

InstaPACS / InstaRISPACS / InstaViewer
(v3.0.22 Release)
DICOM Conformance Statement

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1. Introduction

1.1 Scope and Field of Application:

This document is the Dicom Conformance statement for the InstaPACS DICOM Server, software application developed by Meddiff Technologies Pvt Ltd. The purpose of this document is to give a detailed description of how InstaPACS DICOM Server collaborates with other medical imaging devices and application that conform to the DICOM 3.0 standard.

The Intended user of this document are potential customers, system integrators of medical equipments, software designers implementing dicom interface, marketing staff interested in system functionality. It is assumed that the intended user is familiar with the DICOM 3.0 standard, if not then the user should consult the actual documentation prior to examining this conformance statement.

1.2 References and Definitions

All necessary references and definitions referred in this document have been taken from Digital Imaging and Communication in Medicine (DICOM) standard, part 1 through 13 (NEMA PS 3.1-3.13).

1.3 Symbols and Abbreviations

All symbols and abbreviations used in this document are described in Digital Imaging and Communication in Medicine (DICOM) part 1 through 13 (NEMA PS 3.1-3.13). The word InstaPACS in this document refers to Meddiff Technologies Pvt Ltd.

1.4 Important Considerations for the Reader

The conformance statement by itself does not guarantee successful interoperability between InstaPACS and equipment from other vendors. The user should be aware of the following issues

- **Interoperability**

Interoperability refers to the ability of application function, to work successfully, when distributed over two or more systems. The integration of medical devices into a networked environment may require application functions that are not specified within the scope of DICOM.

- **Validation**

When a conformance statement from other vendor indicates that connectivity can be established with this conformance statement, then it's the responsibility of the user to verify this by carrying out validations test and to check whether all the required functionality is met.

- **Future Evolution**

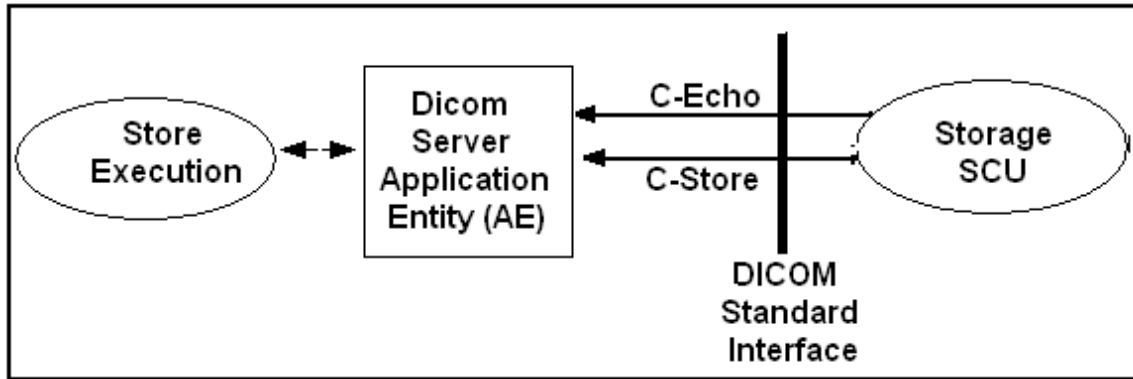
As the DICOM 3.0 standard changes to meet the user's growing requirements and to incorporate new technologies and features, Meddiff Technologies will follow the evolution of the standard. This evolution of the standard may require changes to devices which have implemented DICOM 3.0 standard. So it's the responsibility of the user to ensure that any other vendor equipment connecting to InstaPACS, also plans future evolution of the DICOM standard. A refusal to do so may lead to loss of functionality and/or connectivity between the different products.

2. Implementation Model:

InstaPACS DICOM Server AE is simple transfer of images using DICOM Storage Service Class. It constantly waits for association requests from external applications. For each association request, it verifies the access privileges that was defined for the requesting AE, decides whether to accept the association, and what services to enable for the association.

2.1. Application Data Flow Diagram:

InstaPACS implements a DICOM server application for establishing a communication with remote application entities. Application Data Flow Diagram is shown below:-



This DICOM Server AE is always prepared to respond to a DICOM C – Echo, C – Store request by any remote DICOM AE. Before any image is transferred, a trusted connection is established with the remote DICOM AE based on the its AE – Title and the requested presentation states. When an association has been established, storage requests are received from the remote DICOM AE, and DICOM information objects received are converted to the internal storage format (default : JPEG Lossless). The converted information is stored and registered in the database. If storage / registration results in normal termination, a normal response will be sent to the remote DICOM AE. If fails, a failure response will be sent to the remote DICOM AE.

2.2. Functional Definition of AEs:

This DICOM Server AE waits for association requests from Remote AE's that wish to perform the following operations:

Verification: If a C-Echo request message is received, the DICOM Server AE will send back a C-Echo response message with a status of “success”.

Image Storage: If a C-Store request message is received, the DICOM Server AE will receive the image and try to update the local database. If the image is stored successfully on storage media and the database updated a status of “success” will be returned in a C-Store response message.

2.3. Sequencing of Real World Activities:

Not Applicable

3. AE Specification:

3.1. DICOM Store SCP

This DICOM Server Application Entity provides Standard Conformance to the following DICOM V3.0 SOP Classes as a SCP:

<i>SOP Class Name</i>	<i>SOP Class UID</i>
Verification	
Verification SOP Class	1.2.840.10008.1.1
Storage	
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1
CT image Storage	1.2.840.10008.5.1.4.1.1.2
MR image Storage	1.2.840.10008.5.1.4.1.1.4

Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2
Enhanced MR Color Image Storage	1.2.840.10008.5.1.4.1.1.4.3
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1
Ultrasound Image Storage(Retired)	1.2.840.10008.5.1.4.1.1.6
Ultrasound Multi-frame image storage	1.2.840.10008.5.1.4.1.1.3.1
Ultrasound Multi-frame Image Storage(Retired)	1.2.840.10008.5.1.4.1.1.3
Enhanced US Volume Storage	1.2.840.10008.5.1.4.1.1.6.2
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7
Multi-frame Single Bit SC Image Storage	1.2.840.10008.5.1.4.1.1.7.1
Multi-frame Grayscale Byte SC Image Storage	1.2.840.10008.5.1.4.1.1.7.2
Multi-frame Grayscale Word SC Image Storage	1.2.840.10008.5.1.4.1.1.7.3
Multi-frame Grayscale True SC Image Storage	1.2.840.10008.5.1.4.1.1.7.4
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1

Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1
General Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.2
Arterial Pulse Waveform Storage	1.2.840.10008.5.1.4.1.1.9.5.1
Respiratory Waveform Storage	1.2.840.10008.5.1.4.1.1.9.6.1
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2
Pseudo Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3
Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4
XAXRF Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.5
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1
Enhanced XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2
Enhanced X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2.1
XRy 3D Angio graphic Image Storage	1.2.840.10008.5.1.4.1.1.13.1.1
XRy 3D Cranio Facial Image Storage	1.2.840.10008.5.1.4.1.1.13.1.2
Breast Tomo Synthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1
Digital Mammography XRy Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2

Digital Mammography XRay Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1
Digital Intra – oral X-Ray Image Storage – for Presentation	1.2.840.10008.5.1.4.1.1.1.3
Digital Intra – oral X-Ray Image Storage – for Processing	1.2.840.10008.5.1.4.1.1.1.3.1
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3
RT Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4
RT Plan Storage	1.2.840.10008.5.1.4.1.1.481.5
RT Brachy Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.6
RT Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7
RT Ion Plan Storage	1.2.840.10008.5.1.4.1.1.481.8
RT Ion Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.9
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128
Enhanced PET Image Storage	1.2.840.10008.5.1.4.1.1.130
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1
Video Endoscopy Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3

VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1
Ophthalmic Photography 8-Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1
Ophthalmic Photography 16-Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2
Stereometric Relationship Storage	1.2.840.10008.5.1.4.1.1.77.1.5.3
Ophthalmic Tomography Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.4
VL Whole Slide Microscopy Image Storage	1.2.840.10008.5.1.4.1.1.77.1.6
VL MultiFrame Image Storage(RETIRED)	1.2.840.10008.5.1.4.1.1.77.2
Lensometry Measurements Storage	1.2.840.10008.5.1.4.1.1.78.1
Auto refraction Measurements Storage	1.2.840.10008.5.1.4.1.1.78.2
Keratometry Measurements Storage	1.2.840.10008.5.1.4.1.1.78.3
Subjective Refraction Measurements Storage	1.2.840.10008.5.1.4.1.1.78.4
Visual Acuity Measurements Storage	1.2.840.10008.5.1.4.1.1.78.5
Spectacle Prescription Report Storage	1.2.840.10008.5.1.4.1.1.78.6
Ophthalmic Axial Measurements Storage	1.2.840.10008.5.1.4.1.1.78.7
Intraocular Lens Calculations Storage	1.2.840.10008.5.1.4.1.1.78.8
Macular Grid Thickness And Volume Report Storage	1.2.840.10008.5.1.4.1.1.79.1
Ophthalmic Visual Field Static Perimetry Measurements Storage	1.2.840.10008.5.1.4.1.1.80.1
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11

Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33
Procedure Log Storage	1.2.840.10008.5.1.4.1.1.88.40
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59
Chest CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.65
XRay Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67
Colon CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.69
Implantation Plan SR Document Storage	1.2.840.10008.5.1.4.1.1.88.70
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1
Encapsulated CDA Storage	1.2.840.10008.5.1.4.1.1.104.2
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2
Deformable Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.3
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4
Surface Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.5
Siemens Private Storage	1.3.12.2.1107.5.9.1
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20

Nuclear Medicine Image Storage(RETIRED)	1.2.840.10008.5.1.4.1.1.5
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3.1.1. Association Establishment Policies:

3.1.1.1. General:

The DICOM standard application context name, which is always proposed, is DICOM 3.0:

Application context name	1.2.840.10008.3.1.1.1
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This DICOM Server AE attempts to establish an association whenever it is invoked with valid parameters (including a known destination and valid DICOM format files). It will only attempt to establish association if it determines that the file has a valid group 0002 header and that the Abstract Syntax and Transfer Syntax specified in the file header are valid. It then also validate the contents of the file against the IOD for the SOP Class.

The called AE title is the own AE title (the value set for the configuration file).

The AE title, port no. and IP address for the remote DICOM AE are known (values set for the configuration file).

The maximum length PDU for an association initiated by the DICOM Server AE is:

Maximum Length PDU	16 Kbytes
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3.1.1.2. Number of Associations:

This DICOM Server AE attempts only one association establishment at a time, to perform any Real – World activity with a Remote AE

3.1.1.3. Asynchronous Nature:

Asynchronous mode of operation is not supported.

3.1.1.4. Implementation Identifying Information:

The Implementation UID/Version Name for InstaPACS DICOM Implementation is still not registered. However, we are currently using the following:

Implementation Class UID	1.2.276.0.7230010.3.0.3.5.2.
Implementation Version Name	OFFIS.DCMTK.354

3.1.2 Association Initiation by Real-world Activities:

The InstaViewer attempts to initiate a new association for each SOP Instance it attempts to transfer. It initiates the following requests

- C-ECHO
- C-STORE

For C-STORE the default transfer syntax is ‘Implicit VR Little Endian’.

3.1.3 Association Acceptance policy by Real-world Activities:

The following (remote) real-world activities will cause a request for an association acceptance.

- Remote C – Echo request.
- Remote C – Store request.

To conduct the above Real – World activities, this DICOM Server Application Entity, attempts to establish a new associations with the remote DICOM AE. It will first make an authenticated connection, after verifying its AE title, port no. and the IP address. Then based on the Presentation Contexts sent in the association request, it decides upon a single Transfer Syntax for each Abstract Syntax listed in the Presentation Context table, to establish a negotiation. It then sends an association response containing the negotiated Presentation Context table.

If a TCP/IP connection is established with a remote DICOM AE and not followed up by a DICOM association request within a certain time period, the connection will be dropped.

When the association has been established, there is also a time-out value for a command to be received. When there is no activity within this time, an Association Release request will be issued to release the association.

3.1.3.1. Real World Activity – Receive C-Echo

3.1.3.1.1. Associated real –world activity “C-Echo”:

As part of the verification real-world activity, Another device can request for a verification to the Server. This DICOM server application entity initiates an association when it receives a request for Verification

3.1.3.1.2. Presentation Contexts:

Any of the Presentation Context shown in the following Table are acceptable for DICOM Store SCP to receive the verification request

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	
Verification	1.2.840.10008.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	

3.1.3.1.3. SOP Specific Conformance to Verification SOP Class

DICOM Store SCP provides standard conformance to the DICOM Verification SOP Class.

3.1.3.1.4. Presentation Contextr Acceptance Criterion

DICOM Store SCP accepts all presentatin contexts listed in the table above.

3.1.3.1.5. Transfer Syntax Selection Policies

DICOM Store SCP will select the first acceptable transfer syntax which is offered by the connected SCU.

3.1.3.2. Real-World Activity – Receive C-Store

3.1.3.2.1. Associated Real – World Activity “C – Store”:

As part of the storage real-world activity, another device can request for storing the images to the Server. This DICOM server application entity initiates an association when it receives a request for Storage. The default behavior is to accept as SCP for each of the supported SOP classes all presentation contexts containing the following transfer

syntaxes:

3.1.3.2.2. Accepted Presentation Contexts:

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	See Table Below	See Table Below	SCP	None
CT image Storage	1.2.840.10008.5.1.4.1.1.2	See Table Below	See Table Below	SCP	None
MR image Storage	1.2.840.10008.5.1.4.1.1.4	See Table Below	See Table Below	SCP	None
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	See Table Below	See Table Below	SCP	None
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	See Table Below	See Table Below	SCP	None
Enhanced MR Color Image Storage	1.2.840.10008.5.1.4.1.1.4.3	See Table Below	See Table Below	SCP	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	See Table Below	See Table Below	SCP	None
Ultrasound Image Storage(Retired)	1.2.840.10008.5.1.4.1.1.6	See Table Below	See Table Below	SCP	None
Ultrasound Multi-frame image storage	1.2.840.10008.5.1.4.1.1.3.1	See Table Below	See Table Below	SCP	None
Ultrasound Multi-frame Image Storage(Retired)	1.2.840.10008.5.1.4.1.1.3	See Table Below	See Table Below	SCP	None
Enhanced US Volume Storage	1.2.840.10008.5.1.4.1.1.6.2	See Table Below	See Table Below	SCP	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	See Table Below	See Table Below	SCP	None
Multi-frame Single Bit SC Image Storage	1.2.840.10008.5.1.4.1.1.7.1	See Table Below	See Table Below	SCP	None
Multi-frame Grayscale Byte SC Image Storage	1.2.840.10008.5.1.4.1.1.7.2	See Table Below	See Table Below	SCP	None
Multi-frame Grayscale Word SC Image Storage	1.2.840.10008.5.1.4.1.1.7.3	See Table Below	See Table Below	SCP	None
Multi-frame	1.2.840.10008.5.1.4.1.1.7.4	See Table	See Table	SCP	None

Grayscale True SC Image Storage		Below	Below		
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	See Table Below	See Table Below	SCP	None
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	See Table Below	See Table Below	SCP	None
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	See Table Below	See Table Below	SCP	None
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	See Table Below	See Table Below	SCP	None
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	See Table Below	See Table Below	SCP	None
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	See Table Below	See Table Below	SCP	None
General Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.2	See Table Below	See Table Below	SCP	None
Arterial Pulse Waveform Storage	1.2.840.10008.5.1.4.1.1.9.5.1	See Table Below	See Table Below	SCP	None
Respiratory Waveform Storage	1.2.840.10008.5.1.4.1.1.9.6.1	See Table Below	See Table Below	SCP	None
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	See Table Below	See Table Below	SCP	None
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	See Table Below	See Table Below	SCP	None
Pseudo Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	See Table Below	See Table Below	SCP	None
Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4	See Table Below	See Table Below	SCP	None
XAXRF Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.5	See Table Below	See Table Below	SCP	None

X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	See Table Below	See Table Below	SCP	None
Enhanced XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1	See Table Below	See Table Below	SCP	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	See Table Below	See Table Below	SCP	None
Enhanced X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2.1	See Table Below	See Table Below	SCP	None
XRAY 3D Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.13.1.1	See Table Below	See Table Below	SCP	None
XRAY 3D Cranio Facial Image Storage	1.2.840.10008.5.1.4.1.1.13.1.2	See Table Below	See Table Below	SCP	None
Breast Tomo Synthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	See Table Below	See Table Below	SCP	None
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	See Table Below	See Table Below	SCP	None
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	See Table Below	See Table Below	SCP	None
Digital Mammography XRay Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	See Table Below	See Table Below	SCP	None
Digital Mammography XRay Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	See Table Below	See Table Below	SCP	None
Digital Intra – oral X-Ray Image Storage – for Presentation	1.2.840.10008.5.1.4.1.1.1.3	See Table Below	See Table Below	SCP	None
Digital Intra – oral X-Ray Image Storage – for Processing	1.2.840.10008.5.1.4.1.1.1.3.1	See Table Below	See Table Below	SCP	None
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	See Table Below	See Table Below	SCP	None

RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	See Table Below	See Table Below	SCP	None
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	See Table Below	See Table Below	SCP	None
RT Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4	See Table Below	See Table Below	SCP	None
RT Plan Storage	1.2.840.10008.5.1.4.1.1.481.5	See Table Below	See Table Below	SCP	None
RT Brachy Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.6	See Table Below	See Table Below	SCP	None
RT Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7	See Table Below	See Table Below	SCP	None
RT Ion Plan Storage	1.2.840.10008.5.1.4.1.1.481.8	See Table Below	See Table Below	SCP	None
RT Ion Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.9	See Table Below	See Table Below	SCP	None
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	See Table Below	See Table Below	SCP	None
Enhanced PET Image Storage	1.2.840.10008.5.1.4.1.1.130	See Table Below	See Table Below	SCP	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	See Table Below	See Table Below	SCP	None
Video Endoscopy Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	See Table Below	See Table Below	SCP	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	See Table Below	See Table Below	SCP	None
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	See Table Below	See Table Below	SCP	None
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	See Table Below	See Table Below	SCP	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	See Table Below	See Table Below	SCP	None
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	See Table Below	See Table Below	SCP	None
Ophthalmic Photography 8-Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	See Table Below	See Table Below	SCP	None
Ophthalmic Photography 16-Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	See Table Below	See Table Below	SCP	None

Stereometric Relationship Storage	1.2.840.10008.5.1.4.1.1.77.1.5.3	See Table Below	See Table Below	SCP	None
Ophthalmic Tomography Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.4	See Table Below	See Table Below	SCP	None
VL Whole Slide Microscopy Image Storage	1.2.840.10008.5.1.4.1.1.77.1.6	See Table Below	See Table Below	SCP	None
VL MultiFrame Image Storage(RETIRED)	1.2.840.10008.5.1.4.1.1.77.2	See Table Below	See Table Below	SCP	None
Lensometry Measurements Storage	1.2.840.10008.5.1.4.1.1.78.1	See Table Below	See Table Below	SCP	None
Auto refraction Measurements Storage	1.2.840.10008.5.1.4.1.1.78.2	See Table Below	See Table Below	SCP	None
Keratometry Measurements Storage	1.2.840.10008.5.1.4.1.1.78.3	See Table Below	See Table Below	SCP	None
Subjective Refraction Measurements Storage	1.2.840.10008.5.1.4.1.1.78.4	See Table Below	See Table Below	SCP	None
Visual Acuity Measurements Storage	1.2.840.10008.5.1.4.1.1.78.5	See Table Below	See Table Below	SCP	None
Spectacle Prescription Report Storage	1.2.840.10008.5.1.4.1.1.78.6	See Table Below	See Table Below	SCP	None
Ophthalmic Axial Measurements Storage	1.2.840.10008.5.1.4.1.1.78.7	See Table Below	See Table Below	SCP	None
Intraocular Lens Calculations Storage	1.2.840.10008.5.1.4.1.1.78.8	See Table Below	See Table Below	SCP	None
Macular Grid Thickness And Volume Report Storage	1.2.840.10008.5.1.4.1.1.79.1	See Table Below	See Table Below	SCP	None
Ophthalmic Visual Field Static Perimetry Measurements Storage	1.2.840.10008.5.1.4.1.1.80.1	See Table Below	See Table Below	SCP	None
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	See Table Below	See Table Below	SCP	None
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	See Table Below	See Table Below	SCP	None

Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	See Table Below	See Table Below	SCP	None
Procedure Log Storage	1.2.840.10008.5.1.4.1.1.88.40	See Table Below	See Table Below	SCP	None
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50	See Table Below	See Table Below	SCP	None
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	See Table Below	See Table Below	SCP	None
Chest CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.65	See Table Below	See Table Below	SCP	None
XRy Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67	See Table Below	See Table Below	SCP	None
Colon CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.69	See Table Below	See Table Below	SCP	None
Implantation Plan SR Document Storage	1.2.840.10008.5.1.4.1.1.88.70	See Table Below	See Table Below	SCP	None
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	See Table Below	See Table Below	SCP	None
Encapsulated CDA Storage	1.2.840.10008.5.1.4.1.1.104.2	See Table Below	See Table Below	SCP	None
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	See Table Below	See Table Below	SCP	None
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	See Table Below	See Table Below	SCP	None
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	See Table Below	See Table Below	SCP	None
Deformable Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.3	See Table Below	See Table Below	SCP	None
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	See Table Below	See Table Below	SCP	None
Surface Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.5	See Table Below	See Table Below	SCP	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	See Table Below	See Table Below	SCP	None
Nuclear Medicine Image Storage(RETIRED)	1.2.840.10008.5.1.4.1.1.5	See Table Below	See Table Below	SCP	None
Siemens Private Storage	1.3.12.2.1107.5.9.1	See Table Below	See Table Below	SCP	None

Each of the storage SOP classes listed above may be transferred using one of the following Transfer Syntaxes:

Transfer Syntax Supported

<i>Name</i>	<i>UID</i>
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2
JPEG Lossy Baseline (Process 1)	1.2.840.10008.1.2.4.50
JPEG Lossy Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51
JPEG Lossless (Process 14)	1.2.840.10008.1.2.4.70
RLE Lossless	1.2.840.10008.1.2.5

3.1.3.2.3. SOP Specific Conformance for Storage:

Errors and warnings are logged. If not initiated directly by a user, commands encountering errors are retried.

The Explicit VR transfer syntax is accepted as the preferred transfer syntax.

Supported Photometric Interpretations for Viewing:

- MONOCHROME1
- MONOCHROME2
- RGB

Following is the list of attributes archived in the local database:

- All received attributes are stored exactly as received (inclusive private attributes).
- All attributes (standard or private) are returned when images are retrieved.
- The list of attributes shown below in the table are those attributes that are extracted from the DICOM file and cataloged in the database for working purpose.

<i>Attributes Cataloged in Database</i>		
<i>Attribute Name</i>	<i>DICOM Tag Number</i>	<i>Remark</i>

Patient Name	(0010,0010)	M
Patient Id	(0010,0020)	M
Patient Birth Date	(0010,0030)	
Patient Sex	(0010,0040)	
Study Instance UID	(0002,000D)	M
Study ID	(0020,0010)	
Study Date	(0008,0020)	
Study Time	(0008,0030)	
Accession Number	(0008,0050)	
Referring Physician Name	(0008,0090)	
Study Description	(0008,1030)	
Series Instance UID	(0002,000E)	M
Series No	(0020,0011)	
Modality	(0008,0060)	M
Manufacturer	(0008,0070)	
Institute Name	(0008,0080)	
Manufacturer Model Name	(0008,1090)	
Series Description	(0008,103E)	
Body Part Examined	(0018,0015)	
Protocol Name	(0018,1030)	
Patient Position	(0018,5100)	
KVP	(0018,0060)	
Slice Thickness	(0018,0050)	
Gantry/Detector Tilt	(0018,1120))	
Exposure Time	(0018,1150)	
X – Ray Tube Current	(0018,1151)	
MR Acquisition Type	(0018,0023)	
Repetition Time	(0018,0080)	
Echo Time	(0018,0081)	
Echo Train Length	(0018,0091)	
SOP Instance UID	(0008,0016)	M
SOP Class UID	(0008,0018)	M
Image Type	(0008,0008)	
Instance Number	(0020,0013)	

Image Position	(0020,0032)	M
Image Orientation	(0020,0037)	M
Frame of Reference UID	(0020,0052)	M
Slice Location	(0020,1041)	
Samples Per Pixel	(0028,0002)	M
Photometric Interpretation	(0028,0004)	M
Planar Configuration	(0028,0006)	
Number of Frames	(0028,0008)	
Rows	(0028,0010)	M
Columns	(0028,0011)	M
Pixel Spacing	(0028,0030)	M
Bits Allocated	(0028,0100)	M
Bits Stored	(0028,0101)	M
High Bit	(0028,0102)	M
Pixel Representation	(0028,0103)	M
Window Center	(0028,1050)	
Window Width	(0028,1051)	
Rescale Intercept	(0028,1052)	
Rescale Slope	(0028,1053)	

3.1.3.2.4 Presentation Context Acceptance Criterion

This DICOM Server application entity does not limit the number of accepted presentation contexts. InstaPACS accepts presentation contexts with multiple transfer syntaxes as listed above.

3.1.3.2.5 Transfer Syntax Selection Policies

DICOM Store SCP will select the first acceptable transfer syntax which is offered by the connected SCU.

4. Communication Protocols:

4.1. Supported Communication Stacks :

InstaPACS provides DICOM TCP/IP network communications support as defined in PS 3.8 Network Communication Support for Message Exchange.

4.2.OSI Stack:

OSI stack is not supported.

4.3.TCP/IP Stack:

TCP/IP stack is inherited from the underlying operating system. The application make use of WinSock interface on Win32 platforms.

4.4.Physical Media Support:

InstaPACS is indifferent to the physical media over which TCP/IP operates. It inherits the medium from the operating system upon which it executes.

4.5.Point-to-Point Stack:

Point-to-Point stack is not supported.

5. Extensions / Specializations / Privatizations:

Not applicable.

6.Configuration:

6.1. AE Title / Presentation Address Mapping:

AE Title / Presentation-Address mapping can be configured locally in a configuration file, which is then stored in the central control database.

6.2. Configurable Parameters:

The following parameters may be configured :

- Local Application Entity Title.
- Local IP address.
- Listening TCP/IP Port Number (port 5001 is the default port number).
- Remote Application Entity Title.
- Remote IP address.
- Output Directory where the DICOM are going to be dumped.
- Number of concurrent associations.

6.3. Cleanup Policies:

InstaPACS provides a web based disk space management utility to be handled by the admin.

7. Support for Extended Character Sets:

No extended character set is supported.

8. Codes and Controlled Terminology:

Not applicable