



DICOM Conformance Statement
Application: Linkverse DICOM Provider 2.0

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1 Introduction

Linkverse DICOM Provider is an storage and/or communication software for Medical Imaging related data, which is able to store, search and retrieve data from its archives, using the specifications of the DICOM-3.0 standard protocol (thereafter called “DICOM”, see 1.1 for more information).

Linkverse DICOM Provider represents one of the core elements of the Linkverse Black-Box and Black-Storage products. Thanks to the DICOM compliance Linkverse DICOM Provider is able to communicate with DICOM compatible devices using TCP/IP networks.

1.1 About this document

This document provides the DICOM Conformance Statement for the Linkverse DICOM Provider implementation of the DICOM standard. The Conformance Statement is a document which defines which parts of the DICOM standard the software complies to. The DICOM standard has been developed by a joint comitee of ACR (American College of Radiology) and NEMA (National Electrical Manufacturers Association) and can be obtained from:

NEMA Publication
2101 L Street, N.W., Suite 300
Washington, DC 20037 USA
Phone: +1 202 4578474

Or from the NEMA Medical internet web site:

<http://medical.nema.org>

This document will refer to the DICOM standard terms and definitions, and has been composed following the DICOM PS 3.2 – 2008.

1.2 Notes

Please note that this Conformance Statement is not intended to be a DICOM compliance certification, while it is meant to help the integration with other DICOM-enabled products. It is upon the user responsibility that proceeds with the integration to carefully perform the appropriate tests to completely, and not partially, determine the services that successfully work with other packages and then that the product can be considered compliant to the user project specifications.

Any evolution from the current version of DICOM standard (DICOM PS 3 – 2008), may require changes to the current Linkverse DICOM Provider application (and therefore an upgrade of the products that implement it). The conformance with the standard may change as well as the standard specifications change.

2 Implementation Model

The Linkverse DICOM Provider application implements the DICOM standard to allow to DICOM-enabled devices and/or softwares to send, query and retrieve data from it.

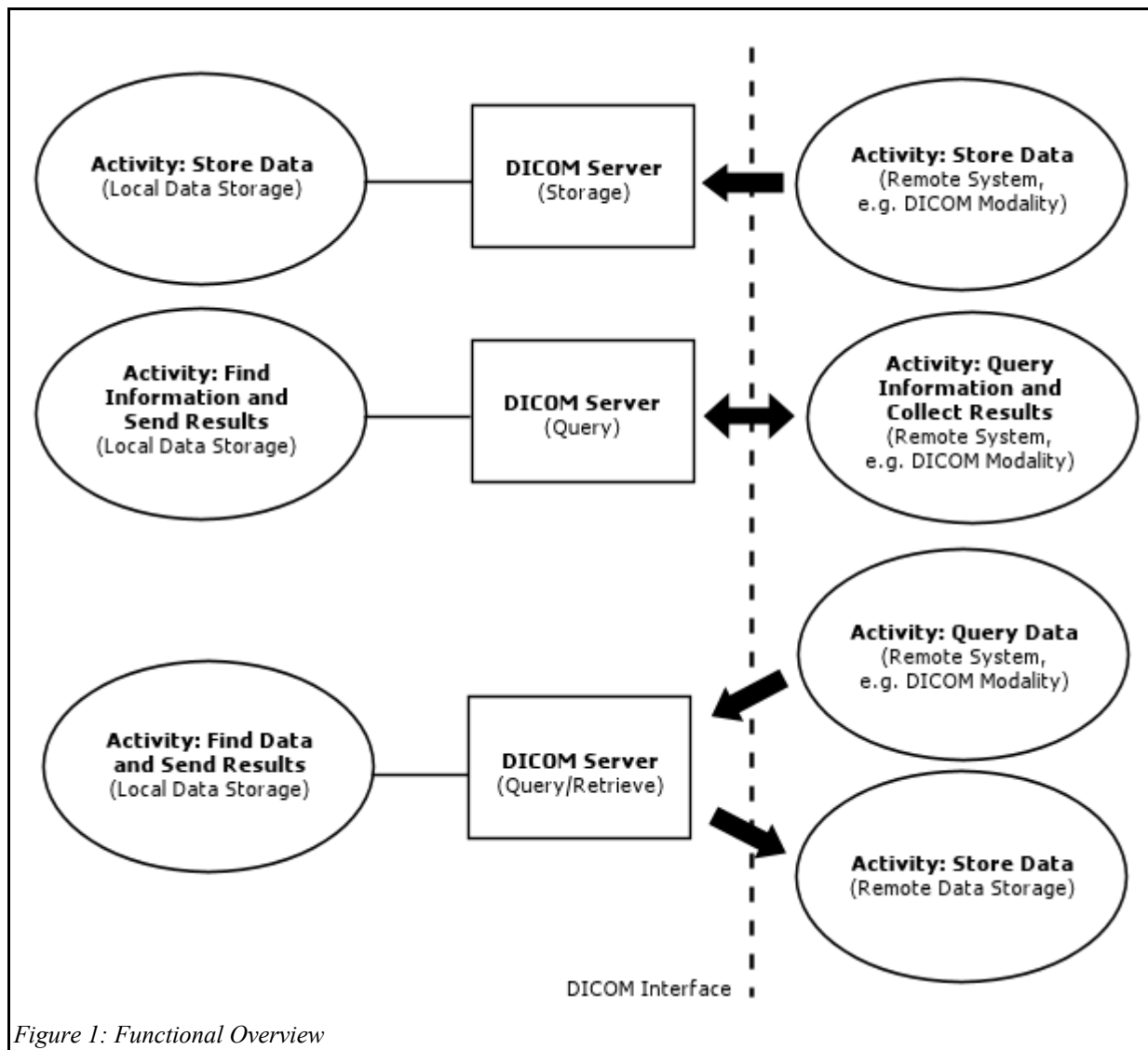
2.1 Application Data Flow Diagram

The Linkverse DICOM Provider application provides the following Application Entity (AE):

- ◆ **DICOM Server**

The DICOM Server Application Entity provides the following services:

- (a) *Verification*. It allows a remote system to check the communications. AE answers an acknowledge as soon as it receives the verification request.
- (b) *Storage*. It allows a remote system to send data to it. AE store received data in the local data storage.
- (c) *Query*. It allows a remote system to query information about stored data and modality worklists. AE performs search queries on the local data storage and provides results to the remote system.
- (d) *Query/Retrieve*. It allows a remote system to query and retrieve stored data. AE locates data in the local data storage and sends it back to a remote system.



2.2 Functional Definition of AEs

2.2.1 Functional Definition of DICOM Server AE

DICOM Server AE provides services through the implementation of the following DIMSE messages:

- (a) *C-ECHO* as Service Class Provider, for Verification Real-World Activity;
- (b) *C-STORE* as Service Class Provider, for Storage Real-World Activity;
- (c) *C-FIND* as Service Class Provider, for Information Query/Retrieve Real-World Activity and Modality Worklist Information Query/Retrieve Real-World Activity;
- (d) *C-MOVE* as Service Class Provider with related *C-STORE* as Service Class User, *C-GET* as Service Class Provider both for Data Query/Retrieve Real-World Activity.

To access services, a regular Association should have been established (see DICOM PS 3.8 – 2008).

2.3 Sequencing of Real World Activities

Not Applicable.

3 AE Specification

3.1 DICOM Server AE

3.1.1 SOP Classes

DICOM Server AE provides conformance to the DICOM standard to the following SOP Classes as a Service Class Provider (SCP):

SOP Class UID Name	SOP Class UID Value
Verification	1.2.840.10008.1.1
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1
Digital X Ray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.1
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.1.1.1
Digital Mammography X Ray Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.2
Digital Mammography X Ray 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
Computed Tomography Image Storage	1.2.840.10008.5.1.4.1.1.2
Magnetic Resonance Image Storage	1.2.840.10008.5.1.4.1.1.4
Enhanced Magnetic Resonance Image Storage	1.2.840.10008.5.1.4.1.1.4.1
Magnetic Resonance Spectroscopy Image Storage	1.2.840.10008.5.1.4.1.1.4.2
Ultrasound Multi-Frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.3
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1
Ultrasound Image Storage (retired)	1.2.840.10008.5.1.4.1.1.6

SOP Class UID Name	SOP Class UID Value
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7
Multi-Frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1
Multi-Frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2
Multi-Frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3
Multi-Frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2
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
PET Image Storage	1.2.840.10008.5.1.4.1.1.128
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1
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

SOP Class UID Name	SOP Class UID Value
Patient/Study Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.3.1
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31
Patient/Study Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.3.2
Patient Root Query/Retrieve Information Model – GET	1.2.840.10008.5.1.4.1.2.1.3
Study Root Query/Retrieve Information Model – GET	1.2.840.10008.5.1.4.1.2.2.3
Patient/Study Query/Retrieve Information Model – GET	1.2.840.10008.5.1.4.1.2.3.3
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
Storage Commitment Push Model	1.2.840.10008.1.20.1

Table 1: Supported SOP Classes as SCP

3.1.2 Association Policies

3.1.2.1 General

DICOM Server recognizes the following Application Context Names:

Application Context Name	Application Context UID
Standard DICOM Application Context Name	1.2.840.10008.3.1.1.1

Table 2. Supported Application Context

PDU size can be negotiated up to 131072 bytes (128 kb).

3.1.2.2 Number of Associations

DICOM Server supports number of association limit setup. The maximum number of associations

accepted as configuration depends on the system on which the application runs.

3.1.2.3 Asynchronous Nature

DICOM Server doesn't support asynchronous messages.

3.1.2.4 Implementation Identifying Information

DICOM Server use the following Implementation Identifying Information:

Description	Value
Implementation Class UID	1.3.76.31.10.1.x.y.z <i>where x.y.z is the DICOM library version</i>
Implementation Version Name	DICOMPROVIDER_yyyymmdd <i>where "yyymmdd" is the release date</i>

Table 3. Implementation Identifying Information

3.1.3 Association Initiation Policy

DICOM Server initiates an Association when performing a Real-World Activity of Data Query/Retrieve.

3.1.3.1 Data Query/Retrieve Real-World Activity

3.1.3.1.1 Description and Sequencing

When a Real-World Data Query/Retrieve operation is performed, a C-MOVE operation (Real-World Data Query) is initiated with the DICOM Server by a remote system.

DICOM Server performs the data query embedded in the received C-MOVE Request command. If the query succeeds, it initiates an association to a specified destination AE (which AE Title is provided in the C-MOVE Request command).

If the association succeeds, a C-STORE operation (Real-World Data Retrieve) is initiated with the specified destination by the DICOM Server, prepared with data resulting from the successful query.

3.1.3.1.2 Proposed Presentation Contexts

During C-STORE operation, DICOM Server will propose presentation contexts according to stored data to be transferred: in particular, Abstract Syntax will be proposed depending on the SOP Class of each object to be sent. The list of possible proposed Presentation Contexts is reported in the following table:

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax	Role	Extended Negotiation
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	See Table 5	SCU	None
Digital X Ray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.1	See Table 5	SCU	None

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax	Role	Extended Negotiation
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.1.1	See <i>Table 5</i>	SCU	None
Digital Mammography X Ray Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.2	See <i>Table 5</i>	SCU	None
Digital Mammography X Ray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	See <i>Table 5</i>	SCU	None
Digital Intra Oral X Ray Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.3	See <i>Table 5</i>	SCU	None
Digital Intra Oral X Ray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	See <i>Table 5</i>	SCU	None
Computed Tomography Image Storage	1.2.840.10008.5.1.4.1.1.2	See <i>Table 5</i>	SCU	None
Magnetic Resonance Image Storage	1.2.840.10008.5.1.4.1.1.4	See <i>Table 5</i>	SCU	None
Enhanced Magnetic Resonance Image Storage	1.2.840.10008.5.1.4.1.1.4.1	See <i>Table 5</i>	SCU	None
Magnetic Resonance Spectroscopy Image Storage	1.2.840.10008.5.1.4.1.1.4.2	See <i>Table 5</i>	SCU	None
Ultrasound Multi-Frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.3	See <i>Table 5</i>	SCU	None
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	See <i>Table 5</i>	SCU	None
Ultrasound Image Storage (retired)	1.2.840.10008.5.1.4.1.1.6	See <i>Table 5</i>	SCU	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	See <i>Table 5</i>	SCU	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	See <i>Table 5</i>	SCU	None
Multi-Frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	See <i>Table 5</i>	SCU	None

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax	Role	Extended Negotiation
Multi-Frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	See <i>Table 5</i>	SCU	None
Multi-Frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	See <i>Table 5</i>	SCU	None
Multi-Frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	See <i>Table 5</i>	SCU	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	See <i>Table 5</i>	SCU	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	See <i>Table 5</i>	SCU	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	See <i>Table 5</i>	SCU	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	See <i>Table 5</i>	SCU	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	See <i>Table 5</i>	SCU	None
VL Slide Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	See <i>Table 5</i>	SCU	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	See <i>Table 5</i>	SCU	None
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	See <i>Table 5</i>	SCU	None
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	See <i>Table 5</i>	SCU	None
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	See <i>Table 5</i>	SCU	None
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	See <i>Table 5</i>	SCU	None
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	See <i>Table 5</i>	SCU	None

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax	Role	Extended Negotiation
Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4	See Table 5	SCU	None

Table 4. Proposed Presentation Contexts for Data Query/Retrieve Real-World Activity

For each Abstract Syntax, all transfer syntaxes from the following table are proposed:

Transfer Syntax Name	Transfer Syntax UID
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 Lossless Non-Hierarchical*	1.2.840.10008.1.2.4.57
JPEG Lossless Non-Hierarchical 1st order prediction*	1.2.840.10008.1.2.4.70

Table 5. DICOM Server Supported Transfer Syntaxes

(* Where applicable)

3.1.3.1.3 SOP Specific Conformance for SOP Classes

During a Data Query/Retrieve Real-World Activity, C-STORE command responses are handled as follows:

Service Status	Further Meaning	Error Code	Behavior
Success	Committed storage operation has been successfully completed	0000	Log success for SOP Instance UID If a next SOP Instance UID has to be processed: Report progress within the C-MOVE operation Proceed with next SOP Instance Otherwise: Report success within the C-MOVE operation Exit association
Other	Error / Warning / Other events	Not 0000	Log error for SOP Instance UID Report error to C-MOVE command Exit association

Table 6. C-STORE Response Status Handling for Data Query/Retrieve Real-World Activity

No extended negotiation is supported.

If the C-STORE operation cannot be completed (e.g. the association is aborted before the end of the transaction), the C-MOVE operation will end and fail.

There is no timeout implementation in such process: C-MOVE operation doesn't end until an association is unexpectedly released or aborted (or the connection is dropped), or the procedure terminates correctly.

3.1.4 Association Acceptance Policy

DICOM Server doesn't have any application limit for association acceptance. Access restrictions can be set through the Operating System or through the binding interface specification during the configuration process.

3.1.4.1 Verification Real-World Activity

3.1.4.1.1 Description and Sequencing

When a Real-World Verification Activity is performed, a C-ECHO operation is performed.

3.1.4.1.2 Accepted Presentation Contexts

Any Presentation Context of the following table will be accepted:

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax	Role	Extended Negotiation
Verification	1.2.840.10008.1.1	Any Transfer Syntax of Table 5	SCP	None

Table 7. Verification Real-World Activity Accepted Presentation Contexts

3.1.4.1.3 SOP Specific Conformance for SOP Classes

DICOM Server provides conformance to the DICOM Verification Class as an SCP for Verification SOP Class (1.2.840.10008.1.1).

3.1.4.2 Storage Real-World Activity

3.1.4.2.1 Description and Sequencing

When a Storage Real-World Activity is performed, a C-STORE operation is performed.

3.1.4.2.2 Accepted Presentation Contexts

Any Presentation Context of the following table will be accepted:

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax	Role	Extended Negotiation
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Any Transfer Syntax of Table 5	SCP	None

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax	Role	Extended Negotiation
Digital X Ray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.1	Any Transfer Syntax of <i>Table 5</i>	SCP	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.1.1.1	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Digital Mammography X Ray Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.2	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Digital Mammography X Ray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Digital Intra Oral X Ray Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.3	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Digital Intra Oral X Ray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Computed Tomography Image Storage	1.2.840.10008.5.1.4.1.1.2	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Magnetic Resonance Image Storage	1.2.840.10008.5.1.4.1.1.4	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Enhanced Magnetic Resonance Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Magnetic Resonance Spectroscopy Image Storage	1.2.840.10008.5.1.4.1.1.4.2	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Ultrasound Multi-Frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.3	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Ultrasound Image Storage (retired)	1.2.840.10008.5.1.4.1.1.6	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Any Transfer Syntax of <i>Table 5</i>	SCP	None

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax	Role	Extended Negotiation
Multi-Frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Multi-Frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Multi-Frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Multi-Frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Any Transfer Syntax of <i>Table 5</i>	SCP	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Any Transfer Syntax of <i>Table 5</i>	SCP	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Any Transfer Syntax of <i>Table 5</i>	SCP	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Any Transfer Syntax of <i>Table 5</i>	SCP	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Any Transfer Syntax of <i>Table 5</i>	SCP	None
VL Slide Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Any Transfer Syntax of <i>Table 5</i>	SCP	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Any Transfer Syntax of <i>Table 5</i>	SCP	None
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Any Transfer Syntax of <i>Table 5</i>	SCP	None
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	See <i>Table 5</i>	SCP	None

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax	Role	Extended Negotiation
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	See Table 5	SCP	None
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	See Table 5	SCP	None
Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4	See Table 5	SCP	None

Table 7. Storage Real-World Activity Accepted Presentation Contexts

3.1.4.2.3 SOP Specific Conformance for SOP Classes

During a Storage Real-World Activity, DICOM Server returns the Status in C-STORE Responses with the following policy:

Service Status	Further Meaning	Error Code	Error Reason
Success	Success	0000	Data has been successfully stored and indexed
Failure	Failure	0110	Error found in data storage or indexing

Table 8. Storage Real-World Activity C-STORE Response Status policy

DICOM Server gives a Level 2 Conformance to the following Storage SOP Classes:

Storage SOP Class Name	Storage SOP Class UID
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1
Digital X Ray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.1
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.1.1.1
Digital Mammography X Ray Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.2
Digital Mammography X Ray 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

Storage SOP Class Name	Storage SOP Class UID
Digital Intra Oral X Ray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.3.1
Computed Tomography Image Storage	1.2.840.10008.5.1.4.1.1.2
Magnetic Resonance Image Storage	1.2.840.10008.5.1.4.1.1.4
Enhanced Magnetic Resonance Image Storage	1.2.840.10008.5.1.4.1.1.4.1
Magnetic Resonance Spectroscopy Image Storage	1.2.840.10008.5.1.4.1.1.4.2
Ultrasound Multi-Frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.3
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1
Ultrasound Image Storage (retired)	1.2.840.10008.5.1.4.1.1.6
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7
Multi-Frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1
Multi-Frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2
Multi-Frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3
Multi-Frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2
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

Storage SOP Class Name	Storage SOP Class UID
PET Image Storage	1.2.840.10008.5.1.4.1.1.128
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1
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

Table 9. DICOM Server Level 2 Conformance Storage SOP Classes list

DICOM Server gives a conformance to Signature Level 1.

There is no timeout implementation in such process.

3.1.4.3 Data Query/Retrieve Real-World Activity

3.1.4.3.1 Description and Sequencing

When a Data Query/Retrieve Real-World Activity is performed, a C-MOVE operation is performed.

3.1.4.3.2 Accepted Presentation Contexts

Any Presentation Context of the following table will be accepted:

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax	Role	Extended Negotiation
Patient Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Patient/Study Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.3.2	Any Transfer Syntax of <i>Table 5</i>	SCP	None

Table 10. Data Query/Retrieve Real-World Activity Accepted Presentation Contexts

3.1.4.3.3 SOP Specific Conformance for SOP Classes

DICOM Server provides conformance to the DICOM Query/Retrieve Service Class as an SCP for

the following Service SOP Classes:

Service SOP Class Name	Service SOP Class UID
Patient Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2
Patient/Study Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.3.2
Patient Root Query/Retrieve Information Model – GET	1.2.840.10008.5.1.4.1.2.1.3
Study Root Query/Retrieve Information Model – GET	1.2.840.10008.5.1.4.1.2.2.3
Patient/Study Query/Retrieve Information Model – GET	1.2.840.10008.5.1.4.1.2.3.3

Table 11. Data Query/Retrieve Real-World Activity DICOM Query/Retrieve

Service Class SCP Conformance Service SOP Classes list

During a Data Query/Retrieve Real-World Activity, DICOM Server returns the Status in C-MOVE Responses with the following policy:

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	Data has been successfully sent to the destination
Failure	Failure	A701	Error found while sending data

Table 12. Data Query/Retrieve Real-World Activity C-MOVE Response Status policy

3.1.4.4 Information Query/Retrieve Real-World Activity

3.1.4.4.1 Description and Sequencing

When an Information Query/Retrieve Real-World Activity is performed, a C-FIND operation is performed.

3.1.4.4.2 Accepted Presentation Contexts

Any Presentation Context of the following table will be accepted:

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax	Role	Extended Negotiation
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Any Transfer Syntax of <i>Table 5</i>	SCP	None
Patient/Study Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.3.1	Any Transfer Syntax of <i>Table 5</i>	SCP	None

Table 13. Information Query/Retrieve Real-World Activity Accepted Presentation Contexts

3.1.4.4.3 SOP Specific Conformance for SOP Classes

DICOM Server provides conformance to the DICOM Query/Retrieve Service Class as an SCP for the following Service SOP Classes:

Service SOP Class Name	Service SOP Class UID
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1
Patient/Study Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.3.1

Table 14. Information Query/Retrieve Real-World Activity DICOM Query/Retrieve

Service Class SCP Conformance Service SOP Classes list

During an Information Query/Retrieve Real-World Activity, DICOM Server returns the Status in C-FIND Responses with the following policy:

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	Query successfully completed
Failure	Failure	A700	Error while performing query

Table 15. Information Query/Retrieve Real-World Activity C-FIND Response Status policy

Beyond unique and mandatory search keys, the following optional keys are supported for Patient Root, Study Root and Patient/Study C-FIND queries:

Key Tag	Level	Key Description
0010,0030	Patient	Patient Birthdate
0010,0040	Patient	Patient Sex
0008,1030	Study	Study Description
0008,0061	Study	Modalities in Study
0008,0021	Series	Series Date
0008,103e	Series	Series Description

Table 16. C-FIND Optional Keys

C-FIND-CANCEL is not supported.

3.1.4.5 Modality Worklist Query/Retrieve Real-World Activity

3.1.4.5.1 Description and Sequencing

When a Modality Worklist Query/Retrieve Real-World Activity is performed, a C-FIND operation is performed.

3.1.4.5.2 Accepted Presentation Contexts

Any Presentation Context of the following table will be accepted:

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax	Role	Extended Negotiation
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	Any Transfer Syntax of Table 5	SCP	None

Table 13. Modality Worklist Query/Retrieve Real-World Activity Accepted Presentation Contexts

3.1.4.5.3 SOP Specific Conformance for SOP Classes

DICOM Server provides conformance to the DICOM Query/Retrieve Service Class as an SCP for the following Service SOP Classes:

Service SOP Class Name	Service SOP Class UID
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31

Table 14. Modality Worklist Query/Retrieve Real-World Activity DICOM Query/Retrieve

Service Class SCP Conformance Service SOP Classes list

During a Modality Worklist Query/Retrieve Real-World Activity, DICOM Server returns the Status in C-FIND Responses with the following policy:

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	Query successfully completed
Failure	Failure	A700	Error while performing query

Table 15. Modality Worklist Query/Retrieve Real-World Activity C-FIND Response Status policy

Beyond unique and mandatory search keys, the following optional keys are supported for Modality Worklist C-FIND queries:

Key Tag	Key Description
0040,0006	Scheduled Performing Physician's Name

Table 16. Modality Worklist C-FIND Optional Keys

C-FIND-CANCEL is not supported.

4 Communication Profiles

Linkverse DICOM Provider provides DICOM TCP/IP network communication support according to DICOM PS 3.8 – 2007.

4.1 TCP/IP Stack

Linkverse DICOM Provider relies on the TCP/IP Stack of the Operating System.

4.1.1 Physical Media Support

Linkverse DICOM Provider can be used with the physical medium the Operating System does support.

5 Configuration

Configurable features:

- ◆ TCP Binding Port Number
- ◆ TCP Binding Address
- ◆ Application Entity Profiles (AE Title, SQL Indexing DB Name, FS Storage Area Location)
- ◆ Remote Systems Profiles (AE Title, IP Address, TCP Port Number)