HITACHI
Inspire the Next

DICOM Conformance Statement

SCENARIA

Hitachi, Ltd.
Tokyo, Japan

E1E-HC0002-01

© Hitachi, Ltd. 2016. All rights reserved.

DM 110181 v1

History

Revision	Description	Date
Rev. 1.0	Initial.	2016/04/01

Contents

1. Introduction

This chapter describes general information about the purpose, scope, and contents of the DICOM Conformance Statement.

1.1 Scope of Application

This DICOM Conformance Statement describes data exchange method with Hitachi CT system SCENARIA according to the DICOM Standard.

This document provides technical information about data exchange capability of the SCENARIA. The main contents describing the capability are: the Service Object Pair (SOP) Class being supported, Roles, Information Object Definition (IOD) and Transfer Syntaxes. This Conformance Statement should be read in conjunction with the DICOM Standard and its addenda.

1.2 Important Note to the Reader

This Conformance Statement by itself does not guarantees successful interoperability of the SCENARIA with other equipment. The user (or User's agent) are requested to pay full attention on the following points:

- Connection test
  When the SCENARIA is connected with other equipment, compare the relevant Conformance Statement at first. Additionally, the connection tests will be required to ensure the functionality, performance, accuracy and stability of image and image related data.
- Future Versions of the DICOM Standard
  The DICOM Standard will evolve in future to meet the user's growing requirements and to incorporate new features and technologies. The SCENARIA may be actively conformed to future version of the DICOM Standard. Accordingly, if other equipment having been connected with the SCENARIA does not conform to the new version of the DICOM Standard, the equipment connectability and compatibility with the SCENARIA may be lost.

1.3 General Acronyms and Abbreviations

The following acronyms and abbreviations are used in the document.

- AE Application Entity
- CD-R Compact Disk Recordable
- FSC File-Set Creator
- DICOM Digital Imaging and Communications in Medicine
- DIMSE DICOM Message Service Element
- IOD Information Object Definition
- LUT Look Up Table
- PDU Protocol Data Unit
- SCP Service Class Provider
- SCU Service Class User
- SOP Service Object Pair
- TCP/IP Transmission Control Protocol / Internet Protocol
- UID Unique Identifier

2. Implementation Model

In the Hitachi CT system SCENARIA, the application entity (AE) operates the functions of DICOM. The AE receives a command from the user interface and performs the DICOM services

2.1 Network

2.1.1 Application Flow Diagram

The SCENARIA can require to storage images held in the database to the specified remote system. Moreover, it can require printing images to the DICOM printer. To perform these functions, SCENARIA AE start association against the remote AE. The implementation model of the SCENARIA illustrated to in Fig. 2.1.1.

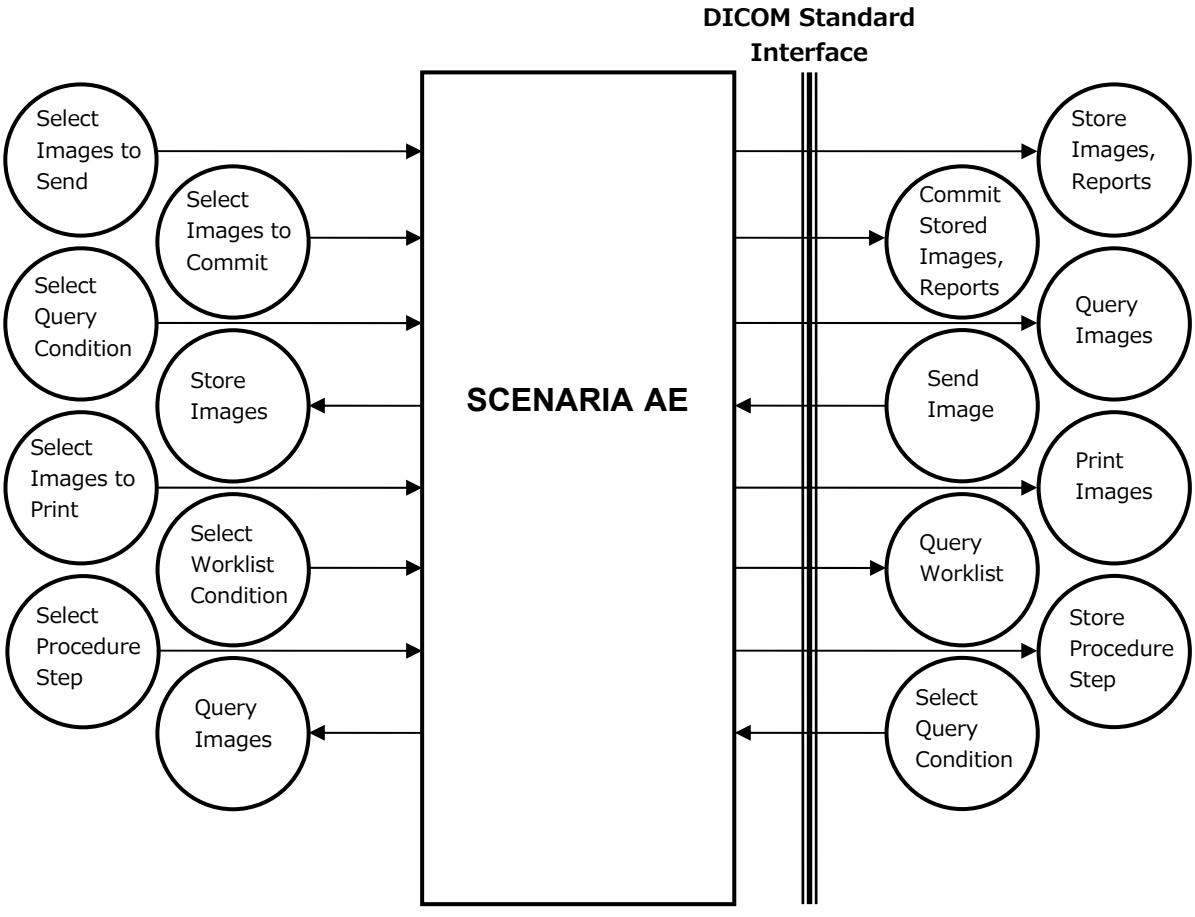

Fig. 2.1.1 SCENARIA Implementation Model

2.1.2 Function Definition of Application Entities (AE)

The SCENARIA AE acts as following Service Class User (SCU).

- Storage Service Class
- Storage Commitment Service Class
- Query/Retrieve Service Class
- Print Management Service Class
- Modality Worklist Management Service Class
- Modality Performed Procedure Step Service Class

The SCENARIA AE performs following operations as a Storage Service Class SCU. It starts an association against the remote AE to send images or structured reports. And then if it would be able to establish the association with remote AE, the SCENARIA AE transfers images or structured reports to the remote AE on the same association.

The SCENARIA AE performs following operations as a Storage Commitment Service Class SCU. It starts an association against the remote AE to send a Storage Commitment request for images or structured reports. And then if it would be able to establish the association with remote AE, the SCENARIA AE transfers a list of images or a list of structured reports to the remote AE on the same association.

The SCENARIA AE performs following operations as a Query/Retrieve Service Class SCU. It starts an association against the remote AE to query and retrieve images. And then if it would be able to establish the association with remote AE, the SCENARIA AE transfers images query conditions to the remote AE on the same association. When it retrieves image lists from remote AE, it displays them. And then SCENARIA AE transfers keys of image to move to the remote AE on the same association.

The SCENARIA AE performs following operations as a Print Management Service Class SCU. It starts an association against the remote AE to print images on films. And then if it would be able to establish the association with remote AE, the SCENARIA AE transfers film sheets to the remote AE on the same association.

The SCENARIA AE performs following operations as a Modality Worklist Management Service Class SCU. It starts an association against the remote AE to query worklists. And then if it would be able to establish the association with remote AE, the SCENARIA AE transfers worklist query conditions to the remote AE on the same association. When it retrieves worklists from remote AE, it displays them.

The SCENARIA AE performs following operations as a Modality Performed Procedure Step Service Class SCU. It starts an association against the remote AE to send work report. And then if it would be able to establish the association with remote AE, the SCENARIA AE transfers work report to the remote AE on the same association.

The SCENARIA AE acts as following Service Class Provider (SCP).

- Storage Service Class
- Query/Retrieve Service Class

The SCENARIA AE performs following operations as a Storage Service Class SCP. The remote AE starts an association, the SCENARIA AE negotiates. And then if it would be able to establish the association with remote AE, the SCENARIA AE receives images from the remote AE on the same association.

The SCENARIA AE performs following operations as a Query/Retrieve Service Class SCP. The remote AE starts an association, the SCENARIA AE negotiates. And then if it would be able to establish the association with remote AE, the SCENARIA AE finds the image according to the query condition from the remote AE and return that results to the remote AE on the same association. And then SCENARIA AE sends the result of sending images which match to the keys that remote AE specified to remote AE on the same association.

2.1.3 Sequencing of Real World Activities

Not applicable.

2.2 Media Interchange

2.2.1 Application Data Flow Diagram

SCENARIA AE is implemented that creates 120mm CD-R.
The implementation model of the SCENARIA illustrated to in Fig. 2.2.1.

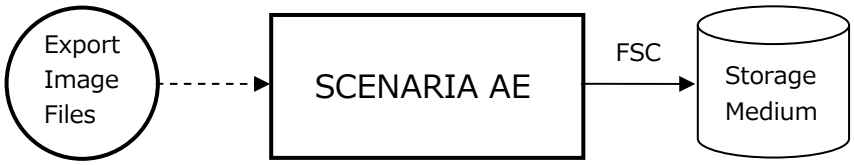

Fig. 2.2.1 SCENARIA Implementation Model

2.2.2 Function Definition of Application Entities (AE)

SCENARIA AE creates a new DICOM File-set(DICOMDIR and DICOM Images) on new media.

2.2.3 Sequencing of Real World Activities

Not applicable.

2.2.4 File Meta Information Options

Implementation Class UID is: 1.2.392.200036.9123.100.11.12.3
Implementation Class Version is: HMC_CT_351

3. AE Specifications

It writes clearly about the SCENARIA AE specifications of the Hitachi CT system SCENARIA. The SCENARIA AE provides standard conformance to DICOM SOP class shown in Table 3.1.1 as an SCU and DICOM SOP class shown in Table 3.1.2 as an SCP.

Table 3.1.1 Supported SOP Classes by the SCENARIA AE as SCU

SOP Class Name	SOP Class UID
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9
> Basic Film Session SOP Class	1.2.840.10008.5.1.1.1
> Basic Film Box SOP Class	1.2.840.10008.5.1.1.2
> Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4
> Printer SOP Class	1.2.840.10008.5.1.1.16
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18
> Basic Film Session SOP Class	1.2.840.10008.5.1.1.1
> Basic Film Box SOP Class	1.2.840.10008.5.1.1.2
> Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1
> Printer SOP Class	1.2.840.10008.5.1.1.16
Basic Annotation Box SOP Class	1.2.840.10008.5.1.1.15
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31
Modality Performed Procedure Step SOP Class	1.2.840.10008.3.1.2.3.3
X-Ray Radiation Dose SR	1.2.840.10008.5.1.4.1.1.88.67

Table 3.1.2 Supported SOP Classes by the SCENARIA AE as SCP

SOP Class Name	SOP Class UID
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2

3.1 Association Establishment Policies

3.1.1 General

On an association that the SCENARIA AE starts, the maximum PDU size is 28 kbytes. Moreover, it does not support SOP class extended negotiation.

3.1.2 Number of Associations

Number of association to be established by the SCENARIA AE at a time is maximum 5.

3.1.3 Asynchronous Nature

The SCENARIA AE does not support asynchronous operations.

3.1.4 Implementation Identifying Information

Implementation Class UID is: 1.2.392.200036.9123.100.11.12.3
Implementation Class Version is: HMC_CT_351

3.2 Association Initiation by Real-World Activity

3.2.1 Image Transfer and Receive

The SCENARIA AE starts an association in case a user performs the image transfer (image storage) operation or the structured report transfer (SR storage) operation. Also, the SCENARIA AE starts an association to receive images in case the remote AE requests to transfer images to the SCENARIA AE.

3.2.1.1 Associated Real-World Activity

The operator can choose images from the database of the SCENARIA and can transfer the copy or the structured report to other databases.
The SCENARIA AE starts an association to the remote AE for every patient. And then it transfers a C-STORE request using the established association. And then the association is released after transmission the all images or the structured report finish.
The SCENARIA AE can receive images from the remote AE and register them to the database of the SCENARIA. However, it will be able to receive only Presto's, ECLOS's and SCENARIA's images.
The SCENARIA AE negotiates when the remote AE starts an association. And then the remote AE transfers a C-STORE request using the established association, the SCENARIA AE transfers a C-STORE response against the remote AE.

3.2.1.2 Proposed Presentation Context

The SCENARIA AE proposes the following table 3.2.1.2.a presentation contexts.

Table 3.2.1.2.a Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU/ SCP	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU/ SCP	None
X-Ray Radiation Dose SR	1.2.840.10008.5.1.4.1.1.88 .67	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

3.2.1.3 SOP Specific Conformance for Storage SOP Class

The SCENARIA AE can perform one or more C-STORE operation in a single association.

If an association is established, the SCENARIA AE issues the C-STORE request and transfers the copy of images that exist in the local database or the structured report.

The SCENARIA AE carries out operation as shown at the following table 3.2.1.3.a by the status of the C-STORE response that received.

Table 3.2.1.3.a Operation of the SCENARIA AE for Every Status

Status	Operation
Success	The next C-STORE operation is started.
Refused	The C-STORE operation is ended, and the association is released.
Error	The C-STORE operation is ended, and the association is released.
Warning	The next C-STORE operation is started.

If an association is established and the SCENARIA AE receives the C-STORE request, the SCENARIA AE transfers the C-STORE response and register images which received to the local database.

The SCENARIA AE responds a status as shown at the following table 3.2.1.3.b.

Table 3.2.1.3.b Operation of the SCENARIA AE for Every Status

Status	Status Code	Reason
Success	0000	The SCENARIA AE succeeded to receive an image.
Refused	C000	The SCENARIA AE received an image other than ROBUSTO / ECLOS / SCENARIA.
Refused	C000	An image has invalid data element.
Error	A700	The SCENARIA AE failed to save an image.

3.2.2 Storage Commitment

The SCENARIA AE starts an association in case a user performs the storage commitment operation.

3.2.2.1 Associated Real-World Activity

The operator can choose images from the database of the SCENARIA and can transfer the images list or the structured reports list to other databases and confirm if those images or structured reports normally saved.

The SCENARIA AE starts an association to the remote AE for every patient. And then it transfers a N-ACTION request using the established association. And then the association is released after transmission the all images list or the all structured reports list finish. However, in case SCENARIA AE receives N-EVENT-REPORT request from remote AE on the same association, it does not release the association. In addition, SCENARIA AE can set up that if it receives N-EVENT-REPORT request on the same association.

When SCENARIA AE receives a storage commitment result from remote AE, it writes that the storage commitment was successful in the record of the database of the images or the structured reports whose result is success. SCENARIA AE does nothing to the images or the structured reports whose result is failure.

SCENARIA AE can set up the term of validity, which accepts the storage commitment result from remote AE on 1 - 99 days. The storage commitment information that passed the term of validity is automatically deleted from the database.

3.2.2.2 Proposed Presentation Context

The SCENARIA AE proposes the following table 3.2.2.2.a presentation contexts.

Table 3.2.2.2.a Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Storage Commitment	1.2.840.10008.1.20.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

3.2.2.3 SOP Specific Conformance for Storage Commitment SOP Class

The SCENARIA AE can perform only one N-ACTION operation in a single association. If an association is established, the SCENARIA AE issues the N-ACTION request and transfers the image lists that exist in the local database.

The SCENARIA AE carries out operation as shown at the following table 3.2.2.3.a by the status of the N-ACTION response that received.

Table 3.2.2.3.a Operation of the SCENARIA AE for Every Status

Status	Operation
Success	The association is released or it waits for N-EVENT-REPORT request.
Failed	The N-ACTION operation is ended, and the association is released.
Error	The N-ACTION operation is ended, and the association is released.

The SCENARIA AE can perform N-EVENT-REPORT operation. At this time, it has to be set either up in advance whether N-EVENT-REPORT operation is performed on the same association as N-ACTON operation or that is done on the different association.

SCENARIA AE transfers the N-EVENT-REPORT response to the remote AE after receives the N-EVENT-REPORT request. And then it release association immediately in case it performs N-EVENT-REPORT operation on the same association. SCENARIA AE waits for next message from remote AE in case it performs N-EVENT-REPORT operation on the different association.

3.2.3 Query/Retrieve

The SCENARIA AE starts an association in case a user performs the query/retrieve operation.

3.2.3.1 Associated Real-World Activity

The operator can configure the query conditions on the image query window of the SCENARIA and can transfer the query conditions to the image server. And then the SCENARIA receives the query results, he/she can select the images from them and move that images.

The SCENARIA AE starts an association to the remote AE for every image query. Next it transfers a C-FIND request using the established association. It transfers C-MOVE request using the established association after it receives all C-FIND responses. And then the association is released after a C-MOVE response received. The SCENARIA AE receives a find request from remote AE and can retrieve from the local database of SCENARIA. And also, the SCENARIA AE can transfer images which match the keys specified by remote AE, and then it can transfer the result of transferring images.

The SCENARIA AE negotiates when the remote AE starts an association. And then the remote AE transfers a C-FIND request using the established association, the SCENARIA AE retrieves the database according to the specified query condition and transfers a C-FIND response against the remote AE. And then the remote AE transfers a C-MOVE request using the established association, the SCENARIA AE transfers a C-MOVE response against the remote AE after it transferred images which match the specified keys.

3.2.3.2 Proposed Presentation Context

The SCENARIA AE proposes the following table 3.2.3.2.a presentation contexts.

Table 3.2.3.2.a Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU/SCP	None
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU/SCP	None
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU/SCP	None
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU/SCP	None

3.2.3.3 SOP Specific Conformance for Query/Retrieve SOP Class

The SCENARIA AE can perform one C-FIND/C-MOVE operation in a single association.

If the association is established, the SCENARIA AE issues the C-FIND request and transfers the image query conditions.

The SCENARIA AE carries out operation as shown at the following table 3.2.3.3.a by the status of the C-FIND response that received.

Table 3.2.3.3.a Operation of the SCENARIA AE for Every Status (C-FIND)

Status	Operation
Success	The next C-FIND/C-MOVE request is transferred.
Pending	The next C-FIND response is received.
Refused	The association is released.
Failed	The association is released.
Cancel	The association is released.

If the C-FIND operation succeeded, the SCENARIA AE issues the C-MOVE request and transfers a key in order to move images.

The SCENARIA AE carries out operation as shown at the following table 3.2.3.3.b by the status of the C-MOVE response that received.

Table 3.2.3.3.b Operation of the SCENARIA AE for Every Status (C-MOVE)

Status	Operation
Success	The association is released.
Pending	The next C-MOVE response is received.
Refused	The association is released.
Failed	The association is released.
Cancel	The association is released.
Warning	The next C-MOVE response is received.

If an association is established and the SCENARIA AE receives the C-FIND request, the SCENARIA AE issues the C-FIND response and transfers results of finding images.
The SCENARIA AE responds a status as shown at the following table 3.2.3.3.c.

Table 3.2.3.3.c Operation of the SCENARIA AE for Every Status

Status	Status Code	Reason
Success	0000	The SCENARIA AE succeeded to find images.
Pending	FF00	The SCENARIA AE is continuing to find images. It supports the all keys of query condition.
Pending	FF01	The SCENARIA AE is continuing to find images. It supports the part of the keys of query condition.
Cancel	FE00	The remote AE canceled to find images.
Refused	C000	The SCENARIA AE failed to find images.
Error	A700	The CT system started to scan.

If the SCENARIA AE receives the C-MOVE request, it issues the C-MOVE response and transfers a result of moving images.
The SCENARIA AE responds a status as shown at the following table 3.2.3.3.d.

Table 3.2.3.3.d Operation of the SCENARIA AE for Every Status

Status	Status Code	Reason
Success	0000	The SCENARIA AE succeeded to move images.
Cancel	FE00	The remote AE canceled to move images.
Refused	C000	The SCENARIA AE failed to move images.
Error	A701	The key of the move request is not corresponding to the key of finding results.
Error	A801	The move destination is not registered.
Warning	B000	Warnings occurred during moving images.

3.2.4 Image Print

The SCENARIA AE starts an association in case a user performs the image print operation.

3.2.4.1 Associated Real-World Activity

The operator can choose images on the viewer application of the SCENARIA and can transfer the film out put image to the print SCP.
The SCENARIA AE starts an association to the print for every image group printed on film one sheet. And then the association is released after transmission this image group finishes.

3.2.4.2 Proposed Presentation Context

The SCENARIA AE proposes the following table 3.2.4.2.a presentation contexts.

Table 3.2.4.2.a Proposed Presentation Context

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None
Basic Annotation Box SOP Class	1.2.840.10008.5.1.1.15	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

3.2.4.3 SOP Specific Conformance for Print SOP Class

When an association is established, the SCENARIA AE performs DIMSE services in order the following table 3.2.4.3.a for every film to print SCP. However, the order of this DIMSE services is not specified in the DICOM Standard.
Moreover, the SCENARIA AE does not support the N-EVENT-REPORT from the print SCP.

Table 3.2.4.3.a DIMSE Services which SCENARIA AE Applies

Order	DIMSE Services of SOP Class	Description
1	Printer SOP Class N-GET	Acquire the printer information.
2	Basic Film Session SOP Class N-CREATE	Request to the print SCP to create the instance of a film session.
3	Basic Film Box SOP Class N-CREATE	Request to the print SCP to create the instance of a film box.

Order	DIMSE Services of SOP Class	Description
4	Basic Grayscale Image Box SOP Class N-SET or Basic Color Image Box SOP Class N-SET	Request to the print SCP to set the image to be printed.
5	Basic Annotation Box SOP Class N-SET	Request to the print SCP to set annotations of film.
6	Basic Film Box SOP Class N-ACTION	Request to the print SCP to print the film box.
7	Basic Film Session SOP Class N-DELETE	Request to the print SCP to delete the instance of a film session.

The SCENARIA AE carries out the following operation by the status of the DIMSE service response.
In the DIMSE service response except N-GET, if the status is not a success, an association will be aborted.
In N-GET response, if the status is an error or the printer state has unusual status, an association will be aborted, if the printer state is warning, it will be indicated by the message on the screen and processing will be continued.

3.2.5 Modality Worklist Management

The SCENARIA AE starts an association in case a user performs the worklist query operation.

3.2.5.1 Associated Real-World Activity

The operator can configure the query conditions on the worklist query window of the SCENARIA and can transfer the query conditions to the worklist server.
The SCENARIA AE starts an association to the remote AE for every worklist query. And then it transfers a C-FIND request using the established association. And then the association is released after worklist query finish.

3.2.5.2 Proposed Presentation Context

The SCENARIA AE proposes the following table 3.2.5.2.a presentation contexts.

Table 3.2.5.2.a Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Woklist Information Model - FIND	1.2.840.10008.5.1.4.31	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

3.2.5.3 SOP Specific Conformance for Modality Worklist Management SOP Class

The SCENARIA AE can perform one C-FIND operation in a single association.
If an association is established, the SCENARIA AE issues the C-FIND and transfers the query conditions.
The SCENARIA AE carries out operation as shown at the following table 3.2.5.3.a by the status of the C-FIND response that received.

Table 3.2.5.3.a Operation of the SCENARIA AE for Every Status

Status	Operation
Success	The association is released.
Pending	The next C-FIND response is received.
Refused	The association is released.
Failed	The association is released.
Cancel	The association is released.

The SCENARIA AE supports the following table 3.2.5.3.b matching keys. In addition, the return keys that the SCENARIA AE supports are written in Annex.

Table 3.2.5.3.b Supported Matching Keys

Tag	Attribute Name	Type	User Configurable
(0040,0001)	Scheduled Station AE Title	R	Yes
(0040,0002)	Scheduled Procedure Step Start Date	R	Yes
(0008,0060)	Modality	R	-
(0010,0020)	Patient ID	R	Yes
(0008,0050)	Accession Number	O	Yes

3.2.6 Modality Performed Procedure Step

The SCENARIA AE starts an association in case a user sends the work report.

3.2.6.1 Associated Real-World Activity

The operator can input the information to be required on the work report-making window of the SCENARIA and can transfer the work report to the procedure step server.
The SCENARIA AE starts an association to the remote AE for every work report transmission. And then it transfers a N-CREATE request or N-SET request using the established association. And then the association is released after transmission of work report finish.

3.2.6.2 Proposed Presentation Context

The SCENARIA AE proposes the following table 3.2.6.2.a presentation contexts.

Table 3.2.6.2.a Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Performed Procedure Step SOP Class	1.2.840.10008.3.1.2.3.3	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

3.2.6.3 SOP Specific Conformance for Modality Performed Procedure Step SOP Class

The SCENARIA AE can perform one N-CREATE operation or N-SET operation in a single association.

If an association is established, the SCENARIA AE issues the N-CREATE or N-SET and transfers the query conditions.

The SCENARIA AE carries out operation as shown at the following table 3.2.6.3.a by the status of the N-CREATE response or N-SET response that received.

Table 3.2.6.3.a Operation of the SCENARIA AE for Every Status

Status	Operation
Success	The association is released.
Failed	The association is released.
Others	The association is released.

3.2.7 Media Interchange

SCENARIA AE provides standard conformance to the Media Storage Service Class. The Application Profiles and Roles shown in Table 3.2.7:

Table 3.2.7 Application Profiles, Activities and Roles for Offline-Media

Application Profiles Supported	Real World Activity	Role
STD-GEN-CD	Export Image Files	FSC

3.2.7.1 File Meta Information for the Application Entity

SCENARIA AE does not set the Source Application Entity Title.

3.2.7.2 Associated Real-World Activity

SCENARIA AE acts as FSC when requested to export image files from the local database to a media.

3.2.7.3 Media Storage Application Profile

SCENARIA AE supports the STD-GEN-CD Application Profile.

3.2.7.4 Options

SCENARIA AE supports the SOP Classes and Transfer Syntaxes shown in Table 3.2.7.4:

Table 3.2.7.4 IODS, SOP Classes and Transfer Syntaxes for Offline-Media

IOD	SOP Class UID	Transfer Syntax	Transfer Syntax UID
Media Storage Directory Storage	1.2.840.10008.1.3.10	Explicit VR Little Endian	1.2.840.10008.1.2.1
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Explicit VR Little Endian	1.2.840.10008.1.2.1

3.2.7.5 Augmented and Private Application Profile

Not applicable.

4. Communication Profiles

4.1 Supported Communication Stacks

The SCENARIA provides TCP/IP network communication support as defined in Part8 of the DICOM Standard.

4.2 TCP/IP Stack

The SCENARIA inherits its TCP/IP stack from the OS.

4.2.1 API

Not applicable.

4.2.2 Physical Media Support

Apply to the 10 BASE-T /100 BASE-TX / 1000 BASE-T Ethernet etc.

5. Extensions / Specializations / Privatizations

5.1 Standard Extensions / Specializations / Private SOP

5.1.1 Secondary Capture Image Storage SOP Class

The Secondary Capture Image Storage SOP Class is extended by addition of the attributes documented in Table 9.14 .

5.2 Private Transfer Syntax

Not applicable.

6. Configuration

6.1 AE Title / Presentation Address Mapping

The SCENARIA can configure or change the AE title of the local AE. Moreover, it can add, change and delete the AE title, host name, IP address and port number of the remote AE.

6.2 Configurable Parameters

The SCENARIA can configure the following parameters in addition to the information described to section 6.1.

- Transaction preservation period of storage commitment.
- Conditions for image matching keys (patient name, patient ID, exam date and time etc.)
- Information related to the film (film orientation and film size)
- Information related to the image edition (items contained in image, frame size, frame color, default image display format, etc.)
- Information related to the film annotation (format and display position)
- Conditions for worklist matching keys (patient ID and exam date, etc.)
- Information related to the work report (date, time, worklists, series, comments, dose, film etc.)

7. Support of Extended Character Sets

SCENARIA supports the following :

- Latin Alphabet No.1 (ISO 8859-1)

8. Annex A

All IODs to output are shown in the following tables in implementing Storage Service Class SCU (CT Image) in the SCENARIA AE. In addition, these IODs conform to the DICOM Standard Part3.

Table 8.1 Patient Module Attributes

Tag	Attribute Name	Type	Notes
(0010,0010)	Patient's Name	2	Value from user interface or RIS.
(0010,0020)	Patient ID	2	Value from user interface or RIS. Maximum 16 digits can be set.
(0010,0030)	Patient's Birth Date	2	Value from user interface or RIS.
(0010,0040)	Patient's Sex	2	"M", "F", "O"
(0008,1120)	Referenced Patient Sequence	3	Value from RIS.
(0008,1150)	> Referenced SOP Class UID	1C	Value from RIS.
(0008,1155)	> Referenced SOP Instance UID	1C	Value from RIS.
(0010,4000)	Patient Comments	3	Value from user interface or RIS. Maximum 128 bytes can be set.

Table 8.2 General Study Module Attributes

Tag	Attribute Name	Type	Notes
(0020,000D)	Study Instance UID	1	Generated for each study or value from RIS.
(0008,0020)	Study Date	2	Generated for each study.
(0008,0030)	Study Time	2	Generated for each study.
(0008,0090)	Referring Physician's Name	2	Value from user interface or RIS.
(0020,0010)	Study ID	2	Generated for each study.
(0008,0050)	Accession Number	2	Value from user interface or RIS.
(0008,1030)	Study Description	3	Value from user interface or RIS. Maximum 64 bytes can be set.
(0008,1060)	Name of Physician(s) Reading Study	3	Value from user interface.
(0008,1110)	Referenced Study Sequence	3	Value from RIS.
(0008,1150)	> Referenced SOP Class UID	1C	Value from RIS.
(0008,1155)	> Referenced SOP Instance UID	1C	Value from RIS.
(0008,1032)	Procedure Code Sequence	3	Value from user interface or RIS.
(0008,0100)	> Code Value	1C	Value from user interface or RIS.
(0008,0102)	> Coding Scheme Designator	1C	Value from user interface or RIS.
(0008,0103)	> Coding Scheme Version	1C	Value from user interface or RIS.
(0008,0104)	> Code Meaning	1C	Value from user interface or RIS.

Table 8.3 Patient Study Module Attributes

Tag	Attribute Name	Type	Notes
(0010,1010)	Patient's Age	3	Value from user interface or RIS.
(0010,1020)	Patient's Size	3	Zero length or value from user interface or RIS.
(0010,1030)	Patient's Weight	3	Zero length or value from user interface or RIS.

Table 8.4 General Series Module Attributes

Tag	Attribute Name	Type	Notes
(0008,0060)	Modality	1	"CT"
(0020,000E)	Series Instance UID	1	Generated for each series.
(0020,0011)	Series Number	2	Generated sequentially.
(0008,0021)	Series Date	3	Generated for each series.
(0008,0031)	Series Time	3	Generated for each series.
(0008,1050)	Performing Physician's Name	3	Value from user interface.
(0018,1030)	Protocol Name	3	Protocol number corresponds to the value from user interface.
(0008,103E)	Series Description	3	Value from user interface. Maximum 64 bytes can be set.
(0008,1070)	Operator's Name	3	Value from user interface.
(0008,1111)	Referenced Performed Procedure Step Sequence	3	Generated for each performed procedure step.
(0008,1150)	> Referenced SOP Class UID	1C	Generated for each performed procedure step.
(0008,1155)	> Referenced SOP Instance UID	1C	Generated for each performed procedure step.
(0018,0015)	Body Part Examined	3	Value from user interface.
(0018,5100)	Patient Position	2C	"HFS", "HFP", "HFDR", "HFDL", "FFS", "FFP", "FFDR", "FFDL"
(0040,0275)	Request Attributes Sequence	3	Value from RIS.
(0040,1001)	> Requested Procedure ID	1C	Value from RIS.
(0040,0009)	> Scheduled Procedure Step ID	1C	Value from RIS.
(0040,0007)	> Scheduled Procedure Step Description	3	Value from RIS.
(0040,0008)	> Scheduled Protocol Code Sequence	3	Value from RIS.
(0008,0100)	>> Code Value	1C	Value from RIS.
(0008,0102)	>> Coding Scheme Designator	1C	Value from RIS.
(0008,0103)	>> Coding Scheme Version	1C	Value from RIS.
(0008,0104)	>> Code Meaning	1C	Value from RIS.
(0040,0253)	Performed Procedure Step ID	3	Generated for each performed procedure step.
(0040,0244)	Performed Procedure Step Start Date	3	Generated for each performed procedure step.
(0040,0245)	Performed Procedure Step Start Time	3	Generated for each performed procedure step.
(0040,0254)	Performed Procedure Step Description	3	Generated for each performed procedure step.

Tag	Attribute Name	Type	Notes
(0040,0260)	Performed Protocol Code Sequence	3	Generated for each performed procedure step.
(0008,0100)	> Code Value	1C	Generated for each performed procedure step.
(0008,0102)	> Coding Scheme Designator	1C	Generated for each performed procedure step.
(0008,0103)	> Coding Scheme Version	1C	Generated for each performed procedure step.
(0008,0104)	> Code Meaning	1C	Generated for each performed procedure step.

Table 8.5 Frame Of Reference Module Attributes

Tag	Attribute Name	Type	Notes
(0020,0052)	Frame of Reference UID	1	
(0020,1040)	Position Reference Indicator	2	Zero length

Table 8.6 General Equipment Module Attributes

Tag	Attribute Name	Type	Notes
(0008,0070)	Manufacturer	2	"Hitachi Medical Corporation"
(0008,0080)	Institution Name	3	Value from user interface.
(0008,1010)	Station Name	3	Value from user interface.
(0008,1040)	Institutional Department Name	3	Value from user interface or RIS.
(0008,1090)	Manufacturer's Model Name	3	"SCENARIA"
(0018,1000)	Device Serial Number	3	Generated for each device.
(0018,1020)	Software Versions	3	"0005"

Table 8.7 General Image Module Attributes

Tag	Attribute Name	Type	Notes
(0020,0013)	Instance Number	2	Generated sequentially.
(0020,0020)	Patient Orientation	2C	If "OBL" scanogram: e.g. "LP\F" If gantry tilt: e.g. "R\PF" Others: e.g. "L\F"
(0008,0023)	Content Date	2C	Generated for each image.
(0008,0033)	Content Time	2C	Generated for each image.
(0008,0008)	Image Type	3	
(0020,0012)	Acquisition Number	3	Generated for each acquisition.
(0008,0022)	Acquisition Date	3	Generated for each acquisition.
(0008,0032)	Acquisition Time	3	Generated for each acquisition.
(0020,4000)	Image Comments	3	Value from user interface. Maximum 128 bytes can be set.

Table 8.8 Image Plane Module Attributes

Tag	Attribute Name	Type	Notes
(0028,0030)	Pixel Spacing	1	
(0020,0037)	Image Orientation (Patient)	1	
(0020,0032)	Image Position (Patient)	1	
(0018,0050)	Slice Thickness	2	Value from user interface.
(0020,1041)	Slice Location	3	

Table 8.9 Image Pixel Module Attributes

Tag	Attribute Name	Type	Notes
(0028,0002)	Samples per Pixel	1	1
(0028,0004)	Photometric Interpretation	1	"MONOCHROME2"
(0028,0010)	Rows	1	512
(0028,0011)	Columns	1	512
(0028,0100)	Bits Allocated	1	16
(0028,0101)	Bits Stored	1	12,13,16
(0028,0102)	High Bit	1	11,12,15
(0028,0103)	Pixel Representation	1	1
(7FE0,0010)	Pixel Data	1	

Table 8.10 Contrast / Bolus Module Attributes

Tag	Attribute Name	Type	Notes
(0018,0010)	Contrast/Bolus Agent	2	If contrast exam, value from user interface or RIS, or "CONT", and others zero length
(0018,1041)	Contrast/Bolus Volume	3	If contrast exam, value from user interface, and others zero length
(0018,1042)	Contrast/Bolus Start Time	3	If contrast exam, value from stop watch, and others zero length
(0018,1043)	Contrast/Bolus Stop Time	3	Zero length
(0018,1046)	Contrast Flow Rate	3	If contrast exam, value from user interface, and others zero length

Table 8.11 CT Image Module Attributes

Tag	Attribute Name	Type	Notes
(0008,0008)	Image Type	1	
(0028,0002)	Samples per Pixel	1	1
(0028,0004)	Photometric Interpretation	1	"MONOCHROME2"
(0028,0100)	Bits Allocated	1	16
(0028,0101)	Bits Stored	1	12,13,16
(0028,0102)	High Bit	1	11,12,15
(0028,1052)	Rescale Intercept	1	0
(0028,1053)	Rescale Slope	1	1
(0018,0060)	KVP	2	Value from user interface.
(0020,0012)	Acquisition Number	2	Generated for each acquisition.
(0018,0090)	Data Collection Diameter	3	Value from user interface.
(0018,1100)	Reconstruction Diameter	3	Value from user interface and magnification power

Tag	Attribute Name	Type	Notes
(0018,1120)	Gantry/Detector Tilt	3	Value from user interface.
(0018,1130)	Table Height	3	
(0018,1140)	Rotation Direction	3	"CW"
(0018,1150)	Exposure Time	3	Value from user interface.
(0018,1151)	X-ray Tube Current	3	Value from user interface.
(0018,1152)	Exposure	3	Value from user interface.
(0018,1210)	Convolution Kernel	3	Value from user interface.

Table 8.12 VOI LUT Module Attributes

Tag	Attribute Name	Type	Notes
(0028,1050)	Window Center	3	Three values exist. Set Window \ Upper \ Lower
(0028,1051)	Window Width	1C	Three values exist. Set Window \ Upper \ Lower

Table 8.13 SOP Common Module Attributes

Tag	Attribute Name	Type	Notes
(0008,0016)	SOP Class UID	1	"1.2.840.10008.5.1.4.1.1.2"
(0008,0018)	SOP Instance UID	1	Generated for each image.
(0008,0005)	Specific Character Set	1C	Value from user interface. "ISO_IR 100", or zero length.
(0008,0012)	Instance Creation Date	3	Generated for each image.
(0008,0013)	Instance Creation Time	3	Generated for each image.
(0008,0014)	Instance Creator UID	3	Generated for each device.
(0020,0013)	Instance Number	3	Generated sequentially.

Table 8.14 Image ID Module (Private)

Tag	Attribute Name	Type	Notes
(0009,0010)	Private Creator	-	"HMC"
(0009,0011)	Private Creator	-	"HMC - CT - ID"
(0009,1100)	Image ID Information	-	Include patient information. (e.g. Patient Name, Patient ID)
(0009,1101)	Image ID Information	-	Include patient information. (e.g. Patient Comment)
(0019,0010)	Private Creator	-	"SET WINDOW"
(0019,1000)	Set Window Image Filter	-	
(0019,1001)	Set Window Magnifying Power	-	

Table 8.15 Group Length

Tag	Attribute Name	Type	Notes
(0008,0000)	Group Length	3	
(0009,0000)	Group Length	3	
(0010,0000)	Group Length	3	
(0018,0000)	Group Length	3	
(0019,0000)	Group Length	3	
(0020,0000)	Group Length	3	
(0028,0000)	Group Length	3	
(7FE0,0000)	Group Length	3	

9. Annex B

All IODs to output are shown in the following tables in implementing Storage Service Class SCU (Secondary Capture Image) in the SCENARIA AE. In addition, these IODs conform to the DICOM Standard Part3.

Table 9.1 Patient Module Attributes

Tag	Attribute Name	Type	Notes
(0010,0010)	Patient's Name	2	Value from user interface or RIS.
(0010,0020)	Patient ID	2	Value from user interface or RIS. Maximum 16 digits can be set.
(0010,0030)	Patient's Birth Date	2	Value from user interface or RIS.
(0010,0040)	Patient's Sex	2	"M", "F", "O"
(0008,1120)	Referenced Patient Sequence	3	Value from RIS.
(0008,1150)	> Referenced SOP Class UID	1C	Value from RIS.
(0008,1155)	> Referenced SOP Instance UID	1C	Value from RIS.
(0010,4000)	Patient Comments	3	Value from user interface or RIS. Maximum 128 bytes can be set.

Table 9.2 General Study Module Attributes

Tag	Attribute Name	Type	Notes
(0020,000D)	Study Instance UID	1	Generated for each study or value from RIS.
(0008,0020)	Study Date	2	Generated for each study.
(0008,0030)	Study Time	2	Generated for each study.
(0008,0090)	Referring Physician's Name	2	Value from user interface or RIS.
(0020,0010)	Study ID	2	Generated for each study.
(0008,0050)	Accession Number	2	Value from user interface or RIS.
(0008,1030)	Study Description	3	Value from user interface or RIS. Maximum 64 bytes can be set.
(0008,1060)	Name of Physician(s) Reading Study	3	Value from user interface.
(0008,1110)	Referenced Study Sequence	3	Value from RIS.
(0008,1150)	> Referenced SOP Class UID	1C	Value from RIS.
(0008,1155)	> Referenced SOP Instance UID	1C	Value from RIS.
(0008,1032)	Procedure Code Sequence	3	Generated for each performed procedure step.
(0008,0100)	> Code Value	1C	Generated for each performed procedure step.
(0008,0102)	> Coding Scheme Designator	1C	Generated for each performed procedure step.
(0008,0103)	> Coding Scheme Version	1C	Generated for each performed procedure step.
(0008,0104)	> Code Meaning	1C	Generated for each performed procedure step.

Table 9.3 Patient Study Module Attributes

Tag	Attribute Name	Type	Notes
(0010,1010)	Patient's Age	3	Value from user interface or RIS.
(0010,1020)	Patient's Size	3	Zero length or value from user interface or RIS.
(0010,1030)	Patient's Weight	3	Zero length or value from user interface or RIS.

Table 9.4 General Series Module Attributes

Tag	Attribute Name	Type	Notes
(0008,0060)	Modality	1	"CT"
(0020,000E)	Series Instance UID	1	Generated for each series.
(0020,0011)	Series Number	2	Generated sequentially.
(0008,0021)	Series Date	3	Generated for each series.
(0008,0031)	Series Time	3	Generated for each series.
(0008,1050)	Performing Physician's Name	3	Value from user interface.
(0018,1030)	Protocol Name	3	Protocol number corresponds to the value from user interface.
(0008,103E)	Series Description	3	Value from user interface. Maximum 64 bytes can be set.
(0008,1070)	Operator's Name	3	Value from user interface.
(0008,1111)	Referenced Performed Procedure Step Sequence	3	Generated for each performed procedure step.
(0008,1150)	> Referenced SOP Class UID	1C	Generated for each performed procedure step.
(0008,1155)	> Referenced SOP Instance UID	1C	Generated for each performed procedure step.
(0018,0015)	Body Part Examined	3	Value from user interface.
(0018,5100)	Patient Position	2C	"HFS", "HFP", "HFDR", "HFDL", "FFS", "FFP", "FFDR", "FFDL"
(0040,0275)	Request Attributes Sequence	3	Value from RIS.
(0040,1001)	> Requested Procedure ID	1C	Value from RIS.
(0040,0009)	> Scheduled Procedure Step ID	1C	Value from RIS.
(0040,0007)	> Scheduled Procedure Step Description	3	Value from RIS.
(0040,0008)	> Scheduled Protocol Code Sequence	3	Value from RIS.
(0008,0100)	>> Code Value	1C	Value from RIS.
(0008,0102)	>> Coding Scheme Designator	1C	Value from RIS.
(0008,0103)	>> Coding Scheme Version	1C	Value from RIS.
(0008,0104)	>> Code Meaning	1C	Value from RIS.
(0040,0253)	Performed Procedure Step ID	3	Generated for each performed procedure step.
(0040,0244)	Performed Procedure Step Start Date	3	Generated for each performed procedure step.
(0040,0245)	Performed Procedure Step Start Time	3	Generated for each performed procedure step.
(0040,0254)	Performed Procedure Step Description	3	Generated for each performed procedure step.

Tag	Attribute Name	Type	Notes
(0040,0260)	Performed Protocol Code Sequence	3	Generated for each performed procedure step.
(0008,0100)	> Code Value	1C	Generated for each performed procedure step.
(0008,0102)	> Coding Scheme Designator	1C	Generated for each performed procedure step.
(0008,0103)	> Coding Scheme Version	1C	Generated for each performed procedure step.
(0008,0104)	> Code Meaning	1C	Generated for each performed procedure step.

Table 9.5 General Equipment Module Attributes

Tag	Attribute Name	Type	Notes
(0008,0070)	Manufacturer	2	"Hitachi Medical Corporation"
(0008,0080)	Institution Name	3	Value from user interface.
(0008,1010)	Station Name	3	Value from user interface.
(0008,1040)	Institutional Department Name	3	Value from user interface or RIS.
(0008,1090)	Manufacturer's Model Name	3	"SCENARIA"
(0018,1000)	Device Serial Number	3	Generated for each device.
(0018,1020)	Software Versions	3	"0005"

Table 9.6 SC Equipment Module Attributes

Tag	Attribute Name	Type	Notes
(0008,0064)	Conversion Type	1	"WSD"
(0008,0060)	Modality	3	"CT"
(0018,1016)	Secondary Capture Device Manufacturer	3	"Hitachi Medical Corporation"
(0018,1018)	Secondary Capture Device Manufacturer's Model Name	3	"SCENARIA"
(0018,1019)	Secondary Capture Device Software Version	3	"0005"

Table 9.7 General Image Module Attributes

Tag	Attribute Name	Type	Notes
(0020,0013)	Instance Number	2	Generated sequentially.
(0020,0020)	Patient Orientation	2C	Zero Length
(0008,0023)	Content Date	2C	Generated for each image.
(0008,0033)	Content Time	2C	Generated for each image.
(0008,0008)	Image Type	3	
(0020,0012)	Acquisition Number	3	Generated for each acquisition.
(0008,0022)	Acquisition Date	3	Generated for each acquisition.
(0008,0032)	Acquisition Time	3	Generated for each acquisition.
(0020,4000)	Image Comments	3	Value from user interface. Maximum 128 bytes can be set.

Table 9.8 Image Pixel Module Attributes

Tag	Attribute Name	Type	Notes
(0028,0002)	Samples per Pixel	1	1
(0028,0004)	Photometric Interpretation	1	"MONOCHROME2", "RGB"
(0028,0010)	Rows	1	512
(0028,0011)	Columns	1	512
(0028,0100)	Bits Allocated	1	8,16(*1)
(0028,0101)	Bits Stored	1	8,12,13,16(*1)
(0028,0102)	High Bit	1	7,11,12,15(*1)
(0028,0103)	Pixel Representation	1	0,1(*1)
(7FE0,0010)	Pixel Data	1	
(0028,0006)	Planar Configuration	1C	0

*1 If (0028,0004) Photometric Interpretation is "MONOCHROME2",
(0028,0100) Bits Allocated: 16
(0028,0101) Bits Stored: 12,13,16
(0028,0102) High Bit: 11,12,15
(0028,0103) Pixel Representation: 1

If (0028,0004) Photometric Interpretation is "RGB",
(0028,0100) Bits Allocated: 8
(0028,0101) Bits Stored: 8
(0028,0102) High Bit: 7
(0028,0103) Pixel Representation: 0

Table 9.9 SC Image Module Attributes

Tag	Attribute Name	Type	Notes
(0018,1012)	Date of Secondary Capture	3	Generated for each image.
(0018,1014)	Time of Secondary Capture	3	Generated for each image.

Table 9.10 VOI LUT Module Attributes (*2)

Tag	Attribute Name	Type	Notes
(0028,1050)	Window Center	3	Three values exist. Set Window \ Upper \ Lower
(0028,1051)	Window Width	1C	Three values exist. Set Window \ Upper \ Lower
(0028,1052)	Rescale Intercept	1	0
(0028,1053)	Rescale Slope	1	1

*2 Only if (0028,004) Photometric Interpretation is "MONOCHROME2".

Table 9.11 SOP Common Module Attributes

Tag	Attribute Name	Type	Notes
(0008,0016)	SOP Class UID	1	"1.2.840.10008.5.1.4.1.1.7"
(0008,0018)	SOP Instance UID	1	Generated for each image.
(0008,0005)	Specific Character Set	1C	Value from user interface. "ISO_IR 100", or zero length.
(0008,0012)	Instance Creation Date	3	Generated for each image.
(0008,0013)	Instance Creation Time	3	Generated for each image.
(0008,0014)	Instance Creator UID	3	Generated for each device.
(0020,0013)	Instance Number	3	Generated sequentially.

Table 9.12 Image ID Module (Private)

Tag	Attribute Name	Type	Notes
(0009,0010)	Private Creator	-	"HMC"
(0009,0011)	Private Creator	-	"HMC - CT - ID"
(0009,1100)	Image ID Information	-	Include patient information. (e.g. Patient Name, Patient ID)
(0009,1101)	Image ID Information	-	Include patient information. (e.g. Patient Comment)
(0019,0010)	Private Creator	-	"SET WINDOW"
(0019,1000)	Set Window Image Filter	-	
(0019,1001)	Set Window Magnifying Power	-	

Table 9.13 Group Length

Tag	Attribute Name	Type	Notes
(0008,0000)	Group Length	3	
(0009,0000)	Group Length	3	
(0010,0000)	Group Length	3	
(0018,0000)	Group Length	3	
(0019,0000)	Group Length	3	
(0020,0000)	Group Length	3	
(0028,0000)	Group Length	3	
(0040,0000)	Group Length	3	
(7FE0,0000)	Group Length	3	

The attributes shown in the following table is output only for the Simple Dose Report.

Table 9.14 Radiation Dose Module Attributes

Tag	Attribute Name	Type	Notes
(0040,0301)	Total Number of Exposures	3	Total number of exposures made during this Performed Procedure Step.
(0040,030E)	Exposure Dose Sequence	3	Exposure Dose Sequence will contain Total Number of Exposures (0040,0301) items.
(0008,0022)	> Acquisition Date	3	Generated for each acquisition.
(0008,0032)	> Acquisition Time	3	Generated for each acquisition.
(0018,0060)	> KVP	3	Value from user interface.
(0018,1150)	> Exposure Time	3	Value from user interface.
(0018,1302)	> Scan Length	3	
(0018,8151)	> X-ray Tube Current in μA	3	Value from user interface.
(0018,9302)	> Acquisition Type	3	Value from user interface.
(0018,9306)	> Single Collimation Width	3	Value from user interface.
(0018,9307)	> Total Collimation Width	3	Value from user interface.
(0018,9311)	> Spiral Pitch Factor	3	
(0018,9345)	> CTDIvol	3	Computed Tomography Dose Index in mGy according to IEC 60601-2-44.
(0018,9346)	> CTDI Phantom Type Code Sequence	3	The type of phantom used for CTDI measurement according to IEC 60601-2-44.
(0040,0310)	> Comments on Radiation Dose	3	DLP described in mGy·cm
(0040,0310)	Comments on Radiation Dose	3	Total DLP of exposures described in mGy·cm

10. Annex C

All attributes to output are shown in the following tables in implementing Storage Commitment Service Class SCU in the SCENARIA AE. In addition, these attributes conform to the DICOM Standard Part4.

Table 10.1 Attributes for Storage Commitment Request - Action

Tag	Attribute Name	Type
(0008,1195)	Transaction UID	1
(0008,1199)	Referenced SOP Sequence	1
(0008,1150)	> Referenced SOP Class UID	1
(0008,1155)	> Referenced SOP Instance UID	1

11. Annex D

All matching keys to output are shown in the following tables in implementing Query/Retrieve Service Class SCU in the SCENARIA AE. In addition, these IODs conform to the DICOM Standard Part4.

Table 11.1 Matching Keys for Patient Root Patient Level - FIND

Tag	Attribute Name	Type	Notes
(0008,0005)	Specific Character Set	O	
(0008,0052)	Query/Retrieve Level	R	"PATIENT"
(0008,0070)	Manufacturer	O	"Hitachi Medical Corporation"
(0010,0010)	Patient's Name	R	
(0010,0020)	Patient ID	U	
(0010,0030)	Patient's Birth Date	O	Zero Length
(0010,0040)	Patient's Sex	O	Zero Length
(0010,1010)	Patient's Age	O	Zero Length

Table 11.2 Matching Keys for Patient Root Study Level - FIND

Tag	Attribute Name	Type	Notes
(0008,0020)	Study Date	R	
(0008,0030)	Study Time	R	
(0008,0050)	Accession Number	R	
(0008,0052)	Query/Retrieve Level	R	"STUDY"
(0008,0061)	Modalities in Study	O	"CT"
(0008,0070)	Manufacturer	O	"Hitachi Medical Corporation"
(0008,0090)	Referring Physician's Name	O	Zero Length
(0008,1030)	Study Description	O	Zero Length
(0020,000D)	Study Instance UID	U	Zero Length
(0020,0010)	Study ID	R	Zero Length

Table 11.3 Matching Keys for Patient Root Series Level - FIND

Tag	Attribute Name	Type	Notes
(0008,0005)	Specific Character Set	O	
(0008,0052)	Query/Retrieve Level	R	"SERIES"
(0008,0060)	Modality	R	"CT"
(0008,0070)	Manufacturer	O	"Hitachi Medical Corporation"
(0018,0010)	Contrast/Bolus Agent	O	
(0018,0015)	Body Part Examined	O	
(0020,000E)	Series Instance UID	U	Zero Length
(0020,0011)	Series Number	R	

Table 11.4 Matching Keys for Study Root Study Level - FIND

Tag	Attribute Name	Type	Notes
(0008,0005)	Specific Character Set	O	
(0008,0020)	Study Date	R	
(0008,0030)	Study Time	R	
(0008,0050)	Accession Number	R	
(0008,0052)	Query/Retrieve Level	R	"STUDY"
(0008,0061)	Modalities in Study	O	"CT"
(0008,0070)	Manufacturer	O	"Hitachi Medical Corporation"
(0008,0090)	Referring Physician's Name	O	Zero Length
(0008,1030)	Study Description	O	Zero Length
(0010,0010)	Patient's Name	R	
(0010,0020)	Patient ID	R	
(0010,0030)	Patient's Birth Date	O	Zero Length
(0010,0040)	Patient's Sex	O	Zero Length
(0020,000D)	Study Instance UID	U	Zero Length
(0020,0010)	Study ID	R	Zero Length

Table 11.5 Matching Keys for Study Root Series Level - FIND

Tag	Attribute Name	Type	Notes
(0008,0005)	Specific Character Set	O	
(0008,0052)	Query/Retrieve Level	R	"SERIES"
(0008,0060)	Modality	R	"CT"
(0008,0070)	Manufacturer	O	"Hitachi Medical Corporation"
(0018,0010)	Contrast/Bolus Agent	O	
(0018,0015)	Body Part Examined	O	
(0020,000E)	Series Instance UID	U	Zero Length
(0020,0011)	Series Number	R	

12. Annex E

All matching keys to output are shown in the following tables in implementing Query/Retrieve Service Class SCP in the SCENARIA AE. In addition, these IODs conform to the DICOM Standard Part4.

Table 12.1 Matching Keys for Patient Level - FIND

Tag	Attribute Name	Type	Notes
(0008,0005)	Specific Character Set	O	
(0008,0052)	Query/Retrieve Level	R	"PATIENT"
(0010,0010)	Patient's Name	R	
(0010,0020)	Patient ID	U	
(0010,0030)	Patient's Birth Date	O	
(0010,0040)	Patient's Sex	O	

Table 12.2 Matching Keys for Study Level - FIND

Tag	Attribute Name	Type	Notes
(0008,0005)	Specific Character Set	O	
(0008,0020)	Study Date	R	
(0008,0030)	Study Time	R	
(0008,0050)	Accession Number	R	
(0008,0052)	Query/Retrieve Level	R	"STUDY"
(0008,0061)	Modalities in Study	O	
(0008,0090)	Referring Physician's Name	O	
(0010,0010)	Patient's Name	R	
(0010,0020)	Patient ID	U	
(0010,0030)	Patient's Birth Date	O	
(0010,0040)	Patient's Sex	O	
(0020,000D)	Study Instance UID	U	
(0020,0010)	Study ID	R	
(0020,1206)	Number of Study Related Series	O	
(0020,1208)	Number of Study Related Instances	O	

Table 12.3 Matching Keys for Series Level - FIND

Tag	Attribute Name	Type	Notes
(0008,0005)	Specific Character Set	O	
(0008,0052)	Query/Retrieve Level	R	"SERIES"
(0008,0060)	Modality	R	
(0020,000E)	Series Instance UID	U	
(0020,0011)	Series Number	R	
(0020,1209)	Number of Series Related Instances	O	
(0040,0275)	Request Attributes Sequence	O	
(0040,0009)	> Scheduled Procedure Step ID	O	
(0040,1001)	> Requested Procedure ID	O	
(0040,0244)	Performed Procedure Step Start Date	O	
(0040,0245)	Performed Procedure Step Start Time	O	

Table 12.4 Matching Keys for Composite Object Instance Level - FIND

Tag	Attribute Name	Type	Notes
(0008,0016)	SOP Class UID	O	
(0008,0018)	SOP Instance UID	U	
(0008,0052)	Query/Retrieve Level	R	"IMAGE"
(0028,0008)	Number of Frames	R	
(0028,0010)	Rows	O	
(0028,0011)	Columns	O	
(0028,0100)	Bits Allocated	O	

13. Annex F

All IODs to output are shown in the following tables in implementing Print Management Service Class SCU (Basic Grayscale) in the SCENARIA AE. In addition, these IODs conform to the DICOM Standard Part3.

Table 13.1 Basic Film Session SOP Class (N-CREATE)

Tag	Attribute Name	Value
(2000,0010)	Number of Copies	"1"-"99"
(2000,0030)	Medium Type	"BLUE FILM"

Table 13.2 Basic Film Box SOP Class (N-CREATE)

Tag	Attribute Name	Value
(2010,0010)	Image Display Format	"STANDARD\1,1"
(2010,0030)	Annotation Display Format ID	"ANNOTATION", "1T", "1B", "1T1B", "1X3T", "1X3B", "1X3T1X3B", "1", "6", "LABEL", "FORMAT1"
(2010,0040)	Film Orientation	"PORTRAIT", "LANDSCAPE"
(2010,0050)	Film Size ID	"14INX17IN", "14INX14IN", "11INX14IN", "8INX10IN"
(2010,0060)	Magnification Type	"CUBIC"
(2010,0500)	Referenced Film Session Sequence	
(0008,1150)	> Referenced SOP Class UID	Basic Film Session SOP Class UID
(0008,1155)	> Referenced SOP Instance UID	The value of (0000,1000) of Basic Film Session N-CREATE-RSP

Table 13.3 Basic Grayscale Image Box SOP Class (N-SET)

Tag	Attribute Name	Value
(2020,0010)	Image Position	1
(2020,0110)	Preformatted Grayscale Image Sequence	
(0028,0002)	Samples Per Pixel	1
(0028,0004)	Photometric Interpretation	MONOCHROME2
(0028,0010)	Rows	Number of pixels in Y-direction of image
(0028,0011)	Columns	Number of pixels in X-direction of image
(0028,0034)	Pixel Aspect Ratio	1\1
(0028,0100)	Bits Allocated	8
(0028,0101)	Bits Stored	8
(0028,0102)	High Bit	7
(0028,0103)	Pixel Representation	0
(7FE0,0010)	Pixel Data	Pixel Data

Table 13.4 Basic Annotation Box SOP Class (N-SET)

Tag	Attribute Name	Value
(2030,0010)	Annotation Position	0, 1, 2, 3, 4, 5, 6
(2030,0020)	Text String	Text strings which user specified

14. Annex G

All IODs to output are shown in the following tables in implementing Print Management Service Class SCU (Basic Color) in the SCENARIA AE. In addition, these IODs conform to the DICOM Standard Part3.

Table 14.1 Basic Film Session SOP Class (N-CREATE)

Tag	Attribute Name	Value
(2000,0010)	Number of Copies	"1"-"99"
(2000,0030)	Medium Type	"BLUE FILM", "CLEAR FILM", "PAPER"

Table 14.2 Basic Film Box SOP Class (N-CREATE)

Tag	Attribute Name	Value
(2010,0010)	Image Display Format	"STANDARD\1,1"
(2010,0030)	Annotation Display Format ID	"ANNOTATION", "1T", "1B", "1T1B", "1X3T", "1X3B", "1X3T1X3B", "1", "6", "LABEL", "FORMAT1"
(2010,0040)	Film Orientation	"PORTRAIT", "LANDSCAPE"
(2010,0050)	Film Size ID	"14INX17IN", "14INX14IN", "11INX14IN", "8INX10IN"
(2010,0060)	Magnification Type	"CUBIC"
(2010,0500)	Referenced Film Session Sequence	
(0008,1150)	> Referenced SOP Class UID	Basic Film Session SOP Class UID
(0008,1155)	> Referenced SOP Instance UID	The value of (0000,1000) of Basic Film Session N-CREATE-RSP

Table 14.3 Basic Color Image Box SOP Class (N-SET)

Tag	Attribute Name	Value
(2020,0010)	Image Position	1
(2020,0111)	Basic Color Image Sequence	
(0028,0002)	> Samples Per Pixel	3
(0028,0004)	> Photometric Interpretation	"RGB"
(0028,0006)	> Planar Configuration	0
(0028,0010)	> Rows	Number of pixels in Y-direction of image
(0028,0011)	> Columns	Number of pixels in X-direction of image
(0028,0034)	> Pixel Aspect Ratio	"1\1"
(0028,0100)	> Bits Allocated	8
(0028,0101)	> Bits Stored	8
(0028,0102)	> High Bit	7
(0028,0103)	> Pixel Representation	0
(7FE0,0010)	> Pixel Data	Pixel Data

Table 14.4 Basic Annotation Box SOP Class (N-SET)

Tag	Attribute Name	Value
(2030,0010)	Annotation Position	0, 1, 2, 3, 4, 5, 6
(2030,0020)	Text String	Text strings which user specified

15. Annex H

All return keys to output are shown in the following tables in implementing Modality Worklist Management Service Class SCU in the SCENARIA AE. In addition, these IODs conform to the DICOM Standard Part4.

Table 15.1 Return Keys for Modality Worklist Information Model - FIND

Tag	Attribute Name	Type	Notes
(0008,0005)	Specific Character Set	1C	
(0008,0050)	Accession Number	2	This value is used up to 16 bytes.
(0008,0080)	Institution Name	3	
(0008,0081)	Institution Address	3	
(0008,0082)	Institution Code Sequence	3	
(0008,0100)	> Code Value	1C	
(0008,0102)	> Coding Scheme Designator	1C	
(0008,0103)	> Coding Scheme Version	3	
(0008,0104)	> Code Meaning	3	
(0008,0090)	Referring Physician's Name	2	
(0008,0092)	Referring Physician's Address	3	
(0008,0094)	Referring Physician's Telephone Numbers	3	
(0008,1080)	Admission Diagnosis Description	3	
(0008,1084)	Admission Diagnosis Code Sequence	3	
(0008,0100)	> Code Value	3	
(0008,0102)	> Coding Scheme Designator	3	
(0008,0103)	> Coding Scheme Version	3	
(0008,0104)	> Code Meaning	3	
(0008,1110)	Referenced Study Sequence	2	
(0008,1150)	> Referenced SOP Class UID	1C	
(0008,1155)	> Referenced SOP Instance UID	1C	
(0008,1120)	Referenced Patient Sequence	2	
(0008,1150)	> Referenced SOP Class UID	2	
(0008,1155)	> Referenced SOP Instance UID	2	
(0008,1125)	Referenced Visit Sequence	3	
(0008,1150)	> Referenced SOP Class UID	3	
(0008,1155)	> Referenced SOP Instance UID	3	
(0010,0010)	Patient's Name	1	This value is used up to 127 bytes.
(0010,0020)	Patient ID	1	This value is used up to 16 bytes. The following symbols cannot be used : \ / : * ? < > | . "
(0010,0021)	Issuer of Patient ID	3	
(0010,0030)	Patient's Birth Date	2	
(0010,0032)	Patient's Birth Time	3	
(0010,0040)	Patient's Sex	2	
(0010,0050)	Patient's Insurance Plan Code Sequence	3	
(0008,0100)	> Code Value	3	
(0008,0102)	> Coding Scheme Designator	3	

Tag	Attribute Name	Type	Notes
(0008,0103)	> Coding Scheme Version	3	
(0008,0104)	> Code Meaning	3	
(0010,1000)	Other Patient IDs	3	
(0010,1001)	Other Patient Names	3	
(0010,1005)	Patient's Birth Name	3	
(0010,1010)	Patient's Age	3	
(0010,1020)	Patient's Size	3	The value of zero, the negative number and the exponent is ignored.
(0010,1030)	Patient's Weight	2	The value of zero, the negative number and the exponent is ignored.
(0010,1040)	Patient's Address	3	
(0010,1060)	Patient's Mother's Birth Name	3	
(0010,1080)	Military Rank	3	
(0010,1081)	Branch of Service	3	
(0010,1090)	Medical Record Locator	3	
(0010,2000)	Medical Alerts	2	
(0010,2110)	Contrast Allergies	2	
(0010,2150)	Country of Residence	3	
(0010,2152)	Region of Residence	3	
(0010,2154)	Patient's Telephone Numbers	3	
(0010,2160)	Ethnic Group	3	
(0010,2180)	Occupation	3	
(0010,21A0)	Smoking Status	3	
(0010,21B0)	Additional Patient History	3	The value is used up to 128 bytes.
(0010,21C0)	Pregnancy Status	2	
(0010,21D0)	Last Menstrual Date	3	
(0010,21F0)	Patient's Religious Preference	3	
(0010,4000)	Patient Comments	3	This value is used up to 128 bytes.
(0020,000D)	Study Instance UID	1	Same value shall not use.
(0032,1032)	Requesting Physician	2	
(0032,1033)	Requesting Service	3	
(0032,1060)	Requested Procedure Description	1C	This value is used up to 64 bytes.
(0032,1064)	Requested Procedure Code Sequence	1C	
(0008,0100)	> Code Value	1C	
(0008,0102)	> Coding Scheme Designator	1C	
(0008,0103)	> Coding Scheme Version	3	
(0008,0104)	> Code Meaning	3	
(0038,0004)	Referenced Patient Alias Sequence	3	
(0008,1150)	> Referenced SOP Class UID	3	
(0008,1155)	> Referenced SOP Instance UID	3	
(0038,0008)	Visit Status ID	3	
(0038,0010)	Admission ID	2	
(0038,0011)	Issuer of Admission ID	3	
(0038,0016)	Route of Admissions	3	
(0038,0020)	Admitting Date	3	
(0038,0021)	Admitting Time	3	
(0038,0050)	Special Needs	2	

Tag	Attribute Name	Type	Notes
(0038,0300)	Current Patient Location	2	
(0038,0400)	Patient's Institution Residence	3	
(0038,0500)	Patient State	2	
(0038,4000)	Visit Comments	3	The value is used up to 128 bytes.
(0040,0100)	Scheduled Procedure Step Sequence	1	
(0008,0060)	> Modality	1	
(0032,1070)	> Requested Contrast Agent	2C	
(0040,0001)	> Scheduled Station AE Title	1	
(0040,0002)	> Scheduled Procedure Step Start Date	1	
(0040,0003)	> Scheduled Procedure Step Start Time	1	
(0040,0004)	> Scheduled Procedure Step End Date	3	
(0040,0005)	> Scheduled Procedure Step End Time	3	
(0040,0006)	> Scheduled Performing Physician's Name	2	
(0040,0007)	> Scheduled Procedure Step Description	1C	
(0040,0008)	> Scheduled Protocol Code Sequence	1C	
(0008,0100)	>> Code Value	1C	
(0008,0102)	>> Coding Scheme Designator	1C	
(0008,0103)	>> Coding Scheme Version	3	
(0008,0104)	>> Code Meaning	3	
(0040,0009)	> Scheduled Procedure Step ID	1	
(0040,0010)	> Scheduled Station Name	2	
(0040,0011)	> Scheduled Procedure Step Location	2	
(0040,0012)	> Pre-Medication	2C	
(0040,0020)	> Scheduled Procedure Step Status	3	
(0040,0400)	> Comments on the Scheduled Procedure Step	3	The value is used up to 128 bytes.
(0040,1001)	Requested Procedure ID	1	
(0040,1002)	Reason for the Requested Procedure	3	
(0040,1003)	Requested Procedure Priority	2	
(0040,1004)	Patient Transport Arrangements	2	
(0040,1005)	Requested Procedure Location	3	
(0040,1008)	Confidentiality Code	3	
(0040,1009)	Reporting Priority	3	
(0040,1010)	Names of Intended Recipients of Results	3	
(0040,1400)	Requested Procedure Comments	3	The value is used up to 128 bytes.
(0040,2001)	Reason for the Imaging Service Request	3	
(0040,2004)	Issue Date of Imaging Service Request	3	
(0040,2005)	Issue Time of Imaging Service Request	3	
(0040,2008)	Order Entered By…	3	
(0040,2009)	Order Enterer's Location	3	
(0040,2010)	Order Callback Phone Number	3	
(0040,2016)	Placer Order Number / Imaging Service Request	3	
(0040,2017)	Filler Order Number / Imaging Service Request	3	
(0040,2400)	Imaging Service Request Comments	3	The value is used up to 128 bytes.
(0040,3001)	Confidentiality Constraint on Patient Data Description	2	

16. Annex I

All attributes to output are shown in the following tables in implementing Modality Performed Procedure Step Service Class SCU in the SCENARIA AE. In addition, these attributes conform to the DICOM Standard Part4.

Table 16.1 Attributes for Modality Performed Procedure Step

Tag	Attribute Name	Type (N-CREATE)	Type (N-SET)	Type (Final State)
(0008,0005)	Specific Character Set	1C	-	
(0008,0060)	Modality	1	-	
(0008,1032)	Procedure Code Sequence	2	3	
(0008,0100)	> Code Value	1C	1C	
(0008,0102)	> Coding Scheme Designator	1C	1C	
(0008,0103)	> Coding Scheme Version	3	3	
(0008,0104)	> Code Meaning	3	3	
(0008,1120)	Referenced Patient Sequence	2	-	
(0008,1150)	> Referenced SOP Class UID	1C	-	
(0008,1155)	> Referenced SOP Instance UID	1C	-	
(0010,0010)	Patient's Name	2	-	
(0010,0020)	Patient ID	2	-	
(0010,0030)	Patient's Birth Date	2	-	
(0010,0040)	Patient's Sex	2	-	
(0020,0010)	Study ID	2	-	
(0040,0241)	Performed Station AE Title	1	-	
(0040,0242)	Performed Station Name	2	-	
(0040,0243)	Performed Location	2	-	
(0040,0244)	Performed Procedure Step Start Date	1	-	
(0040,0245)	Performed Procedure Step Start Time	1	-	
(0040,0250)	Performed Procedure Step End Date	2	3	1
(0040,0251)	Performed Procedure Step End Time	2	3	1
(0040,0252)	Performed Procedure Step Status	1	3	
(0040,0253)	Performed Procedure Step ID	1	-	
(0040,0254)	Performed Procedure Step Description	2	3	
(0040,0255)	Performed Procedure Type Description	2	3	
(0040,0260)	Performed Protocol Code Sequence	2	3	
(0008,0100)	> Code Value	1C	1C	
(0008,0102)	> Coding Scheme Designator	1C	1C	
(0008,0103)	> Coding Scheme Version	3	3	
(0008,0104)	> Code Meaning	3	3	
(0040,0270)	Scheduled Step Attribute Sequence	1	-	
(0008,0050)	> Accession Number	2	-	
(0008,1110)	> Reference Study Sequence	2	-	
(0008,1150)	>> Referenced SOP Class UID	1C	-	
(0008,1155)	>> Referenced SOP Instance UID	1C	-	
(0020,000D)	> Study Instance UID	1	-	

Tag	Attribute Name	Type (N-CREATE)	Type (N-SET)	Type (Final State)
(0032,1060)	> Requested Procedure Description	2	-	
(0040,0007)	> Scheduled Procedure Step Description	2	-	
(0040,0008)	> Scheduled Protocol Code Sequence	2	-	
(0008,0100)	>> Code Value	1C	-	
(0008,0102)	>> Coding Scheme Designator	1C	-	
(0008,0103)	>> Coding Scheme Version	3	-	
(0008,0104)	>> Code Meaning	3	-	
(0040,0009)	> Scheduled Procedure Step ID	2	-	
(0040,1001)	> Requested Procedure ID	2	-	
(0040,2016)	> Placer Order Number / Imaging Service Request	3	-	
(0040,2017)	> Filler Order Number / Imaging Service Request	3	-	
(0040,030E)	Exposure Dose Sequence	-	3	
(0018,0060)	> KVP	-	3	
(0018,1150)	> Exposure Time	-	3	
(0018,8151)	> X-ray Tube Current in μA	-	3	
(0018,9345)	> CTDIvol	-	3	
(0040,0310)	> Comments on Radiation Dose	-	3	
(00E1,0010)	> Private Creator	-	3	
(00E1,1021)	> DLP	-	3	
(0040,0321)	Film Consumption Sequence	3	3	
(2000,0030)	> Medium Type	3	3	
(2010,0050)	> Film Size ID	3	3	
(2100,0170)	> Number of Films	3	3	
(0040,0340)	Performed Series Sequence	2	3	1
(0008,0054)	> Retrieve AE Title	-	2C	2
(0008,103E)	> Series Description	-	2C	2
(0008,1070)	> Operator's Name	-	2C	2
(0008,1050)	> Performed Physician's Name	-	2C	2
(0008,1140)	> Referenced Image Sequence	-	2C	
(0008,1150)	>> Referenced SOP Class UID	-	1C	
(0008,1155)	>> Referenced SOP Instance UID	-	1C	
(0018,1030)	> Protocol Name	-	1C	1
(0020,000E)	> Series Instance UID	-	1C	1
(0040,0220)	> Referenced Non-Image Composite SOP Instance Sequence	-	2C	
(00E1,0010)	Private Creator	-	3	
(00E1,1021)	DLP	-	3	

17. Annex J

The attributes of the worklist that SCENARIA AE copies to CT image and MPPS are shown in the following table.

Table 17.1 MWM Return Keys Copied to CT Image IODs and MPPS IODs

Worklist		CT Image IOD		MPPS	
Tag	Attribute Name	Tag	Attribute Name	Tag	Attribute Name
(0008,0050)	Accession Number	(0008,0050)	Accession Number	(0008,0050)	Accession Number
(0008,0090)	Referring Physician's Name	(0008,0090)	Referring Physician's Name	-	-
(0008,1110)	Referenced Study Sequence	(0008,1110) *3	Referenced Study Sequence	(0008,1110)	Referenced Study Sequence
(0008,1120)	Referenced Patient Sequence	(0008,1120) *3	Referenced Patient Sequence	(0008,1120)	Referenced Patient Sequence
(0010,0010)	Patient's Name	(0010,0010)	Patient's Name	(0010,0010)	Patient's Name
(0010,0020)	Patient ID	(0010,0020)	Patient ID	(0010,0020)	Patient ID
(0010,0030)	Patient's Birth Date	(0010,0030)	Patient's Birth Date	(0010,0030)	Patient's Birth Date
(0010,0040)	Patient's Sex	(0010,0040)	Patient's Sex	(0010,0040)	Patient's Sex
(0010,1020)	Patient's Size	(0010,1020)	Patient's Size	-	-
(0010,1030)	Patient's Weight	(0010,1030)	Patient's Weight	-	-
(0010,4000)	Patient Comments	(0010,4000)	Patient Comments	-	-
(0020,000D)	Study Instance UID	(0020,000D)	Study Instance UID	(0020,000D)	Study Instance UID
(0032,1033) *4	Requesting Service	(0008,1040)	Institutional Department Name	-	-
(0032,1060)	Requested Procedure Description	(0008,1030)	Study Description	(0032,1060)	Requested Procedure Description
(0032,1064)	Requested Procedure Code Sequence	(0008,1032) *3	Procedure Code Sequence	(0008,1032) *3	Procedure Code Sequence
(0032,1070)	Requested Contrast Agent	(0018,0010)	Contrast/Bolus Agent	-	-
(0040,0006)	Scheduled Procedure Physician's Name	(0008,1050)	Performing Physician's Name	-	-
(0040,0007)	Scheduled Procedure Step Description	(0040,0007) *3	Scheduled Procedure Step Description	(0040,0007)	Scheduled Procedure Step Description

Worklist		CT Image IOD		MPPS	
Tag	Attribute Name	Tag	Attribute Name	Tag	Attribute Name
(0040,0008)	Scheduled Protocol Code Sequence	(0040,0008) *3	Scheduled Protocol Code Sequence	(0040,0008)	Scheduled Protocol Code Sequence
		(0040,0260) *3	Performed Protocol Code Sequence	(0040,0260)	Performed Protocol Code Sequence
(0040,0009)	Scheduled Procedure Step ID	(0040,0009) *3	Scheduled Procedure Step ID	(0040,0009)	Scheduled Procedure Step ID
(0040,1001)	Requested Procedure ID	(0020,0010) *3	Study ID	(0020,0010) *3	Study ID
		(0040,1001) *3	Requested Procedure ID	(0040,1001)	Requested Procedure ID
(0040,2016)	Placer Order Number/Imaging Service Request	-	-	(0040,2016)	Placer Order Number/Imaging Service Request
(0040,2017)	Filler Order Number/Imaging Service Request	-	-	(0040,2017)	Filler Order Number/Imaging Service Request

*3 In general, these attributes are not copied. These attributes are copied depending on the IHE/SWF software.

*4 In general, (0032,1033) Requesting Service is not used. (0032,1033) Requesting Service is used depending on the setting.

18. Annex K

All IODs to output are shown in the following tables in implementing Storage Service Class SCU (X-Ray Radiation Dose SR) in the SCENARIA AE. In addition, these IODs conform to the DICOM Standard Part3.

Table 18.1 Patient Module Attributes

Tag	Attribute Name	Type	Notes
(0010,0010)	Patient's Name	2	Value from user interface or RIS.
(0010,0020)	Patient ID	2	Value from user interface or RIS. Maximum 16 digits can be set.
(0010,0030)	Patient's Birth Date	2	Value from user interface or RIS.
(0010,0040)	Patient's Sex	2	"M", "F", "O"
(0010,4000)	Patient Comments	3	Value from user interface or RIS. Maximum 128 bytes can be set.

Table 18.2 General Study Module Attributes

Tag	Attribute Name	Type	Notes
(0020,000D)	Study Instance UID	1	Generated for each study or value from RIS.
(0008,0020)	Study Date	2	Generated for each study.
(0008,0030)	Study Time	2	Generated for each study.
(0008,0050)	Accession Number	2	Value from user interface or RIS.
(0008,0090)	Referring Physician's Name	2	Value from user interface or RIS.
(0020,0010)	Study ID	2	Generated for each study.
(0008,1030)	Study Description	3	Value from user interface or RIS. Maximum 64 bytes can be set.
(0008,1060)	Name of Physician(s) Reading Study	3	Value from user interface.

Table 18.3 Patient Study Module Attributes

Tag	Attribute Name	Type	Notes
(0010,1010)	Patient's Age	3	Value from user interface or RIS.
(0010,1020)	Patient's Size	3	Zero length or value from user interface or RIS.
(0010,1030)	Patient's Weight	3	Zero length or value from user interface or RIS.

Table 18.4 SR Document Series Module Attributes

Tag	Attribute Name	Type	Notes
(0010,1010)	Modality	3	Value from user interface or RIS.
(0020,000E)	Series Instance UID	1	Generated for each series.
(0020,0011)	Series Number	2	"9999"
(0008,1111)	Referenced Performed Procedure Step Sequence	3	Zero length

Table 18.5 General Equipment Module Attributes

Tag	Attribute Name	Type	Notes
(0008,0070)	Manufacturer	2	"Hitachi Medical Corporation"
(0008,0080)	Institution Name	3	Value from user interface or RIS.
(0008,1010)	Station Name	3	Value from user interface.
(0008,1040)	Institutional Department Name	3	Value from user interface or RIS.
(0008,1090)	Manufacturer Model Name	3	"SCENARIA"
(0018,1000)	Device Serial Number	3	Generated for each device.
(0018,1020)	Software Version	3	"0005"

Table 18.6 SR Document General Module Attributes

Tag	Attribute Name	Type	Notes
(0020,0013)	Instance Number	1	"1"
(0040,A491)	Completion Flag	1	"COMPLETE"
(0040,A493)	Verification Flag	1	"UNVERIFIED"
(0008,0023)	Content Date	1	Generated for each report.
(0008,0033)	Content Time	1	Generated for each report.
(0040,A372)	Performed Procedure Code Sequence	2	Zero length

Table 18.7 SR Document General Module Attributes

Tag	Attribute Name	Type	Notes
(0008,0016)	SOP Class UID	1	"1.2.840.10008.5.1.4.1.1.88.67"
(0008,0018)	SOP Instance UID	1	Generated for each report.
(0008,0005)	Specific Character Set	1C	Value from user interface. "ISO_IR 100", or zero length.

Table 18.8 SR Document Content Module Attributes
(TID 10011 - CT Radiation Dose)

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Notes
		CONTAINER	EV (113701, DCM, "Xray Radiation Dose Report")	1	M	
>	HAS CONCEPT MOD	CODE	EV (121058, DCM, "Procedure reported")	1	M	Code sequence (P5-08000, SRT, Computed Tomography X-ray)
>>	HAS CONCEPT MOD	CODE	EV (G-C0E8, SRT, "Has Intent")	1	M	Code sequence (R-408C3, SRT, Diagnostic Intent)
>		INCLUDE	DTID (1002) Observer Context	1-n	M	See Observer Context table below for details.
>	HAS OBS CONTEXT	DATETIME	EV (113809, DCM, "Start of X-ray Irradiation")	1	M	
>	HAS OBS CONTEXT	DATETIME	EV (113810, DCM, "End of X-ray Irradiation")	1	M	
>	HAS OBS CONTEXT	CODE	EV (113705, DCM, "Scope of Accumulation")	1	M	Code sequence (113014, DCM, Study)

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Notes
>>	HAS PROPERTIES	UIDREF	DCID (10001) UID Types	1	M	Study Instance UID
>	CONTAINS	INCLUDE	DTID (10012) CT Accumulated Dose Data	1	M	See CT Accumulated Dose Data table below for details.
>	CONTAINS	INCLUDE	DTID (10013) CT Irradiation Event Data	1-n	M	See CT Irradiation Event Data table below for details.
>	CONTAINS	TEXT	EV (121106, DCM, "Comment")	1	U	Value from user interface or RIS. Maximum 64 bytes can be set.
>	CONTAINS	CODE	EV (113854, DCM, "Source of Dose Information")	1-n	M	Code sequence (113856, DCM, Automated Data Collection)

Table 18.9 SR Document Content Module Attributes
(TID 1002 - Observer Context)

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Notes
	HAS OBS CONTEXT	CODE	EV (121005,DCM, "Observer Type")	1	MC	Code sequence (121007, DCM, Device)
>	HAS OBS CONTEXT	INCLUDE	DTID (1004) Device observer identifying attributes	1	MC	See Device Observer Identifying Attributes table below for details.

Table 18.10 SR Document Content Module Attributes
(TID 1004 - Device Observer Identifying Attributes)

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Notes
		UIDREF	EV (121012,DCM, "Device Observer UID")	1	M	
		TEXT	EV (121014,DCM, "Device Observer Manufacturer")	1	U	"Hitachi Medical Corporation"
		TEXT	EV (121015,DCM, "Device Observer Model Name")	1	U	"SCENARIA"

Table 18.11 SR Document Content Module Attributes
(TID 10012 - CT Accumulated Dose Data)

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Notes
		CONTAINER	EV (113811, DCM, "CT Accumulated Dose Data")	1	M	
>	CONTAINS	NUM	EV (113812, DCM, "Total Number of Irradiation Events")	1	M	
>	CONTAINS	NUM	EV (113813, DCM, "CT Dose Length Product Total")	1	M	

Table 18.12 SR Document Content Module Attributes
(TID 10013 - CT Irradiation Event Data)

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Notes
		CONTAINER	EV (113819, DCM, "CT Acquisition")	1	M	
>	CONTAINS	TEXT	EV (125203, DCM, "Acquisition Protocol")	1	U	
>	CONTAINS	CODE	EV (123014 , DCM, "Target Region")	1	M	
>	CONTAINS	CODE	EV (113820, DCM, "CT Acquisition Type")	1	M	
>	CONTAINS	CODE	EV (G-C32C, SRT, "Procedure Context")	1	U	
>	CONTAINS	UIDREF	EV (113769, DCM, "Irradiation Event UID")	1	M	
>	CONTAINS	CONTAINER	EV (113822, DCM, "CT Acquisition Parameters")	1	M	
>>	CONTAINS	NUM	EV (113824, DCM, "Exposure Time")	1	M	
>>	CONTAINS	NUM	EV (113825, DCM, "Scanning Length")	1	M	
>>	CONTAINS	NUM	EV (113826, DCM, "Nominal Single Collimation Width")	1	M	
>>	CONTAINS	NUM	EV (113827, DCM, "Nominal Total Collimation Width")	1	M	
>>	CONTAINS	NUM	EV (113828, DCM, "Pitch Factor")	1	MC	
>>	CONTAINS	NUM	EV (113823, DCM, "Number of X-ray Sources")	1	M	"1"
>>	CONTAINS	CONTAINER	EV (113831, DCM, "CT X-ray Source Parameters")	1-n	M	

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Notes
>>>	CONTAINS	TEXT	EV (113832, DCM, "Identification Number of the X-ray Source")	1	M	"Main"
>>>	CONTAINS	NUM	EV (113733, DCM, "KVP")	1	M	
>>>	CONTAINS	NUM	EV (113833, DCM, "Maximum X-ray Tube Current")	1	M	
>>>	CONTAINS	NUM	EV (113734, DCM, "X-ray Tube Current"	1	M	
>>>	CONTAINS	NUM	EV (113834, DCM, "Exposure Time per Rotation")	1	MC	
>>>	CONTAINS	NUM	EV (113821, DCM, "X-ray Filter Aluminum Equivalent")	1	U	
>	CONTAINS	CONTAINER	EV (113829, DCM, "CT Dose")	1	MC	
>>	CONTAINS	NUM	EV (113830, DCM, "Mean CTDIvol")	1	M	
>>	CONTAINS	NUM	EV (113835, DCM, "CTDIw Phantom Type")	1	M	IEC Head Dosimetry Phantom or IEC Body Dosimetry Phantom
>>	CONTAINS	NUM	EV (113838, DCM, "DLP")	1	M	
>	CONTAINS	INCLUDE	DTID (1021) Device Participant	1	M	See Device Participant table below for details.

Table 18.13 SR Document Content Module Attributes
(TID 1021 - Device Participant)

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Notes
		CODE	EV (113876, DCM, "Device Role in Procedure")	1	M	
>	HAS PROPERTIES	TEXT	EV (113877, DCM, "Device Name")	1	U	"SCENARIA"
>	HAS PROPERTIES	TEXT	EV (113878, DCM, "Device Manufacturer")	1	M	"Hitachi Medical Corporation"
>	HAS PROPERTIES	TEXT	EV (113879, DCM, "Device Model Name")	1	M	"SCENARIA"
>	HAS PROPERTIES	TEXT	EV (113880, DCM, "Device Serial Number")	1	M	Generated for each device.