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DICOM 3.0 Conformance Statement

DICOM Open LiteBox

Version 3.02

April 2006

Summary :

This document presents the conformance statement of DICOM Open LiteBox, that implements as Service Class User (SCU) the following DICOM services: Verification, Basic Worklist Management, Print, Query and Retrieve and Storage. It also implements Storage and Verification as Service Class Provider (SCP) and also acts as CD Media File Set Reader.
It applies to version 3.02 of DICOM Open LiteBox

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1. Introduction

1.1 Scope and field of application

This document describes DICOM Open LiteBox conformance to the DICOM 3.0 standard.

It contains a short description of application involved and provides technical information about data exchange capabilities of the equipment. The main elements describing these capabilities are the supported DICOM Service Object Pair (SOP) Classes, Roles, Information Object Definitions (IOD) and Transfer Syntaxes.

It applies to version 3.02 of DICOM Open LiteBox and should be read in conjunction with the DICOM standard and its addenda.

This statement is conformant with the recommended format as described in PS 3-2 of the DICOM standard.

DICOM Open LiteBox acts as an SCU for the following SOP Classes:

- Verification
- Storage
- Basic Modality Worklist Management
- Query and Retrieve
- Print

DICOM Open LiteBox acts as a File Set Reader (FSR) for CD media

- Verification
- Storage
- Basic Modality Worklist Management
- Query and Retrieve

DICOM Open LiteBox companion application (LtBxSCP) acts as an SCP for the following SOP Classes:

- Verification
- Storage

1.2 Acronyms and Abbreviations

The following acronyms and abbreviations are used in this document

- ACR American college of Radiology
- ANSI American National Standards Institute
- DICOM Digital Imaging and Communication in Medicine
- DIMSE DICOM Message Service Element
- DIMSE-C DICOM Message Service Element-Composite
- DIMSE-N DICOM Message Service Element-Normalized
- NEMA National Electrical Manufacturers Association
- PDU Protocol Data Unit
- SCP Service Class Provider
- SCU Service Class User
- SOP Service Object Pair
- TCP/IP Transmission Control Protocol/Internet Protocol
- UID Unique Identifier

1.3 References

[DICOM]

Digital Imaging and Communications in Medicine (DICOM) standard:

NEMA PS 3.1 – to 3.18 and Supplements

National Electrical Manufacturers Association (NEMA) - Publication Sales - 1300 N. 17th Street, Suite 1847 - Rosslyn, Va. 22209, United States of America.

1.4 Intended audience

This Conformance Statement is intended for:

- Potential users;
- System integrators of medical equipment;
- Software designers implementing DICOM interfaces.

It is assumed that the reader is familiar with the DICOM standard.

1.5 Warning to the Reader

If another device matches this Conformance Statement based on the comparison with its own Conformance Statement, there is a chance, but no guarantee that they interoperate. DICOM only deals with communication, it is not a standard which specifies what is needed for certain applications to run on a device.

2. Document history

Version	Changes	Authors	Date
2.20	Creation	Cyrus Samari	Sep 2004
2.60	Update	Cyrus Samari	Jun 2005
2.70	Update	Cyrus Samari	Sep 2005
3.02	Update	Cyrus Samari	Apr 2006

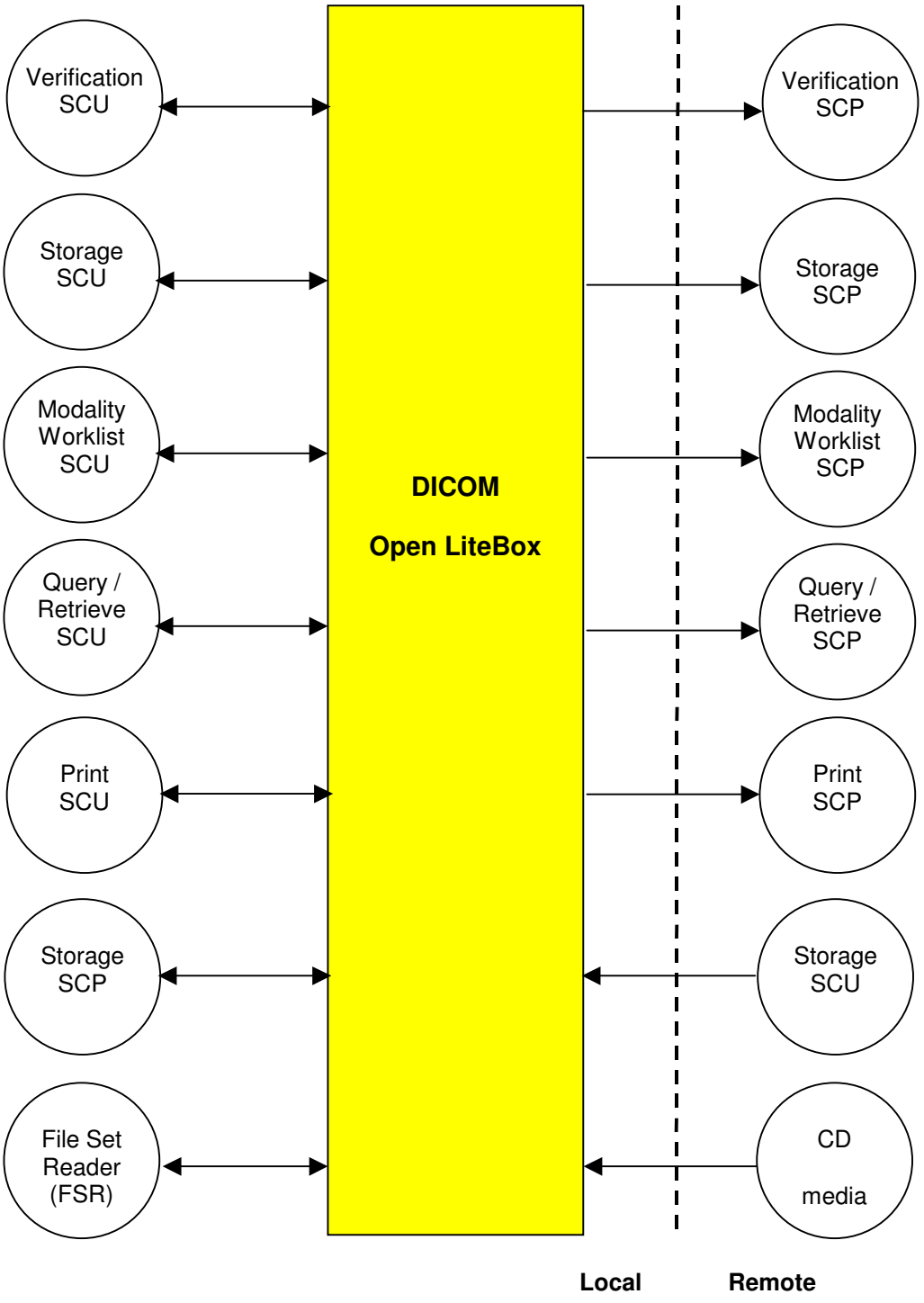
3. Implementation Model

DICOM Open LiteBox is a Windows 2000/XP application that may display images from different media : mainly CDs and HD (Hard Drive) data.

It may be used:

- to review CD / HD data
- to perform data transfer in two ways : Send local data to a remote archive or get receive data from remote sources, either using the Query and Retrieve service or the DICOM storage service.
- to perform Patient Information Reconciliation when sending local data using DICOM storage services. Reconciliation may be done using either a Manuel input, the Basic Worklist Management service or the Query and Retrieve service. In the latter case, only Queries are performed.

3.1 Application Data Flow Diagram



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3.2 Functional Definitions of Application Entities

Open LiteBox functions may be seen as only one configurable Application Entity, acting as SCU (Open LiteBox software itself) or SCP (LtBxSCP companion software provided with Open LiteBox).

3.2.1 Verification service as SCU

DICOM Open LiteBox supports the Echo / Verification service as SCU.

3.2.2 Image Storage Service as SCU

To store local images, DICOM Open LiteBox establishes an association with a remote Storage SCP, negotiates its presentation contexts according to images SOP Classes and their native transfer syntax, and sends all images.

Then DICOM Open LiteBox closes the association.

3.2.3 Color / Grayscale Printing Service as SCU

DICOM Open LiteBox may use the Print services as SCU through its Film Composer to print films to DICOM printers.

The Film Composer establishes one association with the remote Print SCP, performs its print request and closes the association when printing is done, successfully or not.

3.2.4 Modality Worklist Service as SCU

DICOM Open LiteBox may use the Basic Worklist Management service to get required information to populate Patient Information Reconciliation data when needed.

It establishes one association with the remote Worklist SCP, performs a Find request, wait for responses, and then close releases the association.

3.2.5 Query and Retrieve Service as SCU

DICOM Open LiteBox may use the Query and Retrieve service to get required information to populate Patient Information Reconciliation data when needed. For such a purpose, only the query part of the service (C_FIND) is used.

It then establishes one association with the remote Query and Retrieve SCP, performs a Find request, wait for responses, and then release the association. It does not and cannot be used to request any move operation.

This service may be also be used to really Retrieve images locally from a PACS.

It then establishes one association with the remote Query and Retrieve SCP, performs a Find request, waits for responses, and then may either release the association or may ask for image/series/study retrieval before releasing the association. This depends on the user request.

3.2.6 Verification Service as SCP

DICOM Open LiteBox, through LtBxSCP, waits for another application to connect at the presentation address configured for its Application Entity Title. When another application connects, LtBxSCP expects it to be a DICOM application. LtBxSCP will accept associations with Presentation Contexts for SOP Classes of the Verification Service Class.

3.2.7 Image Storage Service as SCP

DICOM Open LiteBox, through LtBxSCP, waits for another application to connect at the presentation address configured for its Application Entity Title. When another application connects, LtBxSCP expects it to be a DICOM application. LtBxSCP will accept associations with Presentation Contexts for SOP Classes of the Storage Service Class. It will receive images on these Presentation Contexts and write them to files in the format compliant to Part 10 of the DICOM standard.

Image filenames are described below, as well as the image directory.

3.2.8 File Set Reader (FSR)

DICOM Open LiteBox when first started, will attempt to find a CD containing a DICOM Part 10 compliant structure, and if any, will open a DICOMDIR browser, allowing the user to display images.

If already started, DICOM Open LiteBox will detect any such CD insertion and will also open a DICOMDIR browser, allowing the user to display images.

3.3 Sequencing of Real-World Activities

Real-World Activity for Verification SCU/SCP operations is independent of other operations.

Real-World Activity for Storage SCU/SCP operations is independent of other operations.

Real-World Activity for Print SCU operations is independent of other operations.

Real-World Activity for Basic Worklist Management query is independent of other operations.

Real-World Activity for Query and Retrieve operation is independent of other operations.

4. Application Entity Specifications

4.1 DICOM Open LiteBox AE - Specification

DICOM Open LiteBox provides Standard Conformance to the following DICOM V3.0 SOP Classes as an SCU

Table 4.1-1 Supported SOP Classes for Verification SCU

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1

Table 4.1-2 Supported SOP Classes for Storage SCU

SOP Class Name	SOP Class UID
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1
Digital XRay Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.1
Digital XRay Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.1.1
Digital Mammography Xray 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 XRay Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.3
Digital Intra Oral Xray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.3.1
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
US Multiframe Image Storage (RET)	1.2.840.10008.5.1.4.1.1.3
US Multiframe Image Storage	1.2.840.10008.5.1.4.1.1.3.1
MR Image Storage	1.2.840.10008.5.1.4.1.1.4
NM Image Storage (RET)	1.2.840.10008.5.1.4.1.1.5
US Image Storage (RET)	1.2.840.10008.5.1.4.1.1.6
US 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
Multiframe Secondary Capture Single Bit Image Storage	1.2.840.10008.5.1.4.1.1.7.1
Multiframe Secondary Capture Byte Image Storage	1.2.840.10008.5.1.4.1.1.7.2
Multiframe Secondary Capture Word Image Storage	1.2.840.10008.5.1.4.1.1.7.3
Multiframe Secondary Capture True Color Image Storage	1.2.840.10008.5.1.4.1.1.7.4
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9
Twelve 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 Electrophysiologic Audio 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
Standalone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11
Grascale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1
XRay Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1
XRay Fluoroscopy Image Storage	1.2.840.10008.5.1.4.1.1.12.2

XRay Angiographic BiPlane Image Storage (RET)	1.2.840.10008.5.1.4.1.1.12.3
NM Image Storage	1.2.840.10008.5.1.4.1.1.20
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
PET Image Storage	1.2.840.10008.5.1.4.1.1.128
PET Curve Storage	1.2.840.10008.5.1.4.1.1.129
Stored Print Storage	1.2.840.10008.5.1.1.27
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29
Hardcopy Color Image Storage	1.2.840.10008.5.1.1.30
VL Multiframe Image Storage (RET)	1.2.840.10008.5.1.4.1.1.77.1
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1
Video Endoscopic 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
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1

Table 4.1-3 Supported Meta SOP Classes for Print SCU

SOP Class Name	**SOP Class UID**
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

Table 4.1-4 Supported Meta SOP Classes for Basic Print SCU

Meta SOP Class Name	**Meta SOP Class UID**
Basic Grayscale Print Management	1.2.840.10008.5.1.1.9
Basic Color Print Management	1.2.840.10008.5.1.1.18

Table 4.1-5 Supported SOP Classes for Basic Grayscale Print SCU

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
Printer SOP Class	1.2.840.10008.5.1.1.16

Table 4.1-6 Supported SOP Classes for Basic Color Printing SCU

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 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

Table 4.1-7 Supported SOP Classes for Modality Worklist SCU

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

Table 4.1-5 Supported SOP Classes for Query and Retrieve SCU

SOP Class Name	SOP Class UID
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

DICOM Open LiteBox provides Standard Conformance to the following DICOM V3.0 SOP Classes as an SCP

Table 4.1-5 Supported SOP Classes for Verification SCP

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1

Table 4.1-6 Supported SOP Classes for Storage SCP

Same table as 4.1-2

Table 4.1-7 Application Profiles for File Set Reader

Application Profiles Supported	Role	SC Option
See note below	FSR	Interchange

DICOM Open LiteBox is not restricted to any Application Profile.

Instead, it can display the following objects with the associated Transfer Syntax:

Table 4.1-8 File Set Reader Displayable Objects

Abstract Syntax	Transfer Syntax		Role
All image objects of Table 4.1-2	Explicit VR Little Endian	1.2.840.10008.1.2.1	FSR
All image objects of Table 4.1-2	JPEG Baseline : Default Transfer Syntax for Lossy JPEG 8 Bit Image Compression	1.2.840.10008.1.2.4.50	FSR
All image objects of Table 4.1-2	JPEG Extended (Process 2 & 4): Default Transfer Syntax for Lossy JPEG 12 Bit Image Compression	1.2.840.10008.1.2.4.51	FSR
All image objects of Table 4.1-2	JPEG Lossless, Non-Hierarchicall (Process 14)	1.2.840.10008.1.2.4.57	FSR
All image objects of Table 4.1-2	JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	FSR
All image objects of Table 4.1-2	MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	FSR
All SR objects of Table 4.1-2	Explicit VR Little Endian	1.2.840.10008.1.2.1	FSR
Encapsulated PDF Storage (1.2.840.10008.5.1.4.1.1.104.1)	Explicit VR Little Endian	1.2.840.10008.1.2.1	FSR

4.1.1 Association Establishment Policies

4.1.1.1 General

Before any SOP classes can be exchanged between DICOM Open LiteBox (SCU) and a SCP Application Entity, an association stage happens to negotiate and exchange the capabilities of the SCU and SCP.

DICOM Open LiteBox shall release the association it established. The SCP may however abort the association.

The calling AE Title of DICOM Open LiteBox may be configured in its user interface.

The maximum PDU length for the PDU offered or received by DICOM Open LiteBox is 16384 bytes.

4.1.1.2 Number of Associations

DICOM Open LiteBox maximum number of associations established simultaneously depends on operations and user requests.

Store SCU operations may be processed in background or not. Only one background storage operation may be active at the same time. As user may also perform synchronous storage operations, maximum number of simultaneous storage operations is 2.

Retrieve (C-MOVE) SCU operations may be processed in background or not. Only one background Retrieve (C-MOVE) operation may be active at the same time. As user may also perform synchronous Query and Retrieve operations, maximum number of simultaneous Query and Retrieve operations is 2.

Only one DICOM Printing operation may be processed at the same time.

4.1.1.3 Asynchronous Nature

DICOM Open LiteBox does not support asynchronous communication.

4.1.1.4 Implementation Identifying Information

DICOM Open LiteBox will respond with the following implementation identifying parameters:

Table 4.1.1.4-1 Application Identification Information

Name	SOP Class UID
Implementation Class UID	1.2.250.1.59.3.0.3.5.3
Application Context Name	1.2.840.10008.3.1.1.1
Implementation Version Name	ETIAM_DCMTK_353

4.1.2 Association Initiation Policy

4.1.2.1 General

4.1.2.1.1 Verification SCU

DICOM Open LiteBox may initiate an association with a Verification SCP within its configuration panel to check remote SCP availability. Association is then opened, negotiated and closed synchronously.

4.1.2.1.2 Storage SCU

DICOM Open LiteBox will initiate an association with a Storage SCP to store local data. All data will be stored on the same association.

Only one background storage operation may occurs at the same time.

4.1.2.1.3 Print SCU

DICOM Open LiteBox will initiate an association with a Print SCP when a DICOM Print operation is requested through the Open LiteBox Film Composer. All printing request will be processed on the same association.

4.1.2.1.4 Worklist SCU

DICOM Open LiteBox will initiate a separate association for each Find request.

4.1.2.1.5 Query and Retrieve SCU

DICOM Open LiteBox will initiate a separate association for each Find request and each Move request.

Only one background Move request operation may occurs at the same time.

4.1.2.2 Real World Activity : Verification SCU

4.1.2.2.1 Associated Real-World Activity

The associated real world activity for DICOM Open LiteBox Verification (SCU) is to check within the Configuration panel the availability of a DICOM peer providing the corresponding SCP service.

4.1.2.2.2 Proposed Presentation Contexts

DICOM Open LiteBox will propose the following different Presentation Contexts:

Table 4.1.2.2.2-1 Verification Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Verification SOP Class	1.2.840.10008.1.1	Implicit VR Little Endian Transfer syntax	1.2.840.10008.1.2	SCU	None

4.1.2.3 Real World Activity : Storage SCU

4.1.2.3.1 Associated Real-World Activity

The associated real world activity for DICOM Open LiteBox storage (SCU) is the transfer of local data to a remote equipment over the network.

4.1.2.3.2 Proposed Presentation Contexts

DICOM Open LiteBox will propose the following different Presentation Contexts:

Table 4.1.2.3.2-1 Storage Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
See below	*See below*	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
See below	*See below*	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
See below	*See below*	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
See below	*See below*	JPEG Baseline : Default Transfer Syntax for Lossy JPEG 8 Bit Image Compression	1.2.840.10008.1.2.4.50	SCU	None
See below	*See below*	JPEG Extended (Process 2 & 4): Default Transfer Syntax for Lossy JPEG 12 Bit Image Compression	1.2.840.10008.1.2.4.51	SCU	None
See below	*See below*	JPEG Lossless, Non-Hierarchical, (Process 14)	1.2.840.10008.1.2.4.57	SCU	None
See below	*See below*	JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
See below	*See below*	MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	SCU	None

Note: Abstract syntaxes and their UIDs are those listed in Table 4.1-2

DICOM Open LiteBox applies the following rules for the presentation contexts proposed:

- Uncompressed transfer syntaxes are proposed for Storage operations.
- If an image is encoded, its corresponding native transfer syntax is proposed also in a separate Presentation Context, and will be preferred by SCU if both compressed and uncompressed transfer syntaxes are accepted by SCP.
- If SCP does not accept encoded transfer syntaxes, DICOM Open LiteBox will try to uncompress the related images on the fly.
- MPEG2 video encoded data will however never be uncompressed.

4.1.2.3.3 SOP Specific Conformance

Images sent by DICOM Open LiteBox using Storage SCU operation contain their native information. DICOM Open LiteBox never attempts to modify local stored datasets.

However, when images are stored by Open LiteBox and some Patient Reconciliation Request is performed, images are modified on the fly, and then sent to the DICOM Store SCP. Previous information values may be saved on the fly in the stored datasets, according to DICOM 2004 - CP 526.

Table 4.1.2.3.3-1 Additional Reconciliation Attributes (CP 526)

Attribute Name	Tag	Type	Attribute Value
Original Attributes Sequence	(0400,0561)	3	
>Source of Previous Values	(0400,0564)	2	Empty value
>Attribute Modification Datetime	(0400,0562)	1	Date and time the reconciliation occured
>Modifying System	(0400,0563)	1	Open LiteBox <version-string>
>Reason for the Attribute Modification	(0400,0565)	1	COERCE
>Modified Attributes Sequence	(0400,0550)	1	
>>*Any Attribute from the main data set that was modified or removed*			

4.1.2.4 Real-World Activity : Basic Print Management SCU

4.1.2.4.1 Associated Real-World Activity

The associated real world activity for DICOM Open LiteBox Printing (SCU) is the printing of images to a DICOM Print SCP equipment over the network, through the Film Composer.

4.1.2.4.2 Proposed Presentation Contexts

DICOM Open LiteBox will propose the following different Presentation Contexts:

Table 4.1.2.2.2-1 Basic Print Management Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	DICOM Implicit VR Little Endian Transfer syntax	1.2.840.10008.1.2	SCU	None
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	DICOM Implicit VR Little Endian Transfer syntax	1.2.840.10008.1.2	SCU	None

4.1.2.5 Real World Activity : Basic Modality Worklist Management SCU

4.1.2.5.1 Associated Real-World Activity

The associated real World Activity for DICOM Open LiteBox Worklist SCU is the obtaining of Worklist items that will be presented to the user to perform data reconciliation.

4.1.2.5.2 Proposed Presentation Contexts

Dicom Open LiteBox will propose the following Presentation Context:

Table 4.1.2.4.2-1 Basic Worklist Management Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Modality Worklist Information Model	1.2.840.10008.5.1.4.31	Implicit VR Little Endian Transfer syntax	1.2.840.10008.1.2	SCU	None

4.1.2.5.3 SOP Specific Conformance

DICOM Open LiteBox provides standard conformance to the DICOM Basic Worklist Management Service Class. DICOM Open LiteBox requests the following matching key types:

Key type matching	
SV	Single value Matching
WC	Wild card Matching
RM	Range Matching

Table 4.1.2.5.3-1 Modality Worklist Information model attributes

Module	Attribute Name	Tag	Match
Scheduled Procedure Step	Scheduled Procedure Step Sequence	(0040, 0100)	
	> Scheduled Station AETitle	(0040, 0001)	SV
	> Scheduled Procedure Step Start Date	(0040, 0002)	RM
	> Scheduled Procedure Step Start Time	(0040, 0003)	
	> Modality	(0008, 0060)	SV
	> Scheduled Performing Physician's Name	(0040, 0006)	SV / WC
	> Scheduled Station Name	(0040, 0010)	
	> Scheduled Procedure Step Location	(0040, 0011)	
	> Pre Medication	(0040, 0012)	
	> Scheduled Procedure Step ID	(0040, 0009)	
	> Requested Contrast Agent	(0032, 1070)	
Requested Procedure	Requested Procedure ID	(0040, 1001)	
	Study Instance UID	(0020, 000D)	
	Requested Procedure Priority	(0040, 1003)	
	Patient Transport Arrangements	(0040, 1004)	
Imaging Service Request	Accession Number	(0008, 0050)	SV
	Requesting Physician	(0032, 1032)	
	Referring Physician's Name	(0008, 0090)	
Visit Identification	Admission ID	(0038, 0010)	
Visit Status	Current Patient Location	(0038, 0300)	
Patient Identification	Patient's Name	(0010, 0010)	SV / WC
	Patient ID	(0010, 0020)	SV
Patient Demographic	Patient's Birth Date	(0010, 0030)	RM
	Patient's Sex	(0010, 0040)	SV
	Patient's Weight	(0010, 1030)	
Patient Medical	Patient State	(0038, 0500)	
	Medical Alerts	(0010, 2000)	
	Contrast Allergies	(0010, 2110)	
	Special Needs	(0038, 0050)	

4.1.2.6 Real World Activity : Query and Retrieve SCU

4.1.2.6.1 Associated Real-World Activity

The associated Real World Activity for DICOM Open LiteBox Query and Retrieve SCU is the retrieving of remote studies.

It however be also the obtaining of patient and study related information to perform Patient Reconciliation. Thus, only C_FIND requests are performed.

4.1.2.6.2 Proposed Presentation Contexts

DICOM Open LiteBox will propose the following Presentation Context:

Table 4.1.2.5.2-1 Query and Retrieve Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Study Root Find	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian Transfer syntax	1.2.840.10008.1.2	SCU	None

4.1.2.6.3 SOP Specific Conformance statement

DICOM Open LiteBox provides standard conformance to the DICOM Query and Retrieve Service Class. DICOM Open LiteBox requests the following matching key types:

Key type matching	
SV	Single value Matching
WC	Wild card Matching
RM	Range Matching

Table 4.1.2.4.3-1 Query and Retrieve matching key types

Attribute Name	**Tag**	**Match**
Study Date	(0008, 0020)	RM
Accession Number	(0008, 0050)	SV
Patient's Name	(0010, 0010)	SV / WC
Patient ID	(0010, 0020)	SV

DICOM Open LiteBox will query for the following attributes:

Table 4.1.2.6.3-2 Query Attributes

Attribute Name	**Tag**
PatientName	(0010,0010)
PatientID	(0010,0020)
PatientBirthDate	(0010,0030)

PatientSex	(0010,0040)
StudyInstanceUID	(0020,000D)
Study Date	(0008,0020)
Study Time	(0008,0030)
Accession Number	(0008,0050)
ReferringPhysiciansName	(0008,0090)
StudyDescription	(0008,1030)
StudyID	(0020,0010)
SeriesInstanceUID	(0020,000E)
Modality	(0008,0060)
SeriesNumber	(0020,0011)
SOPInstanceUID	(0008,0018)

4.1.3 Association Acceptance Policy

4.1.3.1 Real World Activity : Verification SCP

4.1.3.1.1 Associated Real-World Activity

See 3.2.5

4.1.3.1.2 Presentation Context Table

DICOM Open LiteBox (through LtBxSCP) will accept the following different Presentation Contexts for Verification SCP:

Table 4.1.3.1.2-1 Acceptable Presentation Contexts for Verification SCP

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Verification SOP Class	1.2.840.10008.1.1	Implicit VR Little Endian Transfer syntax	1.2.840.10008.1.2	SCP	None

4.1.3.1.3 SOP Specific Conformance

DICOM Open LiteBox (through LtBxSCP) provides standard conformance to the DICOM Verification Service Class.

4.1.3.2 Real World Activity : Storage SCP

4.1.3.2.1 Associated Real-World Activity

See 3.2.6

4.1.3.2.2 Presentation Context Table

DICOM Open LiteBox (through LtBxSCP) will accept the following different Presentation Contexts for Storage SCP:

Table 4.1.3.2.2-1 Storage Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
See below	*See below*	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
See below	*See below*	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
See below	*See below*	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
See below	*See below*	JPEG Baseline : Default Transfer Syntax for Lossy JPEG 8 Bit Image Compression	1.2.840.10008.1.2.4.50	SCP	None
See below	*See below*	JPEG Extended (Process 2 & 4): Default Transfer Syntax for Lossy JPEG 12 Bit Image Compression	1.2.840.10008.1.2.4.51	SCP	None
See below	*See below*	JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None

Note : Abstract syntaxes and their UIDs are those listed in Table 4.1-2

4.1.3.2.3 SOP Specific Conformance

DICOM Open LiteBox (through LtBxSCP) provides standard conformance to the DICOM Storage Service Class.

4.1.3.2.4 Presentation Context Acceptance Criterion

No control is made concerning the Abstract/Transfer syntax consistency.

4.1.3.2.5 Transfer Syntax Acceptance Selection Policies

DICOM Open LiteBox (through LtBxSCP) will prefer in decreasing order:

- Any encoded transfer syntax
- Explicit VR Little Endian transfer syntax
- Implicit VR Little Endian transfer syntax
- Explicit VR Big Endian transfer syntax

5. Communication Profiles

5.1 Supported Communications Stacks

DICOM Open LiteBox provides DICOM V3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

5.2 TCP/IP Stack

DICOM Open LiteBox inherits its TCP/IP stack from the Windows system upon which it executes. Default Windows TCP/IP stack is supported.

5.3 Physical Media Support

DICOM Open LiteBox is indifferent to the physical medium over which TCP/IP executes; it inherits this from the system upon which it executes.

6. Extensions/Specializations/Privatizations

None

7. Configuration

DICOM Open LiteBox configuration is detailed in DICOM Open LiteBox User's Guide.

The following parameters may be configured :

- DICOM Open LiteBox AE Title : Default value is the PC hostname, uppercased
- DICOM Open LiteBox / LtBxSCP TCP/IP port. Default value is 8007

8. Support of Extended Character Sets

DICOM Open LiteBox supports Extended Character Set "ISO_IR 100" Latin Alphabet N° 1, supplementary set.
