DICOM
CONFORMANCE
STATEMENT
FOR ZIOSTATION REVORAS 5.2

0 DICOM CONFORMANCE STATEMENT OVERVIEW

This document is the DICOM Conformance Statement for Ziostation REVORAS 5.2 (hereinafter "Ziostation").

Ziostation supports the following DICOM services:

- Verification Service Class User (SCU)
- Verification Service Class Provider (SCP)
- Storage Service Class User (SCU)
- Storage Service Class Provider (SCP)
- Query/Retrieve Service Class User (SCU)
- Query/Retrieve Service Class Provider (SCP)
- Print Management Service Class User (SCU)
- Write files on General Purpose CD-R/DVD-R (FSC)
- Read files from General Purpose CD-R/DVD-R (FSR)

IMPLEMENTATION MODEL

0.1 Application Data Flow

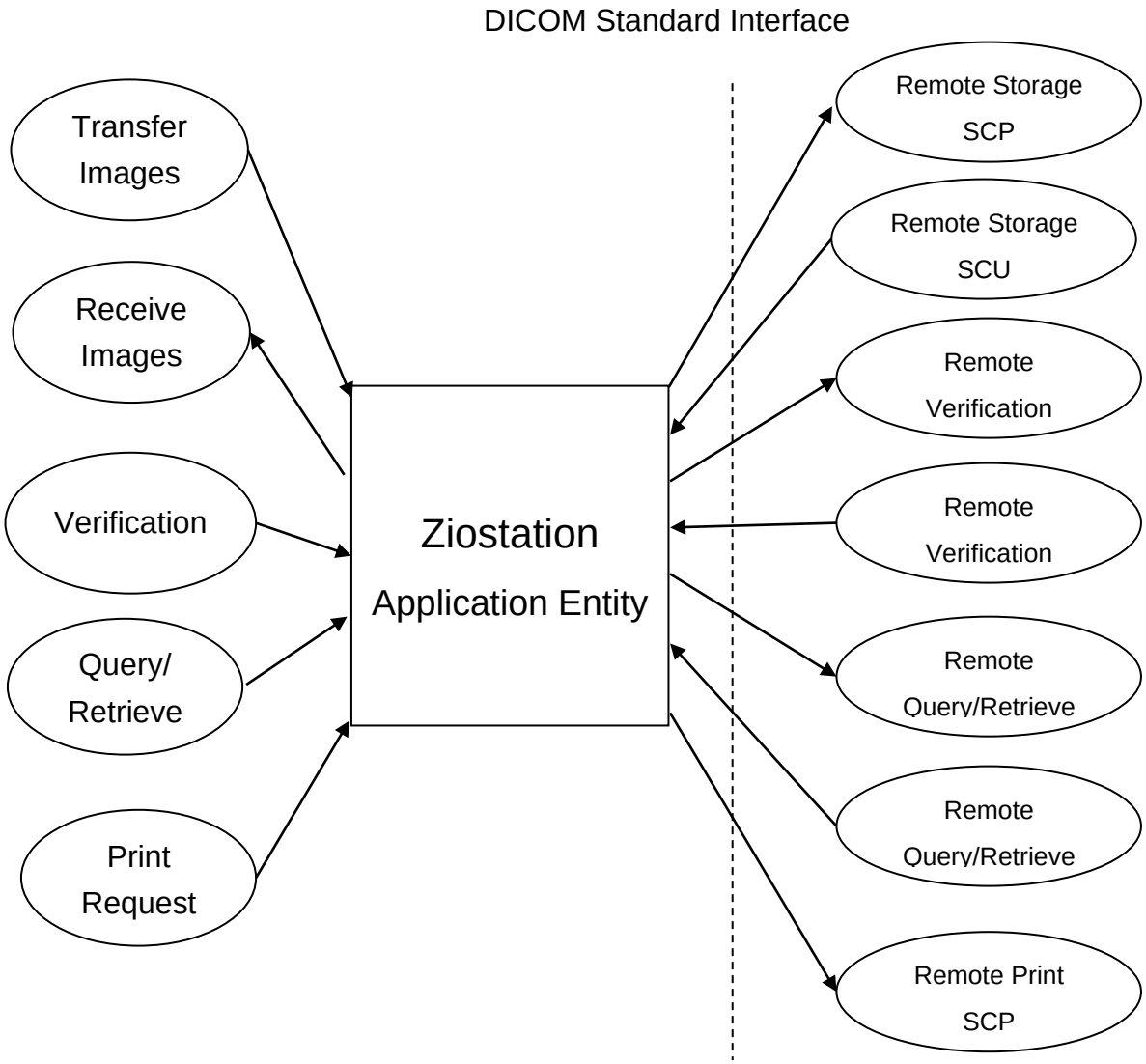

Figure 1 : Application Data Flow Diagram

Ziostation implementation model is shown in Figure 1.

The remote DICOM Application Entities (AE), which are associated with Ziostation, should have been configured by the support engineers beforehand.

Association of image store service to remote AE is activated when an operator selects the one of patients, studies, series or images on Ziostation and requests transfer to the remote AE.

Ziostation sends a request for the Verification service to the remote AE.

Ziostation responds to the Verification service from remote AE.

The association for storage service is invoked from remote AE. And its association is received and accepted by Ziostation, remote AE begins to transfer the DICOM image data.

Ziostation starts up the association for Query/Retrieve and Print service requests to remote AE.

Ziostation also supports reading data from General Purpose CD-R/DVD-R media and export data to (Figure 2).

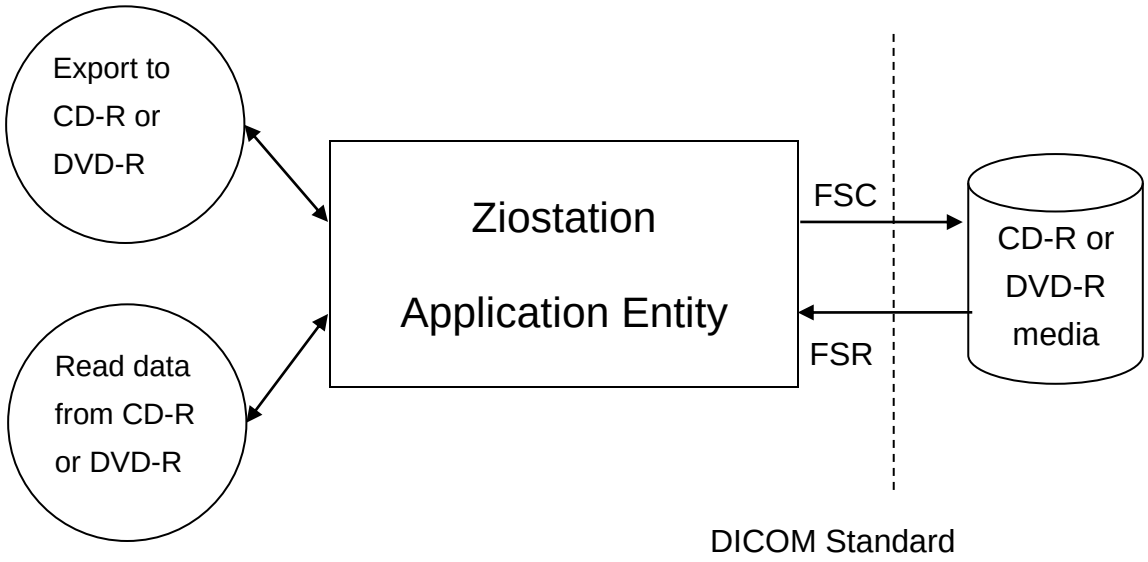

Figure 2 : Application Data Flow Diagram for DICOM CD-R/DVD-R

0.2 Functional Definition of AE's

Ziostation supports the following functions:

- Receive and accept associations from remote AE
- Initiate associations
- Send DICOM image data (SCU)
- Receive DICOM image data (SCP)
- Send request for Verification service to remote AE (SCU)
- Respond to Verification service from remote AE (SCP)
- Send request for Query/Retrieve service to remote AE (SCU)
- Respond to Query/Retrieve service from remote AE (SCP)

- Send request for Print service to remote AE (SCU)
- Export data to General Purpose CD-R/DVD-R (FSC)
- Read files from General Purpose CD-R/DVD-R (FSR)
- Manage image files by using database

0.3 Sequencing of Real-World Activities

Sequencing of Real-World Activities is not applied.

1 AE SPECIFICATIONS

The Network capabilities of Ziostation are specified in section 1.1, and Media capabilities are specified in section 2.

1.1 Network Specification

Ziostation provides Standard Conformance to the following SOP Classes.

Table 1: SOP Classes for Ziostation

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	Yes	Yes
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	Yes
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	Yes
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	Yes
Digital Mammography X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	Yes	Yes
Digital Mammography X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	Yes
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Yes	Yes
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	Yes
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Yes	Yes
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	Yes
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	Yes
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Yes	Yes
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes
X-Ray 3D Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.13.1.1	Yes	Yes
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Yes	Yes
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	Yes
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Yes	Yes
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	Yes	Yes

SOP Class Name	SOP Class UID	SCU	SCP
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Yes	Yes
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Yes	Yes
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	Yes	Yes
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	Yes	Yes
X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67	Yes	Yes
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Yes	No
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Yes	No
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Yes	No
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Yes	No

1.1.1 Association Policies

1.1.1.1 General

The DICOM standard application context name for DICOM 3.0 is always proposed.

Table 2: DICOM Application Context

DICOM Application Context Name	1.2.840.10008.3.1.1.1

Max PDU size is 1048576 (1024K) as default.

1.1.1.2 Number of Associations

Ziostation accepts Associations for the Storage SOP Class.

Table 3: Number of Associations Accepted for AE Storage

Maximum number of simultaneous Associations	64 (as default, configurable)

1.1.1.3 Asynchronous Nature

Ziostation does not support asynchronous operations (or sub-operations) window negotiation.

1.1.1.4 Implementation Identifying Information

The implementation information for this Application Entity is.

Table 4: DICOM Implementation Class and Version for AE Storage

Implementation Class UID	1.2.392.200080.100.300
Implementation Version Name	ZIO_DCM_SVR_300

1.1.2 Association Initiation Policy

Ziostation initiates the association C-STORE between the remote AE by C-MOVE sub-operation. The remote AE has to be registered on Ziostation beforehand.
Ziostation initiates the association between the remote AE at:

A Verification
B Manual Transfer
C Query/Retrieve
D Print

by operator's interaction.

1.1.2.1 Real-World Activities

Each activity listed on 1.1.2 initiates the DICOM association.

1.1.2.1.1 Description and Sequencing of Activities

Ziostation initiates the association C-STORE to remote AE which are specified by the C-MOVE service.
At Verification, Ziostation sends C-ECHO request to remote AE and displays results.

At Manual Transfer, it sends DICOM image data to remote AE.

At Query/Retrieve, it queries about remote AE DICOM image data information, and it receives necessary data.

At Print, it sends the DICOM image data after film's width/height format has been specified. Print requests are queued and processed background.

1.1.2.1.2 Proposing Presentation Contexts

Ziostation is capable of proposing the Presentation Contexts shown in the following table.

Table 5: Proposing Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Verification SOP Class	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
Digital Mammography X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
Digital Mammography X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
X-Ray 3D Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.13.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
		RLE Lossless	1.2.840.10008.1.2.5	SCU	None
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

1.1.2.1.3 SOP Specific Conformance

1.1.2.1.3.1 SOP Specific Conformance for Verify SOP Class

Ziostation provides standard conformance as SCU of Verify SOP Class.

1.1.2.1.3.2 SOP Specific Conformance for Storage SOP Class

Ziostation can execute multiple C-STORE as storage service user with a single association. If C-STORE is successful, Ziostation transfers selected DICOM image data as interaction to remote AE. If association or transfer fails, Ziostation displays error messages. If a response status for C-STORE is warning, then Ziostation terminates the following processes. No extended negotiation is performed.

1.1.2.1.3.3 SOP Specific Conformance for Query/Retrieve Information Model - FIND

Ziostation does not support relational queries. No extended negotiation is performed. The following table shows available keys for queries.

Table 6: Study Level Request Attributes for Study Root Query/Retrieve Information Model

Attribute Name	Tag	Type
Study Date	(0008,0020)	R
Study Time	(0008,0030)	R
Accession Number	(0008,0050)	R
Patient's Name	(0010,0010)	R
Patient ID	(0010,0020)	R
Study ID	(0020,0010)	R
Study Instance UID	(0020,000d)	U
Number of Study Related Series	(0020,1206)	O
Number of Study Related Instances	(0020,1208)	O
Modalities in Study	(0008,0061)	O
Referring Physician’s Name	(0008,0090)	O
Study Description	(0008,1030)	O

Table 7: Series Level Request Attributes for Study Root Query/Retrieve Information Model

Attribute Name	Tag	Type
Modality	(0008,0060)	R
Series Number	(0020,0011)	R
Study Instance UID	(0020,000d)	U(*)
Series Instance UID	(0020,000e)	U
Number of Series Related Instances	(0020,1209)	O
Series Description	(0008,103e)	O
Body Part Examined	(0018,0015)	O
Protocol Name	(0018,1030)	O

(*): Higher level unique key

Table 8: Image Level Request Attributes for Study Root Query/Retrieve Information Model

Attribute Name	Tag	Type
Instance Number	(0020,0013)	R
SOP Instance UID	(0008,0018)	U
Study Instance UID	(0020,000d)	U(*)
Series Instance UID	(0020,000e)	U(*)

(*): Higher level unique key

1.1.2.1.3.4 SOP Specific Conformance for Query/Retrieve Information Model - MOVE

Ziostation does not support relational retrievals. No extended negotiation is performed.

1.1.2.1.3.5 SOP Specific Conformance for Print Management Service Class

Switching between Color and Grayscale is manual. If the association or data transfer fails, then error messages are displayed. No extended negotiation is performed.
Ziostation supports the following SOP classes as defined by the Print Management Service Class.

Table 9: SOP Classes for Print Management Service Class

SOP Class Name	SOP Class UID
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
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

1.1.2.1.3.5.1 Basic Film Session SOP Class

The Ziostation provides the following support for the Basic Film Session attributes sent by the N-CREATE DIMSE service's SCU.

Table 10: Basic Film Session SOP Class Request Attributes

Attribute	Tag	Valid Range
Number of Copies	(2000,0010)	1 - 1000
Print Priority	(2000,0020)	MED
Medium Type	(2000,0030)	CLEAR FILM BLUE FILM PAPER

Attribute	Tag	Valid Range
Film Destination	(2000,0040)	MAGAZINE PROCESSOR BIN_1 BIN_2 BIN_3 BIN_4 BIN_5 BIN_6 BIN_7 BIN_8 BIN_9 BIN_10

It is expected that the other attributes are not set and use printer's default values.

1.1.2.1.3.5.2 Basic Film Box SOP Class

The Ziostation provides the following support for the Basic Film Box attributes sent by the N-CREATE, N-ACTION, and N-DELETE service's SCU.

Table 11: Basic Film Box SOP Class Request Attributes

Attribute	Tag	Valid Range
Image Display Format	(2010,0010)	STANDARD\C,R C=[1..8] R=[1..8]
Film Orientation	(2010,0040)	PORTRAIT LANDSCAPE
Min Density	(2010,0120)	
Max Density	(2010,0130)	
Configuration Information	(2010,0150)	

It is expected that the other attributes are not set and use printer's default values.

1.1.2.1.3.5.3 Basic Grayscale Image Box SOP Class

The Ziostation provides the following support for the Basic Grayscale Image Box attributes sent by the N-SET service's SCU.

Table 12: Basic Grayscale Image Box SOP Class Request Attributes

Attribute	Tag	Valid Range
Image Box Position	(2020,0010)	1 - 25
Basic Grayscale Image Sequence	(2020,0110)	
> Samples per Pixel	(0028,0002)	1

Attribute	Tag	Valid Range
> Photometric Interpretation	(0028,0004)	MONOCHROME1 MONOCHROME2
> Rows	(0028,0010)	
> Columns	(0028,0011)	
> Pixel Aspect Ratio	(0028,0034)	1 : 1
> Bits Allocated	(0028,0100)	8 or 16
> Bits Stored	(0028,0101)	8 - 16
> High Bit	(0028,0102)	7 - 15
> Pixel Representation	(0028,0103)	0
> Pixel Data	(7FE0,0010)	
Min Density	(2010,0120)	
Max Density	(2010,0130)	
Configuration Information	(2010,0150)	
Requested Image Size	(2020,0030)	

It is expected that the other attributes are not set and use printer's default values.

1.1.2.1.3.5.4 Basic Color Image Box SOP Class

The Ziostation provides the following support for the Basic Color Image Box attributes sent by the N-SET service's SCU.

Table 13: Basic Color Image Box SOP Class Request Attributes

Attribute	Tag	Valid Range
Basic Color Image Sequence	(2020,0111)	
> Image Box Position	(2020,0010)	1 - 25
> Samples per Pixel	(0028,0002)	3
> Photometric Interpretation	(0028,0004)	RGB
> Rows	(0028,0010)	
> Columns	(0028,0011)	
> Pixel Aspect Ratio	(0028,0034)	1 : 1
> Bits Allocated	(0028,0100)	8
> Bits Stored	(0028,0101)	8
> High Bit	(0028,0102)	7
> Pixel Representation	(0028,0103)	0
> Pixel Data	(7FE0,0010)	

1.1.2.1.3.5.5 Printer SOP Class

The Ziostation provides the following support for the Printer attributes sent by the N-GET service's SCU.

Table 14: Printer SOP Class Request Attributes

Attribute	Tag	Valid Range
Printer Status	(2110,0010)	
Printer Status Info	(2110,0020)	
Printer Name	(2110,0030)	
Manufacturer	(0008,0070)	
Manufacturer's Model Name	(0008,1090)	
Device Serial Number	(0018,1000)	
Software Version(s)	(0018,1020)	
Date of Last Calibration	(0018,1200)	
Time of Last Calibration	(0018,1201)	

1.1.3 Association Acceptance Policy

Ziostation accepts the remote AE's associations when all the following conditions are met:

- AE which has established associations is registered in Ziostation
- Associations for verification service or storage service
- Ziostation is in the association acceptable state

1.1.3.1 Real-World Activities

1.1.3.1.1 Description and Sequencing of Real-World Activities

The Ziostation awaits the associations for Storage, Verification, and Query/Retrieve services.

If the association proposed from registered AE, it is accepted.

1.1.3.1.2 Proposed Presentation Contexts

Ziostation is capable of accepting the proposed Presentation Contexts shown in the following table.

Table 15: Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Verification SOP Class	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Digital Mammography X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
Digital Mammography X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
X-Ray 3D Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.13.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		JPEG Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Extended	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
		JPEG 2000 Image Compression (LosslessOnly)	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
		RLE Lossless	1.2.840.10008.1.2.5	SCP	None
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

1.1.3.1.3 SOP Specific Conformance

1.1.3.1.3.1 SOP Specific Conformance for Verification SOP Class

Ziostation provides Standard Conformance as SCP of Verification SOP Class.

1.1.3.1.3.2 SOP Specific Conformance for Storage SOP Class

Ziostation can accept multiple C-STORE requests as Storage Service provider with a single association. The Ziostation is Level 2 (Full) conformant as a Storage Service provider. No attributes are overridden and modified. If C-STORE is successful, Ziostation stores the DICOM image data to hard disk. The data stored in a hard disk is enabled to access through the user of the OS service or the Ziostation.
Ziostation returns C-STORE response statuses shown in the following table.

Table 16 : Storage C-STORE Response Status

Error Code	Service Status	Reason
0x0000	Success	Success
0xA700	Refused	Out of Resources
0xA900	Error	Data Set does not match SOP Class
0xB000	Warning	Coercion of Data Elements
0xB006	Warning	Elements Discarded
0xB007	Warning	Data Set does not match SOP Class
0xCxxx	Error	Any other error

1.1.3.1.3.3 SOP Specific Conformance for Query/Retrieve Information Model – FIND

Ziostation does not support relational queries. No extended negotiation is performed. Ziostation provides Standard Conformance as the Query SOP Class SCP. Ziostation returns C-FIND response statuses shown in the following table.

Table 17 : Study Level Request Attributes for Study Root Query/Retrieve Information Model

Attribute Name	Tag	Type	Available for Query key
Study Date	(0008,0020)	R	Yes
Study Time	(0008,0030)	R	No
Accession Number	(0008,0050)	R	Yes
Patient's Name	(0010,0010)	R	Yes
Patient ID	(0010,0020)	R	Yes
Study ID	(0020,0010)	R	Yes

Attribute Name	Tag	Type	Available for Query key
Study Instance UID	(0020,000d)	U	Yes
Number of Study Related Series	(0020,1206)	O	No
Number of Study Related Instances	(0020,1208)	O	No
Modalities in Study	(0008,0061)	O	Yes
Referring Physician's Name	(0008,0090)	O	Yes
Study Description	(0008,1030)	O	Yes

Table 18 : Series Level Request Attributes for Study Root Query/Retrieve Information Model

Attribute Name	Tag	Type	Available for Query key
Modality	(0008,0060)	R	Yes
Series Number	(0020,0011)	R	Yes
Study Instance UID	(0020,000d)	U (*)	Yes
Series Instance UID	(0020,000e)	U	Yes
Series Description	(0008,103e)	O	Yes
Body Part Examined	(0018,0015)	O	Yes
Protocol Name	(0018,1030)	O	Yes
Study ID	(0020,0010)	O	Yes
Number of Series Related Instances	(0020,1209)	O	No

(*): Higher level unique key

Table 19 : Composite Object Instance Level Request Attributes for Study Root Query/Retrieve Information Model

Attribute Name	Tag	Type	Available for Query key
Instance Number	(0020,0013)	R	Yes
SOP Instance UID	(0008,0018)	U	Yes
Study Instance UID	(0020,000d)	U(*)	Yes
Series Instance UID	(0020,000e)	U(*)	Yes

(*): Higher level unique key

1.1.3.1.3.4 SOP Specific Conformance for Query/Retrieve Information Model – MOVE

Ziostation does not support relational queries. No extended negotiation is performed. Ziostation provides Standard Conformance as SCP of retrieve SOP Class.

1.1.3.1.4 Proposed Presentation Contexts

Ziostation is capable of proposing multiple Presentation Contexts. The specification is shown as follows:

(Abstract Syntax + (Transfer Syntax * Number of Syntax)) * Number of Syntax

In this case, number of syntax is equal to or greater than 1.

1.2 NETWORK PROFILE

1.2.1 Supported Protocol Stacks (PS 3.8, PS 3.9)

Ziostation provides DICOM V3.0 TCP/IP Network Protocol Stacks support in which stacks are defined in DICOM Standards PS 3.8.

1.2.2 OSI Stack

OSI Stack is not supported.

1.2.3 TCP/IP Stack

Ziostation inherits TCP/IP Stack from runtime environment OS.

1.2.4 API

APIs are not released.

1.2.5 Physical Device Support

Ziostation inherits Physical Device Support from runtime environment OS.

1.2.6 Point-to-point stack

Point-to-point stack is not supported.

1.3 STANDARD EXTENDED/SPECIALIZED/PRIVATE SOP CLASSES

1.3.1 Extended CT, MR, Nuclear Medicine, Positron Emission Tomography, X-Ray Angiographic, RT Dose objects

Ziostation is making the following extensions to CT, MR, Nuclear Medicine, Positron Emission Tomography, X-Ray Angiographic and RT Dose SOP Classes:

Table 20: PRIVATE CREATOR IDENTIFICATION: ZIO_DICOM_WORKSPACE_01

Tag	Attribute Name	Type	VR
(7109,00XX)	Private Creator	3	LO
(7109,XX21)	Private Data 1	3	OB
(7109,XX23)	Private Data 2	3	OB

Requesting Service (0032,1033) is copied to derived CT, MR, Nuclear Medicine, Positron Emission Tomography and X-Ray Angiographic object if it's present in original DICOM object.
Also Ziostation may set Temporal Position Index (0020,9128) to CT and MR objects.

1.3.2 Extended Secondary Capture object

Ziostation is making the following extensions to Secondary Capture SOP Class:

Table 21: PRIVATE CREATOR IDENTIFICATION: ZIO_DICOM_WORKSPACE_01

Tag	Attribute Name	Type	VR
(7109,00XX)	Private Creator	3	LO
(7109,XX21)	Private Data 1	3	OB
(7109,XX23)	Private Data 2	3	OB
(7109,XX30)	Private Data 3	3	DS
(7109,XX31)	Private Data 4	3	DS
(7109,XX32)	Private Data 5	3	DS
(7109,XX33)	Private Data 6	3	UI
(7109,XX34)	Private Data 7	3	CS

Requesting Service (0032,1033) is copied to Secondary Capture object if it's present in original DICOM object.

1.3.3 Specializations

1.3.3.1 Image Type defined for images created by Ziostation

Ziostation defines the following values as Value 4 of Image Type (0008, 0008).

- ZIO WKS
- ZIO VIEWMODE
- ZIO RPT
- ZIO PREPROCESSED
- ZIO LESION INFO

- ZIO RWKS
- ZIO PWKS
- DEFORMED

One of them except DEFORMED might be used for Secondary Capture objects and DEFORMED might be used for CT, MR, Nuclear Medicine, Positron Emission Tomography and X-Ray Angiographic objects.

1.3.3.2 Modality defined for images created by Ziostation

Ziostation defines the following values as Modality (0008, 0060), and one of them might be used when Ziostation creates Secondary Capture objects:

- WKS
- REPORT
- ZPP
- ZLA

1.4 Configuration

1.4.1 AE Title/Presentation Address Mapping

AE Title/Presentation Address Mappings are set while in installation by the support engineer.

1.4.2 Parameters

The following parameters are available. These are configured during installation by the support engineer.

- AE Title
- IP Address
- Port Number
- Max PDU size
- Directories to store images
- Priority of the acceptable Transfer Syntax
- Embed Private Attributes in Secondary Capture Images or not

2 MEDIA INTERCHANGE

2.1 IMPLEMENTATION MODEL

2.1.1 Application Data Flow

Application Data Flow is shown in Figure 2.

2.2 AE SPECIFICATIONS

2.2.1 Application Entity Specification

Ziostation provides Standard Conformance to the DICOM Media Storage Service Class.

The Application Profiles and Roles are listed below.

Table 22: Application Profiles, Activities and Roles

Application Profiles Supported	Real World Activity	Role
STD-GEN-CD	Export to CD-R/DVD-R	FSC
STD-GEN-CD	Read data from CD-R/DVD-R	FSR

2.2.1.1 Real-World Activities

2.2.1.1.1 Activity - Export to CD-R/DVD-R

Ziostation acts as an FSC when requested to export SOP Instances from the local database to a CD-R/DVD-R medium.

The user will be prompted to insert an empty CD-R/DVD-R for each export job. The contents of the export job will be written together with a corresponding DICOMDIR to a single-session CD-R/DVD-R. Writing in multi-session mode is not supported.

The user can cancel an export job in the job queue.

2.2.1.1.1.1 Media Storage Application Profiles

Ziostation supports the STD-GEN-CD Application Profile.

2.2.1.1.2 Activity - Read data from CD-R/DVD-R

Ziostation acts as an FSR when requested to read data from a CD-R/DVD-R medium.

2.2.1.1.2.1 Media Storage Application Profiles

Ziostation supports the STD-GEN-CD Application Profile.

3 SUPPORT OF CHARACTER SETS

Ziostation supports the following extended character sets:

- ISO-8859-1 (ISO-IR 100 Latin-1)
- JIS X 0201 (ISO-IR 13 Japanese katakana and ISO-IR 14 Japanese romaji)
- JIS X 0208 (ISO-IR 87 Japanese kanji, hiragana and katakana)
- JIS X 0212 (ISO-IR 159 Supplementary Japanese kanji)

4 SECURITY

4.1 Security Profiles

None supported.

4.2 Association Level Profiles

Ziostation as SCP can be configured to accept Association Requests from only a limited list of Calling AE Titles.

4.3 Application Level Profiles

4.3.1 Basic Application Level Confidentiality Profile (De-identifier)

Ziostation is basically following to the Basic Application Level Confidentiality Profile as a de-identifier, which is described in DICOM 2023b PS 3.15 Annex E, but it is not guaranteed that Ziostation generates completely de-identified objects.

Ziostation supports the following Basic Application Level Confidentiality Options:

- Retain Device Identity Option
- Retain Patient Characteristics Option
- Retain Safe Private Option

And the following option is always applied:

- Retain Longitudinal Temporal Information with Full Dates Option

Ziostation performs de-identification by following action codes defined in DICOM PS 3.15 Annex E Table E.1-1 with some differences.

- D - Treated as Z

- Z - Replace with a zero length value except SQ tags (X is applied for them)
- C - Not supported
- Z/D, X/D, X/Z/D – Treated as Z
- X/Z – Treated as Z
- X/Z/U* - Treated as X

The following tags are processed with different way from DICOM PS 3.15 Annex E Table E.1-1.

Table 23 : DICOM Standard tags which are treated in a special way while de-identification

Name	Tag	Action
Patient's Name	(0010,0010)	Replaced with a non-zero length value
Patient ID	(0010,0020)	Replaced with a non-zero length value
Protocol Name	(0018,1030)	Removed
Study ID	(0020,0010)	Replaced with a non-zero length value

Ziostation removes all DICOM Standard tags which are listed in DICOM PS 3.15 Annex E Table E.1-1 and VR is SQ.

When Ziostation is performing de-identification with Retain Safe Private Option, the following private tags and corresponding Creator ID are retained or modified if it's Creator ID is as expected.

The following action codes are used in the table:

- K - keep
- M - replace with a non-zero length value that may be a dummy value

Table 24 : Private tags, expected Creator ID, and action code

Tag	Expected Creator ID	Code
(0019,1024)	GEMS_ACQU_01	K
(0019,10A9)	GEMS_ACQU_01	K
(0019,10BB)	GEMS_ACQU_01	K
(0019,10BC)	GEMS_ACQU_01	K
(0019,10BD)	GEMS_ACQU_01	K
(0019,10CC)	GEMS_ACQU_01	K
(0019,10E2)	GEMS_ACQU_01	K
(0019,100C)	SIEMENS MR HEADER	K
(0043,1039)	GEMS_PARM_01	K
(0043,107F)	GEMS_PARM_01	K
(0045,1033)	GEMS_HELIOS_01	K
(01F1,1041)	ELSCINT1	K

Tag	Expected Creator ID	Code
(2001,1003)	Philips Imaging DD 001	K
(2001,1004)	Philips Imaging DD 001	K
(2005,10B0)	Philips MR Imaging DD 001	K
(2005,10B1)	Philips MR Imaging DD 001	K
(2005,10B2)	Philips MR Imaging DD 001	K
(2005,140F)	Philips MR Imaging DD 005	K
(7053,1000)	Philips PET Private Group	K
(7005,1000)	TOSHIBA_MEC_CT3	M
(7005,1003)	TOSHIBA_MEC_CT3	K
(7005,1004)	TOSHIBA_MEC_CT3	K
(7005,1005)	TOSHIBA_MEC_CT3	K
(7005,100b)	TOSHIBA_MEC_CT3	K
(7005,1010)	TOSHIBA_MEC_CT3	M
(7005,1016)	TOSHIBA_MEC_CT3	M
(700D,1000)	TOSHIBA_MEC_MR3	K
(700D,1117)	TOSHIBA_MEC_MR3^10	K
(7109,1013)	ZIO_DICOM_WORKSPACE_01	K
(7109,1015)	ZIO_DICOM_WORKSPACE_01	K
(7109,1017)	ZIO_DICOM_WORKSPACE_01	K
(7109,101F)	ZIO_DICOM_WORKSPACE_01	K
(7109,1021)	ZIO_DICOM_WORKSPACE_01	K
(7109,1023)	ZIO_DICOM_WORKSPACE_01	K
(7109,1030)	ZIO_DICOM_WORKSPACE_01	K
(7109,1031)	ZIO_DICOM_WORKSPACE_01	K
(7109,1032)	ZIO_DICOM_WORKSPACE_01	K
(7109,1033)	ZIO_DICOM_WORKSPACE_01	K
(7109,1034)	ZIO_DICOM_WORKSPACE_01	K