079,xx94)	UL	3		GENERATED	ALWAYS	ALWAYS			
	(7079,xx50)	US	7		GENERATED	CONDITIONAL	CONDITIONAL			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
	(7079,xx55)	UL	7		GENERATED	CONDITIONAL	CONDITIONAL			
	(7079,xx24)	DS	1		GENERATED	CONDITIONAL	CONDITIONAL			
	(7079,xx6e)	DS	2		GENERATED	CONDITIONAL	CONDITIONAL			
	(7079,xx29)	US	2		GENERATED	CONDITIONAL	CONDITIONAL			
	(7079,xx23)	IS	2		GENERATED	CONDITIONAL	CONDITIONAL			

A.2.4 X-Ray Angiographic Image IOD Coded Values

Table below lists Coded Values referenced from the "Value" column of the tables above for X-Ray Angiographic Image IOD:

Table A-24 Values and Code Sets for X-Ray Angiographic Image IOD

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	ORIGINAL DERIVED	Value 1	
		PRIMARY SECONDARY	Value 2	
		SINGLE PLANE BIPLANE A BIPLANE B	Value 3	
		FLUO DA DAR DSA DSAS DSAR DSAR3	Value 4	
		ACQ PHOTO	Value 5	
Body Part Examined	(0018,0015)	SKULL		
		CSPINE		
		TSPINE		
		LSPINE		
		SSPINE		
		COCCYX		
		CHEST		
		CLAVICLE		

		BREAST		
		ABDOMEN		
		PELVIS		
		HIP		
		SHOULDER		
		ELBOW		
		KNEE		
		ANKLE		
		HAND		
		FOOT		
		EXTREMITY		
		HEAD		
		HEART		
		LEG		
		ARM		
		NECK		

A.3 X-Ray Radiation Dose SR IOD

Table below defines the structure of X-Ray Radiation Dose SR IOD.

Table A-25 X-Ray Radiation Dose SR IOD

IE	Module Name	Presence (Module)	Condition	Reference
Patient	Patient	ALWAYS		Table A-26
	Clinical Trial Subject	NEVER		
Study	General Study	ALWAYS		Table A-27
	Patient Study	ALWAYS		Table A-28
	Clinical Trial Study	NEVER		
Series	SR Document Series	ALWAYS		Table A-29
	Clinical Trial Series	NEVER		
Frame of Reference	Synchronization	NEVER		
Equipment	General Equipment	ALWAYS		Table A-30
Document	SR Document General	ALWAYS		Table A-31
	SR Document Content	ALWAYS		Table A-32
	SOP Common	ALWAYS		Table A-33
	Standard Extended	ALWAYS		Table A-34

A.3.1 X-Ray Radiation Dose SR IOD Specific Modules

The following tables list Modules and Attributes specific for X-Ray Radiation Dose SR IOD:

Table A-26 Patient Module for X-Ray Radiation Dose SR IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient's Name	(0010,0010)	MWL;USER	ALWAYS	ALWAYS	e.g. "LastName^FirstName^MiddleName=KanjiName1^KanjiName2=KanaName1^KanaName2"		Change the group values in patient name by the language environment and settings.
Patient ID	(0010,0020)	MWL;USER	ALWAYS	ALWAYS	e.g. "PatientID"		
Patient's Birth Date	(0010,0030)	MWL;USER	ALWAYS	ALWAYS	e.g. "19890108"		
Patient's Sex	(0010,0040)	MWL;USER	ALWAYS	ALWAYS	e.g. "F"		
Other Patient Names	(0010,1001)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "OtherPatientNames"		
Ethnic Group	(0010,2160)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "EthnicGroup"		
Patient Comments	(0010,4000)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "PatientComments"		

Table A-27 General Study Module for X-Ray Radiation Dose SR IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Study Instance UID	(0020,000d)	GENERATED; MWL	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116 .... "		
Study Date	(0008,0020)	GENERATED	ALWAYS	ALWAYS	e.g. "20240613"		
Study Time	(0008,0030)	GENERATED	ALWAYS	ALWAYS	e.g. "180418.992000"		
Referring Physician's Name	(0008,0090)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "ReferringPhysician"		
Study ID	(0020,0010)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "ProcedureID"		
Accession Number	(0008,0050)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "AccessionNo"		
Study Description	(0008,1030)	USER	CONDITIONAL	CONDITIONAL	e.g. "StudyDescription"	User input only	
Physician(s) of Record	(0008,1048)	USER	CONDITIONAL	CONDITIONAL	e.g. "AttendingPhysician"	User input only	
Name of Physician(s) Reading Study	(0008,1060)	USER	CONDITIONAL	CONDITIONAL	e.g. "ReadingPhysician"	User input only	
Procedure Code Sequence	(0008,1032)	MWL	SRC_COPY	SRC_COPY			
> Code Value	(0008,0100)	MWL	SRC_COPY	SRC_COPY	e.g. "PCSQValue"		
> Coding Scheme Designator	(0008,0102)	CONFIGURATION;MWL	SRC_COPY	SRC_COPY	e.g. "UNKNOWN"		
> Coding Scheme Version	(0008,0103)	CONFIGURATION;MWL	SRC_COPY	SRC_COPY	e.g. "UNKNOWN"		
> Code Meaning	(0008,0104)	MWL	SRC_COPY	SRC_COPY	e.g. "PCSQMeaning"		

Table A-28 Patient Study Module for X-Ray Radiation Dose SR IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Admitting Diagnoses Description	(0008,1080)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "ProvisDiagnosis"		
Patient's Age	(0010,1010)	GENERATED	ALWAYS	ALWAYS	e.g. "035Y"		
Patient's Size	(0010,1020)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "1.23000000"		
Patient's Weight	(0010,1030)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "45"		
Medical Alerts	(0010,2000)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "MedicalAlerts"		
Allergies	(0010,2110)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "ContrastAllergies"		
Pregnancy Status	(0010,21c0)	MWL;USER	SRC_COPY	SRC_COPY	e.g. 4		
Patient State	(0038,0500)	GENERATED	ALWAYS	ALWAYS	e.g. "/SR_LOCAL_OBJECT/"		
Occupation	(0010,2180)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "Occupation"		
Additional Patient History	(0010,21b0)	MWL;USER	SRC_COPY	SRC_COPY	e.g. "MedicalAlerts/ContrastAllergies/Unknown/P		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
					atientComments/Addit ionalHistory"		

Table A-29 SR Document Series Module for X-Ray Radiation Dose SR IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	GENERATED	ALWAYS	ALWAYS	e.g. "SR"		
Series Instance UID	(0020,000e)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116 ...."		
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS	e.g. "9001"		
Series Date	(0008,0021)	GENERATED	ALWAYS	ALWAYS	e.g. "20240613"		
Series Time	(0008,0031)	GENERATED	ALWAYS	ALWAYS	e.g. "180632.455000"		
Referenced Performed Procedure Step Sequence	(0008,1111)	GENERATED	ALWAYS	ALWAYS			
> Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.3.1.2. 3.3"		
> Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116 ...."		

Table A-30 General Equipment Module for X-Ray Radiation Dose SR IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	FIXED	ALWAYS	ALWAYS	e.g. "CANON_MEC"		
Institution Name	(0008,0080)	CONFIGURATION	ALWAYS	ALWAYS	e.g. "HospitalName"		
Station Name	(0008,1010)	CONFIGURATION	ALWAYS	ALWAYS	e.g. "StationName"		
Manufacturer's Model Name	(0008,1090)	CONFIGURATION	ALWAYS	ALWAYS	e.g. "DFP-8000D"		
Device Serial Number	(0018,1000)	CONFIGURATION	ALWAYS	ALWAYS	e.g. "00000000"		
Software Versions	(0018,1020)	CONFIGURATION	ALWAYS	ALWAYS	e.g. "V9.6 SP0000*(0603)"		

Table A-31 SR Document General Module for X-Ray Radiation Dose SR IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "173124"		
Completion Flag	(0040,a491)	GENERATED	ALWAYS	ALWAYS	e.g. "COMPLETE"		
Verification Flag	(0040,a493)	GENERATED	ALWAYS	ALWAYS	e.g. "VERIFIED"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS	e.g. "20240614"		
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS	e.g. "173124"		
Verifying Observer Sequence	(0040,a073)	GENERATED	ALWAYS	ALWAYS			
> Verifying Observer Name	(0040,a075)	GENERATED	ALWAYS	ALWAYS	e.g. "Observer Name"		
> Verifying Observer Identification Code Sequence	(0040,a088)	GENERATED	ALWAYS	ALWAYS			
>> Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS	e.g. "369842"		
>> Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS	e.g. "99STElsewhere"		
>> Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS	e.g. "369842"		
>> Verifying Organization	(0040,a027)	GENERATED	ALWAYS	ALWAYS	e.g. "CANON"		
>> Verification Date Time	(0040,a030)	GENERATED	ALWAYS	ALWAYS	e.g. "20240614173124"		
Performed Procedure Code Sequence	(0040,a372)	GENERATED	ALWAYS	ALWAYS			
Current Requested Procedure Evidence Sequence	(0x0040,0xa375)	GENERATED	CONDITIONAL	CONDITIONAL		If Referenced Series instance or Referenced SOP instance is not present, Attribute is not present	
>Referenced Series Sequence	(0x0008,0x1115)	GENERATED	ALWAYS	ALWAYS			
>> Referenced SOP Sequence	0x0008,0x1199)	GENERATED	ALWAYS	ALWAYS			
>>>Referenced SOP Class UID	(0x0008,0x1150)	GENERATED	ALWAYS	ALWAYS			
>>>Referenced SOP Instance UID	(0x0008,0x1155)	GENERATED	ALWAYS	ALWAYS			
>>Series Instance UID	(0x0020,0x000e)	GENERATED	ALWAYS	ALWAYS			
>Study Instance UID	(0x0020,0x000d)	GENERATED; MWL	ALWAYS	ALWAYS			

Table A-32 SR Document Content Module for X-Ray Radiation Dose SR IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Value Type	(0040,a040)	GENERATED	ALWAYS	ALWAYS	e.g. "CONTAINER"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Concept Name Code Sequence	(0040,a043)	GENERATED	ALWAYS	ALWAYS			
> Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS	e.g. "113701"		
> Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS	e.g. "DCM"		
> Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS	e.g. "X-Ray Radiation Dose Report"		
Continuity Of Content	(0040,a050)	GENERATED	ALWAYS	ALWAYS	e.g. "SEPARATE"		
Content Template Sequence	(0040,a504)	GENERATED	ALWAYS	ALWAYS	See Annex B for encoding on supported TIDs		
> Mapping Resource	(0008,0105)	GENERATED	ALWAYS	ALWAYS	e.g. "DCMR"		
> Template Identifier	(0040,db00)	GENERATED	ALWAYS	ALWAYS	e.g. "10001"		
Content Sequence	(0040,a730)	GENERATED	ALWAYS	ALWAYS			

Table A-33 SOP Common Module for X-Ray Radiation Dose SR IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SOP Class UID	(0008,0016)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.5.1.4.1.1.88.67"		
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116...."		
Specific Character Set	(0008,0005)	GENERATED	CONDITIONAL	CONDITIONAL	e.g. "\ISO 2022 IR 87\ISO 2022 IR 159"	Only if the character except for ASCII is used	
Instance Creation Date	(0008,0012)	GENERATED	ALWAYS	ALWAYS	e.g. "20240613"		
Instance Creation Time	(0008,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "180418.990000"		
Instance Creator UID	(0008,0014)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116"		
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "173124"		

Table A-34 Standard Extended Module for X-Ray Radiation Dose SR IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Performing Physician's Name	(0008,1050)	GENERATED; USER	ALWAYS;SRC_COPY	SRC_COPY	e.g. "CathPhysician\CatheterizationPhysician2"		Copied from (0040,0006) Scheduled Protocol Performing

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Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
							Physician's Name
Operators' Name	(0008,1070)	USER	CONDITIONAL	CONDITIONAL	e.g. "Operator\Operator2"	User input only	
Other Patient IDs	(0010,1000)	USER	CONDITIONAL	CONDITIONAL		User input only	
Study Status ID	(0032,000a)	GENERATED	SRC_COPY	SRC_COPY	"COMPLETED"		Copy fromPerformed Procedure Step Status
Study Priority ID	(0032,000c)	USER	CONDITIONAL	CONDITIONAL		User input only	
Requesting Physician	(0032,1032)	MWL;USER	SRC_COPY	SRC_COPY			
Requesting Service	(0032,1033)	MWL;USER	SRC_COPY	SRC_COPY			
Requested Procedure Description	(0032,1060)	MWL;USER	SRC_COPY	SRC_COPY			
Requested Procedure Code Sequence	(0032,1064)	MWL	SRC_COPY	SRC_COPY			
>Code Value	(0008,0100)	MWL	SRC_COPY	SRC_COPY			
>Coding Scheme Designator	(0008,0102)	MWL	SRC_COPY	SRC_COPY			
>Coding Scheme Version	(0008,0103)	MWL	SRC_COPY	SRC_COPY			
>Code Meaning	(0008,0104)	MWL	SRC_COPY	SRC_COPY			
Study Comments	(0032,4000)	USER	CONDITIONAL	CONDITIONAL		User input only	

A.3.2 X-Ray Radiation Dose SR IOD Functional Group Macros - N/A

N/A

A.3.3 X-Ray Radiation Dose SR IOD Private Modules - N/A

N/A

A.3.4 X-Ray Radiation Dose SR IOD Coded Values – N/A

N/A

A.4 Basic Directory IOD

Table A-35 defines the structure of the Basic Directory IOD.

Table A-35 Basic Directory IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
File Set identification Module							
File-set ID	(0004,1130)	GENERAT ED	ALWAYS	ALWAYS	e.g. "1208001345"		
Directory Information Module							
Offset of the First Directory Record of the Root Directory Entity	(0004,1200)	GENERAT ED	ALWAYS	ALWAYS	e.g. 422		
Offset of the Last Directory Record of the Root Directory Entity	(0004,1202)	GENERAT ED	ALWAYS	ALWAYS	e.g. 422		
File-set Consistency Flag	(0004,1212)	GENERAT ED	ALWAYS	ALWAYS	e.g. 0		
Directory Record Sequence	(0004,1220)	GENERAT ED	ALWAYS	ALWAYS			
>Offset of the Next Directory Record	(0004,1400)	GENERAT ED	ALWAYS	ALWAYS	e.g. 0		
>Record In-use Flag	(0004,1410)	GENERAT ED	ALWAYS	ALWAYS	e.g. 65535		
>Offset of Referenced Lower-Level Directory Entity	(0004,1420)	GENERAT ED	ALWAYS	ALWAYS	e.g. 696		
>Directory Record Type	(0004,1430)	GENERAT ED	ALWAYS	ALWAYS	e.g. "PATIENT";"STUDY"; "SERIES";"IMAGE"		
>Referenced File ID	(0004,1500)	GENERAT ED	ALWAYS	ALWAYS	e.g. "DICOM\20240614\12 0800\A0000"		
>Referenced SOP Class UID in File	(0004,1510)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "1.2.840.10008.5.1.4. 1.1.12.1"		
>Referenced SOP Instance UID in File	(0004,1511)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "1.2.392.200036.9116 ...."		
>Referenced Transfer Syntax UID in File	(0004,1512)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "1.2.840.10008.1.2.1"		
"PATIENT" Keys							
>Specific Character Set	(0008,0005)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "\ISO 2022 IR 87\ISO 2022 IR 159"		

							Change the group values in patient name by the language environment and settings.
>Patient's Name	(0010,0010)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "LastName^FirstName^MiddleName=KanjiName1^KanjiName2=KanaName1^Kana.."		
>Patient ID	(0010,0020)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "PatientID"		
>Patient's Birth Date	(0010,0030)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "19890108"		
>Patient's Sex	(0010,0040)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "F"		
>Ethnic Group	(0010,2160)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "EthnicGroup"		
>Patient Comments	(0010,4000)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "PatientComments"		
"STUDY" Keys							
>Specific Character Set	(0008,0005)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "\ISO 2022 IR 87\ISO 2022 IR 159"		
>Study Date	(0008,0020)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "20240613"		
>Study Time	(0008,0030)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "180418.992000"		
>Accession Number	(0008,0050)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "AccessionNo"		
>Study Description	(0008,1030)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "StudyDescription"		
>Study Instance UID	(0020,000d)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "1.2.392.200036.9116...."		
>Study ID	(0020,0010)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "ProcedureID"		
"SERIES" Keys							
>Specific Character Set	(0008,0005)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "\ISO 2022 IR 87\ISO 2022 IR 159"		
>Series Date	(0008,0021)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "20240613"		
>Series Time	(0008,0031)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "180632.455000"		
>Modality	(0008,0060)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "XA"		
>Institution Name	(0008,0080)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "HospitalName"		
>Institution Address	(0008,0081)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "1385ShimoishigamiOtawara-shiTochigi324-8550Japan"		

>Series Description	(0008,103e)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "SeriesDescription1"		
>Performing Physician's Name	(0008,1050)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "CathPhysician\Cathe terizationPhysician2"		
>Protocol Name	(0018,1030)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "Coronary"		
>Series Instance UID	(0020,000e)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "1.2.392.200036.9116 .... "		
>Series Number	(0020,0011)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "1"		
"IMAGE" Keys							
>Specific Character Set	(0008,0005)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "\ISO 2022 IR 87\ISO 2022 IR 159"		
>Image Type	(0008,0008)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "ORIGINAL\PRIMAR Y\SINGLE PLANE\FLUO\ACQ"		
>SOP Class UID	(0008,0016)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "1.2.840.10008.5.1.4. 1.1.12.1"		
>SOP Instance UID	(0008,0018)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "1.2.392.200036.9116 .... "		
>Content Date	(0008,0023)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "20240613"		
>Content Time	(0008,0033)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "180632.455000"		
>Instance Number	(0020,0013)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "110000"		
>Image Comments	(0020,4000)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "F-REC(S)"		
>Number of Frames	(0028,0008)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "1"		
>Rows	(0028,0010)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. 1024		
>Columns	(0028,0011)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. 1024		
>Icon Image Sequence	(0088,0200)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y			
>>Samples per Pixel	(0028,0002)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. 1		
>>Photometric Interpretation	(0028,0004)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. "MONOCHROME2"		
>>Rows	(0028,0010)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. 128		
>>Columns	(0028,0011)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. 128		

>>Bits Allocated	(0028,0100)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. 8		
>>Bits Stored	(0028,0101)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. 8		
>>High Bit	(0028,0102)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. 7		
>>Pixel Representation	(0028,0103)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y	e.g. 0		
>>Pixel Data	(7fe0,0010)	SRC_INST ANCE	SRC_COP Y	SRC_COP Y			

B Structured Report Content Encoding

This section provides the detailed content encoding for all TIDs supported by Alphenix.

Throughout the tables listed in Annex B the following codes are used for the "Source" and "Presence of Content Item" columns.

In the "Source" column, the following Values can be used:

- FIXED: The Value is pre-defined and cannot be modified.

- GENERATED: The Value is generated by the system.

- CONFIGURATION: The Value is copied from the system configuration.

- MWL: The Value is copied from a Modality Worklist entry.

- QUERY: The Value is determined by performing a query of any of the supported Query/Retrieve Services.

- USER: The Value is entered by the user.

- SCANNED: The Value is read from a barcode scanner or similar device.

- EMPTY: The Attribute is sent with a zero-length Value.

- SRC_INSTANCE: The Value is copied from previously created/received SOP Instances.

In the "Presence of Content Item" the following Values can be used:

- ALWAYS: the module, functional group macro, Attributes or Value is always present.

- CONDITIONAL: the presence of the module, functional group macro, Attributes or Value is dependent on a condition. The condition must be listed in the "Comments" column.

- SRC_COPY: The presence of the Attributes and Values depends on the availability of these in the source instances, which are used for copying this information.

- EMPTY: The Attribute is present but without a Value (zero length).

B.1   Projection X-Ray Radiation Dose (TID 10001)

Table B-1 shows the encoding of content of a DICOM Projection X-Ray Radiation Dose (TID 10001).
"*" in TID column means it is Template extension.

Table B-1 Projection X-Ray Radiation Dose (TID 10001)

NL	Rel with Parent	VT	Concept Name	Source	Presence of Content Item	Values	TID	Comments
		CONTAINER	(113701, DCM, "X-Ray Radiation Dose Report")	GENERATED	ALWAYS		10001	
>	HAS CONCEPT MOD	CODE	(121058, DCM, "Procedure reported")	GENERATED	ALWAYS	(113704,DCM," Projection X-Ray")	10001	
>>	HAS CONCEPT MOD	CODE	(G-C0E8,SRT,"Has Intent")	GENERATED	ALWAYS	(R-002E9,SRT,"Combined Diagnostic and Therapeutic Procedure")	10001*	
>	HAS OBS CONTEXT	CODE	(121005, DCM, "Observer Type")	GENERATED	ALWAYS	(121007,DCM," Device")	1002	
>		UIDREF	(121012, DCM, "Device Observer UID")	GENERATED	ALWAYS	"1.2.392.200036 .9116.3.... "	1004	

NL	Rel with Parent	VT	Concept Name	Source	Presence of Content Item	Values	TID	Comments
>		TEXT	(121014, DCM, "Device Observer Manufacturer")	GENERATED	ALWAYS	"CANON_MEC"	1004	
>		TEXT	(121015, DCM, "Device Observer Model Name")	GENERATED	ALWAYS	"DFP-8000D"	1004	
>		TEXT	(121016, DCM, "Device Observer Serial Number")	GENERATED	ALWAYS	"00000000"	1004	
>	HAS OBS CONTEXT	CODE	(113705, DCM, "Scope of Accumulation")	GENERATED	ALWAYS	(113014,DCM," Study")	10001	
>>	HAS PROPERTIES	UIDREF	(110180,DCM,"Study Instance UID")	GENERATED	ALWAYS	"1.2.392.200036 .9116.... "	10001*	
>		CONTAINER	(113702, DCM, "Accumulated X-Ray Dose Data")	GENERATED	ALWAYS		10002	
>>	HAS CONCEPT MOD	CODE	(113764, DCM, "Acquisition Plane")	GENERATED	ALWAYS	(113622,DCM," Single Plane")	10002	
>>	CONTAINS	CONTAINER	(122505, DCM, "Calibration")	GENERATED	ALWAYS		10002	
>>>	CONTAINS	NUM	(122322, DCM, "Calibration Factor")	CONFIGURAT ION	ALWAYS	"1.000000" (1,UCUM,"no units")	10002	
>>>	CONTAINS	NUM	(113763, DCM, "Calibration Uncertainty")	GENERATED	ALWAYS	"0" (%,UCUM,"Perc ent")	10002	
>>>	CONTAINS	TEXT	(113724, DCM, "Calibration Responsible Party")	CONFIGURAT ION	ALWAYS	"Canon Medical Systems Corp."	10002	
>>>	CONTAINS	TEXT	(113720, DCM, "Calibration Protocol")	CONFIGURAT ION	ALWAYS	"Canon Medical Systems Standard"	10002	
>>>	HAS CONCEPT MOD	CODE	(113794, DCM, Dose Measurement Device)	GENERATED	ALWAYS	(A-2C090, SRT, Dosimeter)	10002	
>>>	CONTAINS	DATETIME	(113723,DCM,"Cali bration date")	CONFIGURAT ION	ALWAYS	"201801010901 01"	10002	
>>		NUM	(113726, DCM, "Fluoro Dose Area Product Total")	GENERATED	ALWAYS	"0.000002020" (Gy.m2,UCUM," Gy.m2")	10004	
>>		NUM	(113728, DCM, "Fluoro Dose (RP) Total")	GENERATED	ALWAYS	"0.000078" (Gy,UCUM,"Gy")	10004	
>>		NUM	(113730, DCM, "Total Fluoro Time")	GENERATED	ALWAYS	"11.000" (s,UCUM,"s")	10004	
>>		NUM	(113727, DCM, "Acquisition Dose Area Product Total")	GENERATED	ALWAYS	"0.000037450" (Gy.m2,UCUM," Gy.m2")	10004	

NL	Rel with Parent	VT	Concept Name	Source	Presence of Content Item	Values	TID	Comments
>>		NUM	(113729, DCM, "Acquisition Dose (RP) Total")	GENERATED	ALWAYS	"0.001430" (Gy,UCUM,"Gy")	10004	
>>		NUM	(113855, DCM, "Total Acquisition Time")	GENERATED	ALWAYS	"8.215" (s,UCUM,"s")	10004	
>>		NUM	(113722, DCM, "Dose Area Product Total")	GENERATED	ALWAYS	"0.0000394700" (Gy.m2,UCUM," Gy.m2")	10007	
>>		NUM	(113725, DCM, "Dose (RP) Total")	GENERATED	ALWAYS	"0.001508" (Gy,UCUM,"Gy")	10007	
>>		NUM	(113731, DCM, "Total Number of Radiographic Frames")	GENERATED	ALWAYS	"41" (1,UCUM,"no units")	10007	
>>		CODE	(113780, DCM, "Reference Point Definition")	GENERATED	ALWAYS	(113860,DCM,"15cm from Isocenter toward Source")	10007	
>>		NUM	(113731, DCM, "Total Number of Radiographic Frames")	GENERATED	ALWAYS	"41" (1,UCUM,"no units")	10006	
>>		NUM	(113722, DCM, "Dose Area Product Total")	GENERATED	ALWAYS	"0.0000394700" (Gy.m2,UCUM," Gy.m2")	10006	
>		CONTAINER	(113706, DCM, "Irradiation Event X-Ray Data")	GENERATED	ALWAYS		10003	
>>	HAS CONCEPT MOD	CODE	(113764, DCM, "Acquisition Plane")	GENERATED	ALWAYS	(113622,DCM," Single Plane")	10003	
>>	CONTAINS	UIDREF	(113769, DCM, "Irradiation Event UID")	GENERATED	ALWAYS	"1.2.392.200036 .9116...."	10003	
>>	CONTAINS	DATETIME	(111526, DCM, "DateTime Started")	GENERATED	ALWAYS	"202406131806 23"	10003	
>>	CONTAINS	CODE	(113721, DCM, "Irradiation Event Type")	GENERATED	ALWAYS	(P5-06000,SRT,"Flu oroscopy")	10003	
>>	CONTAINS	TEXT	(125203, DCM, "Acquisition Protocol")	GENERATED	ALWAYS	"Coronary 15.0f/s Middle"	10003	
>>	CONTAINS	CODE	(113745, DCM, "Patient Table Relationship")	GENERATED	ALWAYS	(F-10480,SRT,"feet -first")	10003	
>>	CONTAINS	CODE	(113743, DCM, "Patient Orientation")	GENERATED	ALWAYS	(F-10450,SRT,"rec umbent")	10003	

NL	Rel with Parent	VT	Concept Name	Source	Presence of Content Item	Values	TID	Comments
>>>	HAS CONCEPT MOD	CODE	(113744, DCM, Patient Orientation Modifier)	GENERATED	ALWAYS	(F-10340,SRT,supine)	10003	
>>	CONTAINS	CODE	(123014, DCM, "Target Region")	GENERATED	ALWAYS	(T-11502,SRT,"Thoracic spine")	10003	
>>	CONTAINS	NUM	(122130, DCM, "Dose Area Product")	GENERATED	ALWAYS	"0.000000650" (Gy.m2,UCUM," Gy.m2")	10003	
>>	CONTAINS	CODE	(113780, DCM, "Reference Point Definition")	GENERATED	ALWAYS	(113860,DCM,"15cm from Isocenter toward Source")	10003	
>>		IMAGE	(113795, DCM, "Acquired Image")	GENERATED	ALWAYS	("1.2.840.10008.5.1.4.1.1.12.1","1.2.392.200036.9116.20240613090632462.1004.2.1041")	10003A	
>>		NUM	(113738, DCM, "Dose (RP)")	GENERATED	ALWAYS	"0.000025" (Gy,UCUM,"Gy")	10003B	
>>		CODE	(113780, DCM, "Reference Point Definition")	GENERATED	ALWAYS	(113860,DCM,"15cm from Isocenter toward Source")	10003B	
>>		CODE	(113732, DCM, "Fluoro Mode")	GENERATED	ALWAYS	(113631,DCM," Pulsed")	10003B	
>>		NUM	(113791, DCM, "Pulse Rate")	GENERATED	ALWAYS	"15.0" ({pulse}/s,UCUM,"pulse/s")	10003B	
>>		NUM	(113768, DCM, "Number of Pulses")	GENERATED	ALWAYS	"87" (1,UCUM,"no units")	10003B	
>>		NUM	(113793, DCM, "Pulse Width")	GENERATED	ALWAYS	"2.50" (ms,UCUM,"ms")	10003B	
>>		NUM	(113742, DCM, "Irradiation Duration")	GENERATED	ALWAYS	"5.74" (s,UCUM,"s")	10003B	
>>		NUM	(113733, DCM, "KVP")	GENERATED	ALWAYS	"64.75" (kV,UCUM,"kV")	10003B	
>>		NUM	(113734, DCM, "X-Ray Tube Current")	GENERATED	ALWAYS	"10.0" (mA,UCUM,"mA")	10003B	
>>		NUM	(113824, DCM, "Exposure Time")	GENERATED	ALWAYS	"217.50" (ms,UCUM,"ms")	10003B	
>>		NUM	(113766, DCM, "Focal Spot Size")	GENERATED	ALWAYS	"0.60" (mm,UCUM,"mm")	10003B	

NL	Rel with Parent	VT	Concept Name	Source	Presence of Content Item	Values	TID	Comments
>>		CONTAINER	(113771, DCM, "X-Ray Filters")	GENERATED	ALWAYS		10003B	
>>>	CONTAINS	CODE	(113772, DCM, "X-Ray Filter Type")	GENERATED	ALWAYS	(113650,DCM," Strip filter")	10003B	
>>>	CONTAINS	CODE	(113757, DCM, "X-Ray Filter Material")	GENERATED	ALWAYS	(C-127F9,SRT,"Co pper or Copper compound")	10003B	
>>>	CONTAINS	NUM	(113758, DCM, "X-Ray Filter Thickness Minimum")	GENERATED	ALWAYS	"0.500000" (mm,UCUM,"m m")	10003B	
>>>	CONTAINS	NUM	(113773, DCM, "X-Ray Filter Thickness Maximum")	GENERATED	ALWAYS	"0.500000" (mm,UCUM,"m m")	10003B	
>>		NUM	(113790, DCM, "Collimated Field Area")	GENERATED	ALWAYS	"0.1237235156" (m2,UCUM,"m^ 2")	10003B	
>>		NUM	(113788, DCM, "Collimated Field Height")	GENERATED	ALWAYS	"406.119148936 2" (mm,UCUM,"m m")	10003B	
>>		NUM	(113789, DCM, "Collimated Field Width")	GENERATED	ALWAYS	"304.648318042 8" (mm,UCUM,"m m")	10003B	
>>		NUM	(112011, DCM, "Positioner Primary Angle")	GENERATED	ALWAYS	"0.0" (deg,UCUM,"o")	10003C	
>>		NUM	(112012, DCM, "Positioner Secondary Angle")	GENERATED	ALWAYS	"0.0" (deg,UCUM,"o")	10003C	
>>		NUM	(113739, DCM, "Positioner Primary End Angle")	GENERATED	CONDITIONAL	"0.0" (deg,UCUM,"o")	10003C	Required if Irradiation Event Type is "Rotational Acquisition"
>>		NUM	(113740, DCM, "Positioner Secondary EndAngle")	GENERATED	CONDITIONAL	"0.0" (deg,UCUM,"o")	10003C	Required if Irradiation Event Type is "Rotational Acquisition"
>>		NUM	(113754, DCM, "Table Head Tilt Angle")	GENERATED	ALWAYS	"0.0" (deg,UCUM,"o")	10003C	
>>		NUM	(113755, DCM, "Table Horizontal Rotation Angle")	GENERATED	ALWAYS	"0.0" (deg,UCUM,"o")	10003C	
>>		NUM	(113756, DCM, "Table Cradle Tilt Angle")	GENERATED	ALWAYS	"0.0" (deg,UCUM,"o")	10003C	

NL	Rel with Parent	VT	Concept Name	Source	Presence of Content Item	Values	TID	Comments
>>	HAS CONCEPT MOD	CODE	(121401,DCM,"Derivation")	GENERATED	ALWAYS	(R-10260,SRT,"Estimated")	10003C*	
>>	CONTAINS	NUM	(113748,DCM,"Distance Source to Isocenter")	GENERATED	ALWAYS	"700" (mm,UCUM,"mm")	10003C*	
>>	CONTAINS	NUM	(113750,DCM,"Distance Source to Detector")	GENERATED	ALWAYS	"1190" (mm,UCUM,"mm")	10003C*	
>>	CONTAINS	NUM	(113751,DCM,"Table Longitudinal Position")	GENERATED	ALWAYS	"30" (mm,UCUM,"mm")	10003C*	
>>	CONTAINS	NUM	(113752,DCM,"Table Lateral Position")	GENERATED	ALWAYS	"450" (mm,UCUM,"mm")	10003C*	
>>	CONTAINS	NUM	(113753,DCM,"Table Height Position")	GENERATED	ALWAYS	"80" (mm,UCUM,"mm")	10003C*	
>>	CONTAINS	NUM	(113737,DCM,"Distance Source to Reference Point")	GENERATED	ALWAYS	"696" (mm,UCUM,"mm")	10003C*	
>>	CONTAINS	NUM	(113759,DCM,"Table Longitudinal End Position")	GENERATED	ALWAYS	"30" (mm,UCUM,"mm")	10003C*	
>>	CONTAINS	NUM	(113760,DCM,"Table Lateral End Position")	GENERATED	ALWAYS	"450" (mm,UCUM,"mm")	10003C*	
>>	CONTAINS	NUM	(113761,DCM,"Table Height End Position")	GENERATED	ALWAYS	"80" (mm,UCUM,"mm")	10003C*	
>	CONTAINS	CODE	(113854, DCM, "Source of Dose Information")	GENERATED	ALWAYS	(113856,DCM,"Automated Data Collection")	10001	

B.1.1 Code Sets – N/A

N/A

C Security Details

This section provides additional details about security features that are formally described in Section 8.

C.1   External Network Requirement Details

C.1.1 Basic Time Synchronization – N/A

N/A

C.1.2 Basic Network Address Management – N/A

N/A

C.1.3 Application Configuration Management – N/A

N/A

C.1.4 DNS Service Discovery – N/A

N/A

C.2   DICOM Security Profile Details

C.2.1 Online Electronic Storage Secure Use - N/A

N/A

C.2.2 Audit Trail Messages

Table C-1 specifies the DICOM Audit Messages that Alphenix can detect and report. It defines the list of triggers that will cause the Audit Message to be generated and if these triggers can be configured or not. It also specifies whether the content of the Audit Message can be configured or not.

Table C-1 DICOM Specific Audit Messages

Audit Message	Usage	Supported Triggers	Configurable Triggers	Configurable Message	Comments
Application Activity	Used	Startup/ Shutdown of product	N	N	
Audit Log Used	Used	Back up audit messages	N	N	
Begin Transferring DICOM Instances	Not Used	N/A	N	N	
Data Export	Used	Network/Media storage, Print, MPPS	N	N	
Data Import	Used	Network/Media retrieve	N	N	
DICOM Instance Accessed	Used	PHI of the local store or the media is corrected or removed	N	N	
DICOM Instance Transferred	Used	PHI is imported as MWM	N	N	
DICOM Study Deleted	Not Used	N/A	N	N	
Network Entry	Not Used	N/A	N	N	
Query	Used	PHI is queried	N	N	
Security Alert	Used	The local user login problem, the secure connection establishment failure, the security configuration or PHI transfer configuration update	N	N	
User Authentication	Used	The local user authentication is processing	N	N	
Order Record	Used	the locally scheduled PHI is stored or removed	N	N	
Patient Record	Used	locally unscheduled PHI is stored	N	N	
Procedure Record	Not Used	N/A	N	N	

Table C-6 Table C-2 Audit Message Details - Application Activity : Application Start/Stopspecifies the implementation details of each audit message supported by this product.

Table C-2 Audit Message Details - Application Activity : Application Start/Stop

Real World Entities	Field Name	Opt.	Value Constraints
Event	EventID	M	EV (110100, DCM, "Application Activity")
	EventActionCode	M	EV E = Execute
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00

Real World Entities	Field Name	Opt.	Value Constraints
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	M	DT (110120, DCM, "Application Start") DT (110121, DCM, "Application Stop")
Active Participant: Application started (1)	UserID	M	The security application role name
	UserIDTypeCode	U	EV (110150, DCM, "Application")
	AlternativeUserID	MC	Process ID of the security application
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	M	EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Active Participant: Persons and or processes that started the Application (0..1)	UserID	M	The person to start or stop the security application
	UserIDTypeCode	U	EV (113871, DCM, "Person ID")
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	M	EV (110151, DCM, "Application Launcher")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument

Table C-3 Audit Message Details - Audit Log Used

Real World Entities	Field Name	Opt.	Value Constraints
Event	EventID	M	EV (110101, DCM, "Audit Log Used")
	EventActionCode	M	EV R = read
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	U	not specialized
Active Participant:	UserID	M	The person and application to access the audit logs

Real World Entities	Field Name	Opt.	Value Constraints
Persons and or processes that started the Application (1..2)	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternativeUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	U	EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Participating Object: Identity of the audit log (1)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	M	EV 13 = security resource
	ParticipantObjectDataLifeCycle	U	EV 6 = Access/Use
	ParticipantObjectIDTypeCode	M	EV 12 = URI
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The URI of the audit log file to be accessed.
	ParticipantObjectName	U	"Security Audit Log"
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
	SOPClass	U	not specialized
	Accession	U	not specialized
	NumberOfInstances	U	not specialized
	Instances	U	not specialized
	Encrypted	U	False
	Anonymized	U	False
	ParticipantObjectContainsStudy	U	not specialized
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument

Table C-4 Audit Message Details - Data Export

Real World Entities	Field Name	Opt.	Value Constraints
Event	EventID	M	EV (110106, DCM, "Export")
	EventActionCode	M	EV R = Read
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure

Real World Entities	Field Name	Opt.	Value Constraints
			8 = Serious failure 12 = Major failure
	EventTypeCode	U	not specialized
Active Participant: Remote Users and Processes (0..1)	UserID	M	The AE Title of Destination Device
	UserIDTypeCode	U	EV (110119, DCM, "Station AE Title")
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	M	EV (110152, DCM, "Destination Role ID")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of the destination
Active Participant: User or Process Exporting the data(1..2)	UserID	M	The person and application to export the data.
	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternativeUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	M	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Active Participant: Media (1)	UserID	M	The alias name for the destination media
	UserIDTypeCode	U	EV (113877, DCM, "Device Name")
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	M	EV (110154, DCM, "Destination Media")

	NetworkAccessPointTypeCode	MC	EV 1 = Machine Name, including DNS name
			        2 = IP Address
			        5 = URI (user directory, HTTP-PUT, ftp, etc.)
			when Media Type is 110037 and 110010

	NetworkAccessPointID	MC	Host name or IP address of the destination when Media Type is 110037 and 110010
	MediaIdentifier	MC	Volume ID, URI, or other identifier for media when Media Type is 10030, 110032, 110033, 110035 and 110038
	MediaType	M	EV (110030, DCM, "USB Disk Emulation") EV (110032, DCM, "CD") EV (110033, DCM, "DVD")

Real World Entities	Field Name	Opt.	Value Constraints
			EV (110035, DCM, "Multi-media Card") EV (110037, DCM, "URI") EV (110010, DCM, "Film") EV (110038, DCM, "Paper Document")
Participating Object: Studies (0..N)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	M	EV 3 = report
	ParticipantObjectDataLifeCycle	U	EV 10 = Export
	ParticipantObjectIDTypeCode	M	EV (110180, DCM, "Study Instance UID")
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The Study Instance UID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
	SOPClass	MC	The SOP Class UID
	Accession	U	Accession Number
	NumberOfInstances	U	Instance Number
	Instances	U	not specialized
	Encrypted	U	True when the operation is in the secure transport connection, else False
	Anonymized	U	True when the operation is in the Anonymized context, else False
Participating Object: Patients (1..N)	ParticipantObjectTypeCode	M	EV 1 = person
	ParticipantObjectTypeCodeRole	M	EV 1 = patient
	ParticipantObjectDataLifeCycle	U	EV 10 = Export
	ParticipantObjectIDTypeCode	M	EV 2 = patient ID
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The patient ID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument

Table C-5 Audit Message Details - Data Import

Real World Entities	Field Name	Opt.	Value Constraints
Event	EventID	M	EV (110107, DCM, "Import")
	EventActionCode	M	EV C = Create
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00

	EventOutcomeIndicator	M	EV 0 = Success
			     4 = Minor failure
			     8 = Serious failure
			     12 = Major failure

	EventTypeCode	U	not specialized
Active Participant: User or Process Importing the data (1)	UserID	M	The AE Title of Destination Device
	UserIDTypeCode	U	EV (110119, DCM, "Station AE Title")
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	M	EV (110152, DCM, "Destination Role ID")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of the destination
Active Participant: Source Media (1)	UserID	M	The alias name for the destination media
	UserIDTypeCode	U	EV (113877, DCM, "Device Name")
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	M	EV (110155, DCM, "Source Media")

	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name
			     2 = IP Address
			     5 = URI (user directory, HTTP-PUT, ftp, etc.)
			when Media Type is 110037

	NetworkAccessPointID	MC	Host name or IP address of the destination when Media Type is 110037
	MediaIdentifier	M	Volume ID, URI, or other identifier for media when Media Type is 10030, 110032, 110033 and 110035
	MediaType	M	EV (110030, DCM, "USB Disk Emulation") EV (110032, DCM, "CD") EV (110033, DCM, "DVD") EV (110035, DCM, "Multi-media Card") EV (110037, DCM, "URI")
Active Participant: Source (1..n)	UserID	M	The person and application to export the data.
	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")

Real World Entities	Field Name	Opt.	Value Constraints
	AlternativeUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	M	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	MC	Host name or IP address of this product
Participating Object: Studies (0..N)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	M	EV 3 = report
	ParticipantObjectDataLifeCycle	U	EV 2 = Import or Copy from original
	ParticipantObjectIDTypeCode	M	EV (110180, DCM, "Study Instance UID")
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The Study Instance UID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	Not specialized
	ParticipantObjectDescription	U	not specialized
	SOPClass	MC	The SOP Class UID
	Accession	U	Accession Number
	NumberOfInstances	U	Instance Number
	Instances	U	not specialized
	Encrypted	U	True when the operation is in the secure transport connection, else False
	Anonymized	U	True when the operation is in the Anonymized context, else False
Participating Object: Patients (1..N)	ParticipantObjectTypeCode	M	EV 1 = person
	ParticipantObjectTypeCodeRole	M	EV 1 = patient
	ParticipantObjectDataLifeCycle	U	EV 2 = Import or Copy from original
	ParticipantObjectIDTypeCode	M	EV 2 = patient ID
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The patient ID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
Audit Source	AuditSourceID	M	Host name of this product

Real World Entities	Field Name	Opt.	Value Constraints
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument

Table C-6 Audit Message Details - DICOM Instances Accessed

Real World Entities	Field Name	Opt.	Value Constraints
Event	EventID	M	EV (110103, DCM, "DICOM Instances Accessed")
	EventActionCode	M	EV C = create R = read U = update D = delete
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	U	not specialized
Active Participant: Person and or Process manipulating the data (1..2)	UserID	M	The person and application to correct the PHI
	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternativeUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	U	EV (110151, DCM, "Application Launcher") EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Participating Object: Studies (1..N)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	M	EV 3 = report
	ParticipantObjectDataLifeCycle	U	EV 6 = Access or Use 14 = Logical Deletion 15 = Permanent erasure or physical destruction
	ParticipantObjectIDTypeCode	M	EV (110180, DCM, "Study Instance UID")
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The Study Instance UID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	Not specialized
	ParticipantObjectDescription	U	Not specialized

Real World Entities	Field Name	Opt.	Value Constraints
	SOPClass	MC	Not specialized
	Accession	U	not specialized
	NumberOfInstances	U	not specialized
	Instances	U	not specialized
	Encrypted	U	False
	Anonymized	U	False
Participating Object: Patient (1)	ParticipantObjectTypeCode	M	EV 1 = person
	ParticipantObjectTypeCodeRole	M	EV 1 = patient
	ParticipantObjectDataLifeCycle	U	EV 6 = Access or Use 14 = Logical Deletion 15 = Permanent erasure or physical destruction
	ParticipantObjectIDTypeCode	M	EV 2 = patient ID
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The patient ID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument

Table C-7 Audit Message Details - DICOM Instances Transferred

Real World Entities	Field Name	Opt.	Value Constraints
Event	EventID	M	EV (110104, DCM, "DICOM Instances Transferred")
	EventActionCode	M	EV C = create R = read U = update
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	U	not specialized
Active Participant: Process that sent the data (1)	UserID	M	not specialized
	AlternativeUserID	U	not specialized
	UserName	U	not specialized

Real World Entities	Field Name	Opt.	Value Constraints
	UserIsRequestor	M	not specialized
	RoleIDCode	M	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	U	not specialized
	NetworkAccessPointID	U	not specialized
Active Participant: The process that received the data. (1)	UserID	M	The AE Title of Destination Device
	UserIDTypeCode	U	EV (110119, DCM, "Station AE Title")
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	M	EV (110152, DCM, "Destination Role ID")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of the destination
Active Participant: Other participants that are known, especially third parties that are the requestor (1..N)	UserID	M	The person and application to handle the data.
	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternativeUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	U	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Participating Object: Studies being transferred (1..N)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	M	EV 3 = report
	ParticipantObjectDataLifeCycle	U	EV 2 = Import or Copy from original
	ParticipantObjectIDTypeCode	M	EV (110180, DCM, "Study Instance UID")
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The Study Instance UID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	Not specialized
	ParticipantObjectDescription	U	Not specialized
	SOPClass	MC	not specialized
	Accession	U	not specialized
	NumberOfInstances	U	not specialized

Real World Entities	Field Name	Opt.	Value Constraints
	Instances	U	not specialized
	Encrypted	U	True when the operation is in the secure transport connection, else False
	Anonymized	U	False
Participating Object: Patient (1)	ParticipantObjectTypeCode	M	EV 1 = person
	ParticipantObjectTypeCodeRole	M	EV 1 = patient
	ParticipantObjectDataLifeCycle	U	2 = Import or Copy from original
	ParticipantObjectIDTypeCode	M	EV 2 = patient ID
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The patient ID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument

Table C-8 Audit Message Details - Query

Real World Entities	Field Name	Opt.	Value Constraints
Event	EventID	M	EV (110112, DCM, "Query")
	EventActionCode	M	EV E = Execute
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	U	not specialized
Active Participant: Process Issuing the Query (1)	UserID	M	The AE Title of requesting query
	UserIDTypeCode	U	EV (110119, DCM, "Station AE Title")
	AlternativeUserID	U	Process ID of the requesting application if it is in this product
	UserName	U	not specialized
	UserIsRequestor	M	Ture
	RoleIDCode	M	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of the requesting application

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Real World Entities	Field Name	Opt.	Value Constraints
Active Participant: The process that will respond to the query (1)	UserID	M	The AE Title of replying query
	UserIDTypeCode	U	EV (110119, DCM, "Station AE Title")
	AlternativeUserID	U	Process ID of the replying application if it is in this product
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	M	EV (110152, DCM, "Destination Role ID")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of the replying application
Active Participant: Other Participants that are known, especially third parties that requested the query (0..1)	UserID	M	The person and application to request the query
	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternativeUserID	U	Process ID of the requesting application if it is in this product
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	U	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of the requesting application
Participating Object: SOP Queried and the Query (1)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	M	EV 3 = report
	ParticipantObjectDataLifeCycle	U	EV 2 = Import or Copy from original
	ParticipantObjectIDTypeCode	M	DT (110181, DCM, "SOP Class UID")
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The UID of the SOP Class being queried
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	M	The ascii dump of the DICOM query in xs:base64Binary encoded.
	ParticipantObjectDetail	MC	not specialized as ParticipantObjectQuery keeps the ascii dump
	ParticipantObjectDescription	U	not specialized
	SOPClass	U	not specialized
	Accession	U	not specialized
	NumberOfInstances	U	not specialized
	Instances	U	not specialized

Real World Entities	Field Name	Opt.	Value Constraints
	Encrypted	U	True when the operation is in the secure transport connection, else False
	Anonymized	U	False
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument

Table C-9 Audit Message Details - Security Alert: Authentication

Real World Entities	Field Name	Opt.	Value Constraints
Event	EventID	M	EV (110113, DCM, "Security Alert")
	EventActionCode	M	EV E = Execute
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure
	EventTypeCode	M	DT (110126, DCM, "Node Authentication") DT (110122, DCM, "LogIn")
Active Participant: Reporting Person and/or Process (1..2)	UserID	M	The person and application to perform the local logon or node authentication
	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternativeUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	M	False when the node authentication in the SCP context. Otherwise True.
	RoleIDCode	U	EV (110151, DCM, "Application Launcher") EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Active Participant: Performing Persons or Processes (0)	UserID	M	not specialized
	UserIDTypeCode	U	not specialized
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	U	not specialized
	NetworkAccessPointTypeCode	U	not specialized
	NetworkAccessPointID	U	not specialized
Participating Object: Alert Subject (0..N)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	U	EV 13 = security resource

Real World Entities	Field Name	Opt.	Value Constraints
	ParticipantObjectDataLifeCycle	U	4 = Verification
	ParticipantObjectIDTypeCode	M	DT(110182, DCM, "Node ID")
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	node_name@domain_name or an IP address of the node authentication problem username@hostname or IP address of this product of the local log on problem.
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	M	type=Alert Description value=<Base-64 encoded authentication problem>
	ParticipantObjectDescription	U	not specialized
	SOPClass	U	not specialized
	Accession	U	not specialized
	NumberOfInstances	U	not specialized
	Instances	U	not specialized
	Encrypted	U	False
	Anonymized	U	False
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument

Table C-10 Audit Message Details - Security Alert: Configuration update

Real World Entities	Field Name	Opt.	Value Constraints
Event	EventID	M	EV (110113, DCM, "Security Alert")
	EventActionCode	M	EV E = Execute
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	M	DT (110128, DCM, "Network Configuration") DT (110129, DCM, "Security Configuration") DT (110130, DCM, "Hardware Configuration") DT (110131, DCM, "Software Configuration")
Active Participant: Reporting Person and/or Process (1..2)	UserID	M	The AE Titles of this product or the configuration application name
	UserIDTypeCode	U	EV (110119, DCM, "Station AE Title") EV (110150, DCM, "Application")
	AlternativeUserID	MC	Process ID of the security application

Real World Entities	Field Name	Opt.	Value Constraints
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	M	EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name
	NetworkAccessPointID	U	Host name of this product
Active Participant: Performing Persons or Processes (0..1)	UserID	M	The person to configure the security settings
	UserIDTypeCode	U	EV (113871, DCM, "Person ID")
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	M	EV (110151, DCM, "Application Launcher")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name
	NetworkAccessPointID	U	Host name of this product
Participating Object: Alert Subject (0..N)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	U	EV 13 = security resource
	ParticipantObjectDataLifeCycle	U	EV 1 = C (Create) 3 = U (Update) 6 = R (Read/View/Print/Query Display or print data) or 6 = E (Perform a system or application function such as log-on, program execution, or use of an object's method) 14 = D (Delete)
	ParticipantObjectIDTypeCode	M	EV (110182, DCM, "Node ID")
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	IP address.of this product
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	M	type=Alert Description value=<Base-64 encoded configuration changes>
	ParticipantObjectDescription	U	not specialized
	SOPClass	U	not specialized
	Accession	U	not specialized
	NumberOfInstances	U	not specialized
	Instances	U	not specialized
	Encrypted	U	False
	Anonymized	U	False

Real World Entities	Field Name	Opt.	Value Constraints
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument

Table C-11 Audit Message Details - User Authentication

Real World Entities	Field Name	Opt.	Value Constraints
Event	EventID	M	EV (110114, DCM, "User Authentication")
	EventActionCode	M	EV E = Execute
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success
	EventTypeCode	M	EV (110122, DCM, "Login") EV (110123, DCM, "Logout")
Active Participant: Person Authenticated or claimed (1)	UserID	M	User name of logged in user
	UserIDTypeCode	U	EV (113871, DCM, "Person ID")
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	U	EV (110151, DCM, "Application Launcher")
	NetworkAccessPointTypeCode	M	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	M	Host name or IP address of this product
Active Participant: Node or System performing authentication (1)	UserID	M	The security application role name to handle Login and Logout
	UserIDTypeCode	U	EV (110150, DCM, "Application")
	AlternativeUserID	U	Process ID of the security application
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	U	EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	Host name of this product
	NetworkAccessPointID	U	1 = Machine Name, including DNS name
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument

Table C-12 Audit Message Details - Order Record

Real World Entities	Field Name	Opt.	Value Constraints
Event	EventID	M	EV (110109, DCM, "Order Record")
	EventActionCode	M	EV C = create R = read U = update D = delete
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	U	not specialized
User (1..2)	UserID	M	The person and application to store the PHI
	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternateUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	U	True
	RoleIDCode	U	EV (110151, DCM, "Application Launcher") EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Patient (1)	ParticipantObjectTypeCode	M	EV 1 = person
	ParticipantObjectTypeCodeRole	M	EV 1 = patient
	ParticipantObjectDataLifeCycle	U	EV 1 = Origination, Creation 6 = Access or Use 14 = Logical Deletion
	ParticipantObjectIDTypeCode	M	EV 2 = patient ID
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The patient ID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument

Table C-13 Audit Message Details - Patient Record

Real World Entities	Field Name	Opt.	Value Constraints
Event	EventID	M	EV (110110, DCM, "Patient Record")
	EventActionCode	M	EV C = create
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00

	EventOutcomeIndicator	M	EV 0 = Success
			        4 = Minor failure
			        8 = Serious failure
			        12 = Major failure

	EventTypeCode	U	not specialized
User (1..2)	UserID	M	The person and application to store the PHI
	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternateUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	U	True
	RoleIDCode	U	EV (110151, DCM, "Application Launcher") EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Patient (1)	ParticipantObjectTypeCode	M	EV 1 = person
	ParticipantObjectTypeCodeRole	M	EV 1 = patient
	ParticipantObjectDataLifeCycle	U	EV 1 = Origination, Creation
	ParticipantObjectIDTypeCode	M	EV 2 = patient ID
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The patient ID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument

C.2.3 Audit Trail Message Transmission Profile - SYSLOG - TLS

See Section 6.6 Audit Trail Syslog Configuration for information about Syslog-TLS parameters.

C.2.4 Audit Trail Message Transmission Profile - SYSLOG - UDP

See Section 6.6 Audit Trail Syslog Configuration for information about Syslog-UDP parameters.

C.2.5 Secure Transport Connection Details

This product does not support TLS 1.3.

Table C-14 lists the secure transport connection profiles and cipher suites supported for TLS 1.2:

Table C-14 Secure Transport Connection Profiles and Cipher Suites

Protocol	Cipher Suite	Default Preference Order (from 1=preferred to n=less preferred)
BCP195 TLS Secure Transport Connection (TLS 1.2)	TLS_ECDHE_ECDSA_WITH_CHACHA20_POLY1305_SHA256	
	TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256	
	TLS_DHE_RSA_WITH_CHACHA20_POLY1305_SHA256	
	TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384	
	TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384	
	TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384	
	TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA384	
	TLS_DHE_DSS_WITH_AES_256_GCM_SHA384	
	TLS_DHE_RSA_WITH_AES_256_GCM_SHA384	
	TLS_DHE_RSA_WITH_AES_256_CBC_SHA256	
	TLS_DHE_DSS_WITH_AES_256_CBC_SHA256	
	TLS_DH_anon_WITH_AES_256_GCM_SHA384	
	TLS_DH_anon_WITH_AES_256_CBC_SHA256	
	TLS_RSA_WITH_AES_256_GCM_SHA384	
	TLS_RSA_WITH_AES_256_CBC_SHA256	
	TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256	
	TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256	
	TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256	
	TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256	
	TLS_DHE_DSS_WITH_AES_128_GCM_SHA256	
	TLS_DHE_RSA_WITH_AES_128_GCM_SHA256	
	TLS_DHE_RSA_WITH_AES_128_CBC_SHA256	
	TLS_DHE_DSS_WITH_AES_128_CBC_SHA256	
	TLS_RSA_WITH_CAMELLIA_256_CBC_SHA256	
	TLS_DHE_RSA_WITH_CAMELLIA_256_CBC_SHA256	
	TLS_DHE_DSS_WITH_CAMELLIA_256_CBC_SHA256	
	TLS_DHE_RSA_WITH_CAMELLIA_128_CBC_SHA256	
	TLS_DHE_DSS_WITH_CAMELLIA_128_CBC_SHA256	
	TLS_DH_anon_WITH_AES_128_GCM_SHA256	
	TLS_DH_anon_WITH_AES_128_CBC_SHA256	
	TLS_DH_anon_WITH_CAMELLIA_128_CBC_SHA256	
	TLS_RSA_WITH_AES_128_GCM_SHA256	
	TLS_RSA_WITH_AES_128_CBC_SHA256	
	TLS_RSA_WITH_CAMELLIA_128_CBC_SHA256	
	TLS_RSA_WITH_NULL_SHA256	
	TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384	

Non-Downgrading BCP195 TLS Secure Transport Connection	TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384	
	TLS_DHE_RSA_WITH_AES_256_GCM_SHA384	
	TLS_DHE_RSA_WITH_AES_256_CBC_SHA256	
	TLS_DHE_DSS_WITH_AES_256_CBC_SHA256	
	TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256	
	TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256	
	TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256	
	TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256	
	TLS_DHE_RSA_WITH_AES_128_GCM_SHA256	
	TLS_DHE_RSA_WITH_AES_128_CBC_SHA256	
	TLS_DHE_DSS_WITH_AES_128_CBC_SHA256	
	TLS_RSA_WITH_AES_128_CBC_SHA256	

Table C-15 describes the configurable parameters and behaviors supported by this product for the Secure Transport Connection:

Table C-15 Secure Transport Connection Configuration

Local Secure Transport Connection Configuration			
Parameter/Behavior	**Configurable**	**Default Value**	**Comments**
Common Secure Transport Connection parameters			
Port	See Section 6 Configuration		
A-P-ABORT provider reason in case of integrity check failure			
…	…		
Remote Secure Transport Connection Configuration Parameters			
Parameter	Configurable	Default Value	Comments
Common Secure Transport Connection Parameters			
See Section 6 Configuration			

C.2.6 Attribute Confidentiality Details

Table C-16 provides the list of Attributes and the action when de-identifying instances. Supported Action Codes are defined in PS 3.15 Section E.1.

- D: replace with a non-zero length Value that may be a dummy Value and consistent with the VR

- Z: replace with a zero-length Value, or a non-zero length Value that may be a dummy Value and consistent with the VR

- X: remove

- K: keep (unchanged for non-sequence Attributes, cleaned for sequences)

- C: clean, that is replace with Values of similar meaning known not to contain identifying information and consistent with the VR

- U: replace with a non-zero length UID that is internally consistent within a set of Instances

- Z/D: Z unless D is required to maintain IOD conformance (Type 2 versus Type 1)

- X/Z: X unless Z is required to maintain IOD conformance (Type 3 versus Type 2)

- X/D: X unless D is required to maintain IOD conformance (Type 3 versus Type 1)

- X/Z/D: X unless Z or D is required to maintain IOD conformance (Type 3 versus Type 2 versus Type 1)

- X/Z/U*: X unless Z or replacement of contained instance UIDs (U) is required to maintain IOD conformance (Type 3 versus Type 2 versus Type 1 sequences containing UID references)

Table C-16 De-identified Elements and Actions

Attribute Name	Tag	Action	Encrypted	Comments
Basic Profile Option				
SOP Instance UID	(0008,0018)	U	N	e.g."1.2.392.200036.9116...."
Accession Number	(0008,0050)	Z	N	
Institution Name	(0008,0080)	D	N	e.g."InstitutionName"
Institution Address	(0008,0081)	Z	N	
Referring Physician's Name	(0008,0090)	Z	N	
Station Name	(0008,1010)	Z	N	
Study Description	(0008,1030)	Z	N	
Series Description	(0008,103e)	Z	N	
Institutional Department Name	(0008,1040)	Z	N	
Physician(s) of Record	(0008,1048)	Z	N	
Performing Physician's Name	(0008,1050)	Z	N	
Name of Physician(s) Reading Study	(0008,1060)	Z	N	
Operators' Name	(0008,1070)	Z	N	
Admitting Diagnoses Description	(0008,1080)	Z	N	
Patient's Name	(0010,0010)	D	N	e.g."LastName_20240613180418^FirstName_20240613180418"
Patient ID	(0010,0020)	D	N	e.g."ID_20240613180418"
Patient's Birth Date	(0010,0030)	D	N	e.g."20240613"
Patient's Sex	(0010,0040)	D	N	e.g."O"
Other Patient IDs	(0010,1000)	Z	N	
Other Patient Names	(0010,1001)	Z	N	
Patient's Age	(0010,1010)	Z	N	
Patient's Size	(0010,1020)	Z	N	
Patient's Weight	(0010,1030)	Z	N	
Ethnic Group	(0010,2160)	Z	N	
Occupation	(0010,2180)	Z	N	
Additional Patient History	(0010,21b0)	Z	N	
Patient Comments	(0010,4000)	Z	N	
Device Serial Number	(0018,1000)	Z	N	
Protocol Name	(0018,1030)	Z	N	
Study Instance UID	(0020,000d)	U	N	e.g."1.2.392.200036.9116...."
Series Instance UID	(0020,000e)	U	N	e.g."1.2.392.200036.9116...."
Study ID	(0020,0010)	D	N	e.g."9372"
Image Comments	(0020,4000)	Z	N	
Requested Procedure Code Sequence	(0032,1064)			
>Code Value	(0008,0100)	D	N	e.g."PCSQValue"
>Coding Scheme Designator	(0008,0102)	D	N	e.g."UNKNOWN"
>Code Meaning	(0008,0104)	D	N	e.g."PCSQMeaning"

C.2.7 Digital Signature Details – N/A

N/A

C.2.8 Additional DICOM Security Profile Details - N/A

N/A

D Mapping of Attributes

D.1   Mapping Between Modality Worklist Instances and MPPS

Table D-1 describes the mapping of Attributes between Modality Worklist Instances and MPPS messages.

In the "Scenario" column the following Values are used:

- SCHEDULED: The image acquisition was scheduled at the RIS and procedure details have been communicated in the MWL query)

- UNSCHEDULED: The image acquisition was performed without Modality Worklist information

- APPEND: Instances acquired are added to an existing study after the initial procedure was finalized

- GROUP: Multiple requested procedures are grouped into one study.

In the "Value Source" columns, the following Values are used. The column cell may additionally contain an Attribute Tag if the value is copied from a different Attribute.

- GENERATED: The Value is generated by the system.

- SRC_INSTANCE: The Value is copied from previously created instances.

- MWL: The Value is copied from a Modality Worklist entry.

- USER: The Value is entered by the user.

- SCANNED: The Value is read from a barcode scanner or similar device.

- EMPTY: The Attribute is sent with a zero-length Value.

The "Destination" columns either contain TOP, if the Attribute is added to the top level Data Set of the Instance, or contain the Attribute Tag of the Sequence the Attribute will be added to. The "Comments" column can be used to provide additional information regarding the Values added to the Instance or MPPS.

Table D-1 Mapping of Attributes from Modality Worklist to Instance and MPPS

Attribute Name in Image/MPPS	Tag	Scenario	Image		MPPS		Comments
			Value Source	Destination	Value Source	Destination	
Study Instance UID	(0020,000D)	SCHEDULED	MWL	TOP	SRC_INSTANCE	(0040,0270)	
		UNSCHEDULED	GENERATED	TOP	SRC_INSTANCE	(0040,0270)	
		APPEND					
		GROUP					
Referenced Study Sequence	(0008,1110)	SCHEDULED	MWL	TOP	SRC_INSTANCE	(0040,0270)	
		UNSCHEDULED			EMPTY	(0040,0270)	
		APPEND					
		GROUP					
Accession Number	(0008,0050)	SCHEDULED	MWL	TOP	SRC_INSTANCE	(0040,0270)	
		UNSCHEDULED	GENERATED	TOP	EMPTY	(0040,0270)	
		APPEND					

Attribute Name in Image/MPPS	Tag	Scenario	Image		MPPS		Comments
			Value Source	Destination	Value Source	Destination	
		GROUP					
Requested Procedure Description	(0032,1060)	SCHEDULED	MWL	TOP	SRC_INSTANCE	(0040,0270)	
		UNSCHEDULED			EMPTY	(0040,0270)	
		APPEND					
		GROUP					
Requested Procedure ID	(0040,1001)	SCHEDULED	MWL	(0040,0275)	SRC_INSTANCE	(0040,0270)	(
		UNSCHEDULED			EMPTY	(0040,0270)	
		APPEND					
		GROUP					
Scheduled Procedure Step ID	(0040,0009)	SCHEDULED	MWL	(0040,0275)	SRC_INSTANCE	(0040,0270)	
		UNSCHEDULED			EMPTY	(0040,0270)	
		APPEND					
		GROUP					
Scheduled Procedure Step Description	(0040,0007)	SCHEDULED	MWL	(0040,0275)	SRC_INSTANCE	(0040,0270)	
		UNSCHEDULED			EMPTY	(0040,0270)	
		APPEND					
		GROUP					
Scheduled Protocol Code Sequence	(0040,0008)	SCHEDULED	MWL	(0040,0275)	SRC_INSTANCE	(0040,0270)	
		UNSCHEDULED			EMPTY	(0040,0270)	
		APPEND					
		GROUP					
Performed Protocol Code Sequence	(0040,0260)	SCHEDULED	GENERATED	TOP	SRC_INSTANCE	TOP	
		UNSCHEDULED			EMPTY	TOP	
		APPEND					
		GROUP					
Study ID	(0020,0010)	SCHEDULED	MWL (0040,1001)	TOP	SRC_INSTANCE	TOP	
		UNSCHEDULED	GENERATED	TOP	SRC_INSTANCE	TOP	
		APPEND					
Performed Procedure Step ID	(0040,0253)	SCHEDULED	GENERATED	TOP	SRC_INSTANCE	TOP	
		UNSCHEDULED	EMPTY	TOP			
		APPEND					
		GROUP					
Performed Procedure Step Start Date	(0040,0244)	SCHEDULED	GENERATED	TOP	SRC_INSTANCE	TOP	
		UNSCHEDULED			GENERATED	TOP	
		APPEND					
		GROUP					

Attribute Name in Image/MPPS	Tag	Scenario	Image		MPPS		Comments
			Value Source	Destination	Value Source	Destination	
Performed Procedure Step Start Time	(0040,0245)	SCHEDULED			GENERATED	TOP	
		UNSCHEDULED					
		APPEND					
		GROUP					
Performed Procedure Step Description	(0040,0254)	SCHEDULED	MWL(0040,0007)	TOP	SRC_INSTANCE	TOP	
		UNSCHEDULED			EMPTY	TOP	
		APPEND					
		GROUP					
Requested Procedure Code Sequence	(0032,1064)	SCHEDULED					
		UNSCHEDULED					
		APPEND					
		GROUP					
Procedure Code Sequence	(0008,1032)	SCHEDULED	MWL(0032,1064)	TOP	SRC_INSTANCE	TOP	
		UNSCHEDULED			EMPTY	TOP	
		APPEND					
		GROUP					
Scheduled Performing Physician's Name	(0040,0006)	SCHEDULED					
		UNSCHEDULED					
		APPEND					
		GROUP					
Performing Physician's Name	(0008,1050)	SCHEDULED	MWL(0040,0006)	TOP	SRC_INSTANCE	(0040,0340)	
		UNSCHEDULED			EMPTY	(0040,0340)	
		APPEND					
		GROUP					
Protocol Name	(0018,1030)	SCHEDULED	GENERATED	TOP	SRC_INSTANCE	(0040,0340)	
		UNSCHEDULED	GENERATED	TOP	SRC_INSTANCE	(0040,0340)	
		APPEND					
		GROUP					

E Code Set Usage – N/A

N/A