Sup-C

DICOM Conformance Statement

DCMburner version 3.3.0

DICOM Store, Query/Retrieve, Media

Document Number 20110421 rev 2

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1 Introduction

1.1 Scope and field of application

The DICOM standard provides a well-defined set of structures and protocols that allow inter-operability of a wide variety of medical imaging devices. This document describes DCMburner conformance to the DICOM 3.0 standard.

It contains a short description of the applications involved and provides technical information about the data exchange capabilities of the equipment.
This document was written with the understanding that the reader will be familiar with the concepts and terms of the DICOM 3.0 standard.

DCMburner acts as a SCP the following SOP Classes:

SOP class Name	UID	Active
Verification	1.2.840.10008.1.1	YES
HardcopyGrayscaleImageStorage	1.2.840.10008.5.1.1.29	YES
HardcopyColorImageStorage	1.2.840.10008.5.1.1.30	YES
CRStorage	1.2.840.10008.5.1.4.1.1.1	YES
DXStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.1	YES
DXStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.1.1	YES
DMStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.2	YES
DMStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.2.1	YES
DOralStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.3	YES
DOralStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.3.1	YES
CTStorage	1.2.840.10008.5.1.4.1.1.2	YES
RetiredUSMultiframeStorage	1.2.840.10008.5.1.4.1.1.3	YES
USMultiframeStorage	1.2.840.10008.5.1.4.1.1.3.1	YES
MRStorage	1.2.840.10008.5.1.4.1.1.4	YES
MRImageStorageEnhanced	1.2.840.10008.5.1.4.1.1.4.1	YES
MRStorageSpectroscopy	1.2.840.10008.5.1.4.1.1.4.2	YES
RetiredNMStorage	1.2.840.10008.5.1.4.1.1.5	YES
RetiredUSStorage	1.2.840.10008.5.1.4.1.1.6	YES
USStorage	1.2.840.10008.5.1.4.1.1.6.1	YES
SCStorage	1.2.840.10008.5.1.4.1.1.7	YES
SCStorageSingleBitMF	1.2.840.10008.5.1.4.1.1.7.1	YES
SCStorageGrayscaleByteMF	1.2.840.10008.5.1.4.1.1.7.2	YES
SCStorageGrayscaleWordMF	1.2.840.10008.5.1.4.1.1.7.3	YES
SCStorageTrueColorMF	1.2.840.10008.5.1.4.1.1.7.4	YES
StandaloneOverlayStorage	1.2.840.10008.5.1.4.1.1.8	YES
StandaloneCurveStorage	1.2.840.10008.5.1.4.1.1.9	YES
WFStorageTwelveLeadECG	1.2.840.10008.5.1.4.1.1.9.1.1	NO
WFStorageGeneralECG	1.2.840.10008.5.1.4.1.1.9.1.2	NO
WFStorageAmbulatoryECG	1.2.840.10008.5.1.4.1.1.9.1.3	NO
WFStorageHemodynamic	1.2.840.10008.5.1.4.1.1.9.2.1	NO
WFStorageCardiacElectrophysiology	1.2.840.10008.5.1.4.1.1.9.3.1	NO
WFStorageBasicVoiceAudio	1.2.840.10008.5.1.4.1.1.9.4.1	NO
StandaloneModalityLUTStorage	1.2.840.10008.5.1.4.1.1.10	YES
StandaloneVOILUTStorage	1.2.840.10008.5.1.4.1.1.11	YES
GrayscaleSoftcopyPresentationStateStorage	1.2.840.10008.5.1.4.1.1.11.1	YES

RetiredXASinglePlaneStorage	1.2.840.10008.5.1.4.1.1.12	YES
XASinglePlaneStorage	1.2.840.10008.5.1.4.1.1.12.1	YES
RFStorage	1.2.840.10008.5.1.4.1.1.12.2	YES
XABiPlaneStorage	1.2.840.10008.5.1.4.1.1.12.3	YES
NMStorage	1.2.840.10008.5.1.4.1.1.20	YES
VLImageStorage	1.2.840.10008.5.1.4.1.1.77.1	YES
VLMultiFrameImageStorage	1.2.840.10008.5.1.4.1.1.77.2	YES
VLMicroscopicSlideStorage	1.2.840.10008.5.1.4.1.1.77.3	YES
VLPhotographicStorage	1.2.840.10008.5.1.4.1.1.77.4	YES
VLEndoscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.1	YES
VLMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.2	YES
VLSlideCoordinatesMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.3	YES
VLPhotographicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.4	YES
BasicTextSR	1.2.840.10008.5.1.4.1.1.88.11	YES
EnhancedSR	1.2.840.10008.5.1.4.1.1.88.22	YES
ComprehensiveSR	1.2.840.10008.5.1.4.1.1.88.33	YES
MammographyCADSR	1.2.840.10008.5.1.4.1.1.88.50	YES
KeyObjectSelectionDocument	1.2.840.10008.5.1.4.1.1.88.59	YES
PETStorage	1.2.840.10008.5.1.4.1.1.128	YES
StandalonePETCurveStorage	1.2.840.10008.5.1.4.1.1.129	YES
RTImageStorage	1.2.840.10008.5.1.4.1.1.481.1	YES
RTDoseStorage	1.2.840.10008.5.1.4.1.1.481.2	YES
RTStructureStorage	1.2.840.10008.5.1.4.1.1.481.3	YES
RTTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.4	YES
RTPlanStorage	1.2.840.10008.5.1.4.1.1.481.5	YES
RTBrachyTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.6	YES
RTTreatmentSummaryRecordStorage	1.2.840.10008.5.1.4.1.1.481.7	YES
GEMRStorage	1.2.840.113619.4.2	NO
GECTStorage	1.2.840.113619.4.3	NO
GE3DModelObjectStorage	1.2.840.113619.4.26	YES
GERTPlanStorage	1.2.840.113619.5.249	YES
GERTPlanStorage2	1.2.840.113619.4.5.249	YES
GESaturnTDSObjectStorage	1.2.840.113619.5.253	YES
Philips3DVolumeStorage	1.2.46.670589.5.0.1	YES
Philips3DObjectStorage	1.2.46.670589.5.0.2	YES
PhilipsSurfaceStorage	1.2.46.670589.5.0.3	YES
PhilipsCompositeObjectStorage	1.2.46.670589.5.0.4	YES
PhilipsMRCardioProfileStorage	1.2.46.670589.5.0.7	YES
PhilipsMRCardioImageStorage	1.2.46.670589.5.0.8	YES

DCMburner allows creating CD-R or DVD-R conforming to General Purpose CD-R Image Interchange Profile.

1.2 General Acronyms and Abbreviations.

The following acronyms and abbreviations are used in the document.

• AE Application Entity
• ACR American College of Radiology
• ANSI American National Standard Institute
• CD-R CD Recordable

• CD-M CD Medical
• 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
• ELE Explicit VR Little Endian
• EBE Explicit VR Big Endian
• FSC File Set Creator
• GUI Graphic User Interface
• ILE Implicit VR Little Endian
• ELE Explicit VR Little Endian
• IOD Information Object Definition
• NEMA National Electrical Manufacturers Association
• PDU Protocol Data Unit
• RIS Radiology Information System
• RWA Real World Activity
• SC Secondary Capture
• 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] The Digital Imaging and Communications in Medicine (DICOM) standard:
NEMA PS 3.X
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) customers,
- system integrators of medical equipment,
- marketing staff interested in system functionality,
- software designers implementing DICOM interfaces.

1.5 Warning to the Reader

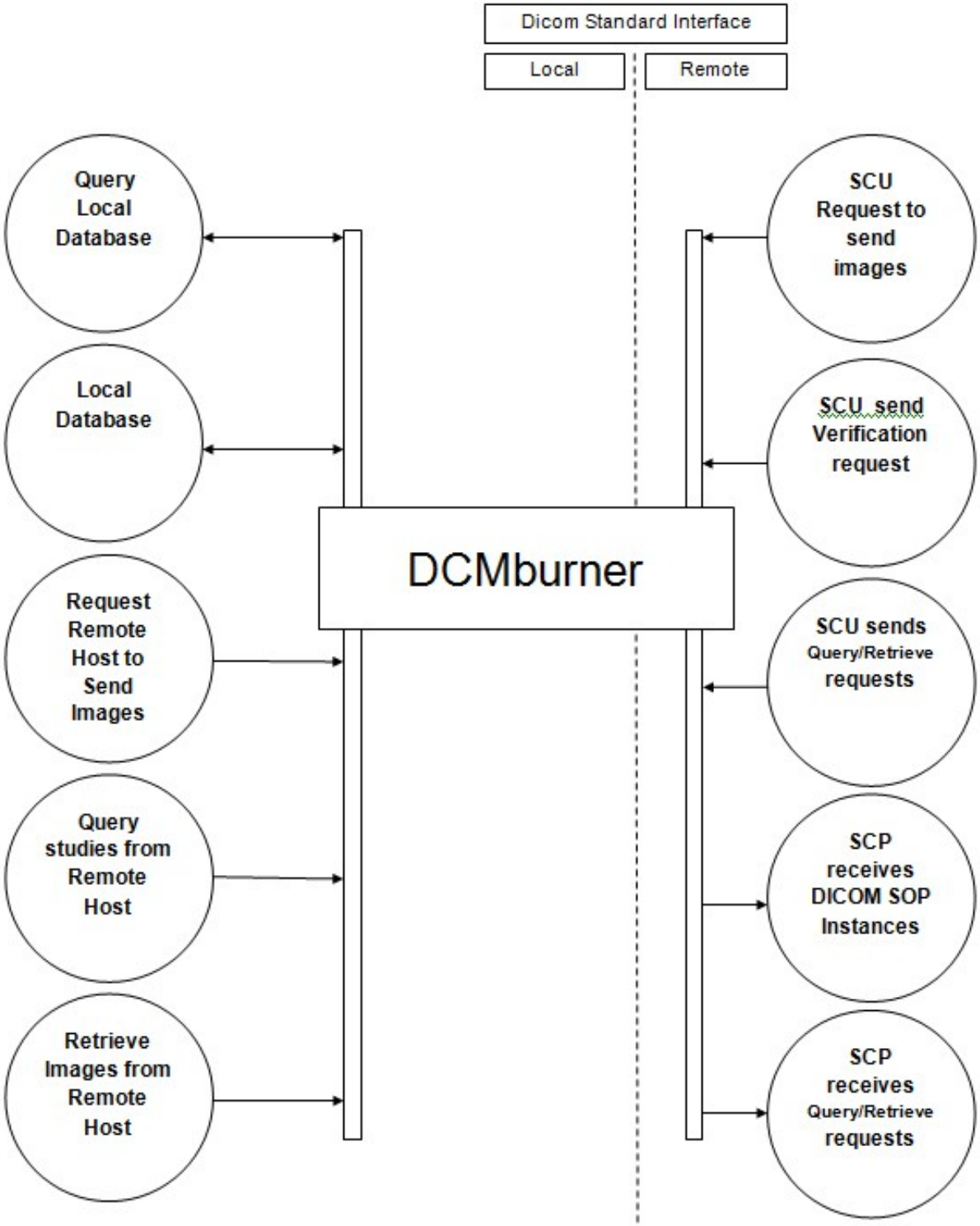
If another device matches this Conformance Statement based on the comparison with its own Conformance Statement, there is a chance, but no guarantee, that they interoperate. DICOM only deals with communication; it is not a standard which specifies what is needed for certain applications to run on a device.

2 Networking

2.1 Implementation model

2.1.1 Application data flow diagram

DCMburner is a Windows application for the transfer and storage of DICOM images. These Dicom images can be burned on CD or DVD Media. DCMburner has a local database where it stores the DICOM images coming from other DICOM peers, through the DICOM Store operation.



2.1.2 Functional definitions of AE's

2.1.2.1 Verification Service as SCP
DCMburner waits for another application to connect at the presentation address configured in the DICOM Configuration section. When another application connects, DCMburner expects it to be a DICOM application. DCMburner will accept associations with Presentation Contexts for the Verification Service SOP Class.

2.1.2.2 Storage Services as SCP
DCMburner waits for another application to connect at the presentation address configured in the DICOM Configuration section. When another application connects, DCMburner expects it to be a DICOM application. DCMburner will accept associations with Presentation Contexts for SOP Classes of the Storage Service Class. It will receive images on these Presentation Contexts and it will store them to files in a format compliant with Part 10 of the DICOM standard.

2.1.2.3 Query/Retrieve as SCP
DCMburner waits for another application to connect at the presentation address configured in the DICOM Configuration section. When another application connects, DCMburner expects it to be a DICOM application. DCMburner will accept associations with Presentation Contexts for SOP Classes of the Query/Retrieve Service Class (Study Root, FIND and MOVE).

2.1.2.4 Verification Service as SCU
When certain functionalities of the software are called, DCMburner will connect to other DICOM peers, acting as a SCU. Upon association establishment, DCMburner will always propose a Presentation Contexts for the Verification Service SOP Class.

2.1.2.5 Storage Services as SCU
When requested to send DICOM instances to a remote DICOM peer, DCMburner will connect to a remote DICOM host, acting as a SCU. Upon association establishment, DCMburner will propose Presentation Contexts for the Storage SOP Classes which correspond to the DICOM SOP Instances to transfer.

2.1.2.6 Query/Retrieve as SCU
When requested to query a remote DICOM archive for its content, DCMburner will connect to that remote DICOM host, acting as a SCU. Upon association establishment, DCMburner will propose Presentation Contexts for the Query / Retrieve SOP Classes (Study Root, FIND and MOVE).

2.1.3 Sequencing of Real-World activities
DCMburner receives DICOM images from other DICOM modalities or DICOM workstations. It then stores these images to a local database. DCMburner is also able to import DICOM images from local disks or from remote DICOM hosts: also in this case, the imported images are stored to a local database. In addition, as an independent functionality, DCMburner is able to send images to remote DICOM archives. No particular sequencing is associated with this last functionality.

2.2 Application Entity specifications
DCMburner provides Standard Conformance to the following DICOM V3.0 SOP Classes, both as a SCP and as a SCU:

Table 2.2-1: Supported SOP Classes for DCMburner (SCP and SCU roles)

SOP class Name	UID	Active
Verification	1.2.840.10008.1.1	YES
HardcopyGrayscaleImageStorage	1.2.840.10008.5.1.1.29	YES
HardcopyColorImageStorage	1.2.840.10008.5.1.1.30	YES
CRStorage	1.2.840.10008.5.1.4.1.1.1	YES
DXStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.1	YES
DXStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.1.1	YES
DMStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.2	YES
DMStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.2.1	YES
DOralStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.3	YES
DOralStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.3.1	YES
CTStorage	1.2.840.10008.5.1.4.1.1.2	YES
RetiredUSMultiframeStorage	1.2.840.10008.5.1.4.1.1.3	YES
USMultiframeStorage	1.2.840.10008.5.1.4.1.1.3.1	YES
MRStorage	1.2.840.10008.5.1.4.1.1.4	YES

MRImageStorageEnhanced	1.2.840.10008.5.1.4.1.1.4.1	YES
MRStorageSpectroscopy	1.2.840.10008.5.1.4.1.1.4.2	YES
RetiredNMStorage	1.2.840.10008.5.1.4.1.1.5	YES
RetiredUSStorage	1.2.840.10008.5.1.4.1.1.6	YES
USStorage	1.2.840.10008.5.1.4.1.1.6.1	YES
SCStorage	1.2.840.10008.5.1.4.1.1.7	YES
SCStorageSingleBitMF	1.2.840.10008.5.1.4.1.1.7.1	YES
SCStorageGrayscaleByteMF	1.2.840.10008.5.1.4.1.1.7.2	YES
SCStorageGrayscaleWordMF	1.2.840.10008.5.1.4.1.1.7.3	YES
SCStorageTrueColorMF	1.2.840.10008.5.1.4.1.1.7.4	YES
StandaloneOverlayStorage	1.2.840.10008.5.1.4.1.1.8	YES
StandaloneCurveStorage	1.2.840.10008.5.1.4.1.1.9	YES
WFStorageTwelveLeadECG	1.2.840.10008.5.1.4.1.1.9.1.1	NO
WFStorageGeneralECG	1.2.840.10008.5.1.4.1.1.9.1.2	NO
WFStorageAmbulatoryECG	1.2.840.10008.5.1.4.1.1.9.1.3	NO
WFStorageHemodynamic	1.2.840.10008.5.1.4.1.1.9.2.1	NO
WFStorageCardiacElectrophysiology	1.2.840.10008.5.1.4.1.1.9.3.1	NO
WFStorageBasicVoiceAudio	1.2.840.10008.5.1.4.1.1.9.4.1	NO
StandaloneModalityLUTStorage	1.2.840.10008.5.1.4.1.1.10	YES
StandaloneVOILUTStorage	1.2.840.10008.5.1.4.1.1.11	YES
GrayscaleSoftcopyPresentationStateStorage	1.2.840.10008.5.1.4.1.1.11.1	YES
RetiredXASinglePlaneStorage	1.2.840.10008.5.1.4.1.1.12	YES
XASinglePlaneStorage	1.2.840.10008.5.1.4.1.1.12.1	YES
RFStorage	1.2.840.10008.5.1.4.1.1.12.2	YES
XABiPlaneStorage	1.2.840.10008.5.1.4.1.1.12.3	YES
NMStorage	1.2.840.10008.5.1.4.1.1.20	YES
VLImageStorage	1.2.840.10008.5.1.4.1.1.77.1	YES
VLMultiFrameImageStorage	1.2.840.10008.5.1.4.1.1.77.2	YES
VLMicroscopicSlideStorage	1.2.840.10008.5.1.4.1.1.77.3	YES
VLPhotographicStorage	1.2.840.10008.5.1.4.1.1.77.4	YES
VLEndoscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.1	YES
VLMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.2	YES
VLSlideCoordinatesMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.3	YES
VLPhotographicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.4	YES
BasicTextSR	1.2.840.10008.5.1.4.1.1.88.11	YES
EnhancedSR	1.2.840.10008.5.1.4.1.1.88.22	YES
ComprehensiveSR	1.2.840.10008.5.1.4.1.1.88.33	YES
MammographyCADSR	1.2.840.10008.5.1.4.1.1.88.50	YES
KeyObjectSelectionDocument	1.2.840.10008.5.1.4.1.1.88.59	YES
PETStorage	1.2.840.10008.5.1.4.1.1.128	YES
StandalonePETCurveStorage	1.2.840.10008.5.1.4.1.1.129	YES
RTImageStorage	1.2.840.10008.5.1.4.1.1.481.1	YES
RTDoseStorage	1.2.840.10008.5.1.4.1.1.481.2	YES
RTStructureStorage	1.2.840.10008.5.1.4.1.1.481.3	YES
RTTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.4	YES
RTPlanStorage	1.2.840.10008.5.1.4.1.1.481.5	YES

RTBrachyTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.6	YES
RTTreatmentSummaryRecordStorage	1.2.840.10008.5.1.4.1.1.481.7	YES
GEMRStorage	1.2.840.113619.4.2	NO
GECTStorage	1.2.840.113619.4.3	NO
GE3DModelObjectStorage	1.2.840.113619.4.26	YES
GERTPlanStorage	1.2.840.113619.5.249	YES
GERTPlanStorage2	1.2.840.113619.4.5.249	YES
GESaturnTDSObjectStorage	1.2.840.113619.5.253	YES
Philips3DVolumeStorage	1.2.46.670589.5.0.1	YES
Philips3DObjectStorage	1.2.46.670589.5.0.2	YES
PhilipsSurfaceStorage	1.2.46.670589.5.0.3	YES
PhilipsCompositeObjectStorage	1.2.46.670589.5.0.4	YES
PhilipsMRCardioProfileStorage	1.2.46.670589.5.0.7	YES
PhilipsMRCardioImageStorage	1.2.46.670589.5.0.8	YES
StudyRootQuery	1.2.840.10008.5.1.4.1.2.2.1	YES
StudyRootRetrieve	1.2.840.10008.5.1.4.1.2.2.2	YES

2.2.1 Association establishment policies

2.2.1.1 General

The DICOM Application Context Name (ACN) that is always proposed is:

Application Context Name	1.2.840.10008.3.1.1

The Maximum Length PDU negotiation is included in all association establishment requests. The maximum length PDU for an association initiated by the NetMain AE is:

Maximum Length PDU	16Kbytes

The SOP class Extended Negotiation is not supported and ignored.

There is no limit on the maximum number of Presentation Contexts Items that will be proposed. In this implementation, each Abstract syntax will be proposed with either a single Transfer Syntax, or with a few JPEG(2000) transfer syntaxes, depending on the configuration in acrnema.map.

The user info items sent by this product are:

- Maximum PDU Length
- Implementation UID
- Implementation Version

Note: Max PDU length is not configurable at run time.

2.2.1.2 Number of associations

DCMburner AE will initiate one DICOM association to perform image store for each concurrently incoming C-MOVE request.
There is no artificial maximum placed on the number of simultaneous DICOM associations open at one time. It should be noted that system response time will be degraded, and this could possibly adversely affect a time-out period on other remote AE's.

2.2.1.3 Asynchronous nature

Asynchronous mode is not supported. All operations will be performed synchronously.

2.2.1.4 Implementation identifying information

DCMburner will respond to association requests with the following implementation identifying

parameters:

Table 2.2-2: Application identifying information for DCMburner

Name	Value
Implementation Class UID	1.2.826.0.1.3680043.2.135.1066.101
Application Context Name	1.2.840.10008.3.1.1.1
Implementation Version Name	DCMBURNER

2.2.2 Association initiation by Real-World activity

DCMburner initiates associations for the following activities:

• Verifying DICOM communication between DCMburner and a remote system.
• Sending DICOM SOP instances from the local database to a remote DICOM host.
• Querying content of remote DICOM archives.
• Retrieving DICOM SOP instances from remote DICOM hosts.

2.2.2.1 Real-World activity: Verifying DICOM communication

2.2.2.1.1 Associated Real-World activity

Through the DCMburner configuration interface, the user selects a host from the list External Dicom Servers, then press the “Ping” button.

2.2.2.1.2 Presentation Context Table

DCMburner proposes the following Presentation Contexts for Verification:

Table 2.2-3: Verification Presentation Contexts as SCU

Abstract Syntax		Transfer Syntax	Role
Name	UID		
Verification SOP Class	1.2.840.10008.1.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	SCU

2.2.2.1.3 SOP Specific Conformance for Verification SOP Class (SCU)

DCMburner provides standard conformance to the DICOM Verification Service Class as a SCU.

2.2.2.2 Real-World activity: Querying content of remote DICOM archives

2.2.2.2.1 Associated Real-World activity

Through the DCMburner GUI, the user selects the “Q/R” button and then select the filter.

2.2.2.2.2 Presentation Context Table

DCMburner proposes the following Presentation Contexts for the Query SOP Classes:

Table 2.2-4: Query Presentation Contexts as SCU

Abstract Syntax		Transfer Syntax	Role
Name	UID		
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	SCU

2.2.2.2.3 SOP Specific Conformance for Query SOP Classes (SCU)
DCMburner supports all Patient, Study, Series and Image level keys for the Study Root information model.

The complete list of supported attributes is reported in the following table.

Table 2.2-5: Supported Query attributes (as SCU)

Query Level	Attribute Description	Tag
Study	Patient's Name	(0010,0010)
Study	Patient ID	(0010,0020)
Study	Study Date	(0008,0020)
Study	Study Time	(0008,0030)

2.2.2.3 Real-World activity: Retrieving DICOM SOP instances

2.2.2.3.1 Associated Real-World activity
Through the DCMburner GUI, the user selects the "Q/R" button, select the filter and press the "Query" button. Select the Study and double click to Retrieve.

2.2.2.3.2 Presentation Context Table
DCMburner proposes the following Presentation Contexts for the Retrieve SOP Classes:

Table 2.2-6: Retrieve Presentation Contexts as SCU

Abstract Syntax		Transfer Syntax	Role
Name	UID		
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	SCU

2.2.2.3.3 SOP Specific Conformance for Retrieve SOP Class (SCU)
DCMburner provides standard conformance to the DICOM Retrieve Service Classes (MOVE) as a SCU.

2.2.3 Association acceptance policy
DCMburner accepts DICOM associations according to the DICOM SOP Classes it supports. In particular, associations may be accepted for the following activities:

• Verifying DICOM communication between DCMburner and a remote system.
• Transferring DICOM SOP instances from a remote DICOM host to DCMburner.
• Processing queries from remote DICOM hosts.
• Initiating a transfer of SOP instances to a remote DICOM host, in response to a "retrieve" request.

DCMburner does not perform any check on the Called AE Title at association acceptance time.

2.2.3.1 Real-World activity: Verifying communication and transferring SOP instances

2.2.3.1.1 Associated Real-World activity
The application entity waits for incoming associations. No operator action is required to receive DICOM store requests or verification requests.

2.2.3.1.2 Presentation Context Table
DCMburner accepts the following Presentation Contexts:

Table 2.2-7 Storage and Verification Presentation Contexts as SCP

Abstract Syntax			Transfer Syntax	Role
SOP class Name	UID	Active		
Verification	1.2.840.10008.1.1	YES	Implicit VR Little Endian	SCP
HardcopyGrayscaleImageStorage	1.2.840.10008.5.1.1.29	YES	Implicit VR Little Endian	SCP
HardcopyColorImageStorage	1.2.840.10008.5.1.1.30	YES	Implicit VR Little Endian	SCP
CRStorage	1.2.840.10008.5.1.4.1.1.1	YES	Implicit VR Little Endian	SCP

DXStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.1	YES	Implicit VR Little Endian	SCP
DXStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.1.1	YES	Implicit VR Little Endian	SCP
DMStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.2	YES	Implicit VR Little Endian	SCP
DMStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.2.1	YES	Implicit VR Little Endian	SCP
DOralStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.3	YES	Implicit VR Little Endian	SCP
DOralStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.3.1	YES	Implicit VR Little Endian	SCP
CTStorage	1.2.840.10008.5.1.4.1.1.2	YES	Implicit VR Little Endian	SCP
RetiredUSMultiframeStorage	1.2.840.10008.5.1.4.1.1.3	YES	Implicit VR Little Endian	SCP
USMultiframeStorage	1.2.840.10008.5.1.4.1.1.3.1	YES	Implicit VR Little Endian	SCP
MRStorage	1.2.840.10008.5.1.4.1.1.4	YES	Implicit VR Little Endian	SCP
MRImageStorageEnhanced	1.2.840.10008.5.1.4.1.1.4.1	YES	Implicit VR Little Endian	SCP
MRStorageSpectroscopy	1.2.840.10008.5.1.4.1.1.4.2	YES	Implicit VR Little Endian	SCP
RetiredNMStorage	1.2.840.10008.5.1.4.1.1.5	YES	Implicit VR Little Endian	SCP
RetiredUSStorage	1.2.840.10008.5.1.4.1.1.6	YES	Implicit VR Little Endian	SCP
USStorage	1.2.840.10008.5.1.4.1.1.6.1	YES	Implicit VR Little Endian	SCP
SCStorage	1.2.840.10008.5.1.4.1.1.7	YES	Implicit VR Little Endian	SCP
SCStorageSingleBitMF	1.2.840.10008.5.1.4.1.1.7.1	YES	Implicit VR Little Endian	SCP
SCStorageGrayscaleByteMF	1.2.840.10008.5.1.4.1.1.7.2	YES	Implicit VR Little Endian	SCP
SCStorageGrayscaleWordMF	1.2.840.10008.5.1.4.1.1.7.3	YES	Implicit VR Little Endian	SCP
SCStorageTrueColorMF	1.2.840.10008.5.1.4.1.1.7.4	YES	Implicit VR Little Endian	SCP
StandaloneOverlayStorage	1.2.840.10008.5.1.4.1.1.8	YES	Implicit VR Little Endian	SCP
StandaloneCurveStorage	1.2.840.10008.5.1.4.1.1.9	YES	Implicit VR Little Endian	SCP
WFStorageTwelveLeadECG	1.2.840.10008.5.1.4.1.1.9.1.1	NO	Implicit VR Little Endian	SCP
WFStorageGeneralECG	1.2.840.10008.5.1.4.1.1.9.1.2	NO	Implicit VR Little Endian	SCP
WFStorageAmbulatoryECG	1.2.840.10008.5.1.4.1.1.9.1.3	NO	Implicit VR Little Endian	SCP
WFStorageHemodynamic	1.2.840.10008.5.1.4.1.1.9.2.1	NO	Implicit VR Little Endian	SCP
WFStorageCardiacElectrophysiology	1.2.840.10008.5.1.4.1.1.9.3.1	NO	Implicit VR Little Endian	SCP
WFStorageBasicVoiceAudio	1.2.840.10008.5.1.4.1.1.9.4.1	NO	Implicit VR Little Endian	SCP
StandaloneModalityLUTStorage	1.2.840.10008.5.1.4.1.1.10	YES	Implicit VR Little Endian	SCP
StandaloneVOILUTStorage	1.2.840.10008.5.1.4.1.1.11	YES	Implicit VR Little Endian	SCP
GrayscaleSoftcopyPresentationStateStorage	1.2.840.10008.5.1.4.1.1.11.1	YES	Implicit VR Little Endian	SCP
RetiredXASinglePlaneStorage	1.2.840.10008.5.1.4.1.1.12	YES	Implicit VR Little Endian	SCP
XASinglePlaneStorage	1.2.840.10008.5.1.4.1.1.12.1	YES	Implicit VR Little Endian	SCP
RFStorage	1.2.840.10008.5.1.4.1.1.12.2	YES	Implicit VR Little Endian	SCP
XABiPlaneStorage	1.2.840.10008.5.1.4.1.1.12.3	YES	Implicit VR Little Endian	SCP
NMStorage	1.2.840.10008.5.1.4.1.1.20	YES	Implicit VR Little Endian	SCP
VLImageStorage	1.2.840.10008.5.1.4.1.1.77.1	YES	Implicit VR Little Endian	SCP
VLMultiFrameImageStorage	1.2.840.10008.5.1.4.1.1.77.2	YES	Implicit VR Little Endian	SCP
VLMicroscopicSlideStorage	1.2.840.10008.5.1.4.1.1.77.3	YES	Implicit VR Little Endian	SCP
VLPhotographicStorage	1.2.840.10008.5.1.4.1.1.77.4	YES	Implicit VR Little Endian	SCP
VLEndoscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.1	YES	Implicit VR Little Endian	SCP
VLMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.2	YES	Implicit VR Little Endian	SCP
VLSlideCoordinatesMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.3	YES	Implicit VR Little Endian	SCP
VLPhotographicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.4	YES	Implicit VR Little Endian	SCP
BasicTextSR	1.2.840.10008.5.1.4.1.1.88.11	YES	Implicit VR Little Endian	SCP
EnhancedSR	1.2.840.10008.5.1.4.1.1.88.22	YES	Implicit VR Little Endian	SCP
ComprehensiveSR	1.2.840.10008.5.1.4.1.1.88.33	YES	Implicit VR Little Endian	SCP
MammographyCADSR	1.2.840.10008.5.1.4.1.1.88.50	YES	Implicit VR Little Endian	SCP
KeyObjectSelectionDocument	1.2.840.10008.5.1.4.1.1.88.59	YES	Implicit VR Little Endian	SCP
PETStorage	1.2.840.10008.5.1.4.1.1.128	YES	Implicit VR Little Endian	SCP
StandalonePETCurveStorage	1.2.840.10008.5.1.4.1.1.129	YES	Implicit VR Little Endian	SCP
RTImageStorage	1.2.840.10008.5.1.4.1.1.481.1	YES	Implicit VR Little Endian	SCP
RTDoseStorage	1.2.840.10008.5.1.4.1.1.481.2	YES	Implicit VR Little Endian	SCP
RTStructureStorage	1.2.840.10008.5.1.4.1.1.481.3	YES	Implicit VR Little Endian	SCP
RTTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.4	YES	Implicit VR Little Endian	SCP
RTPlanStorage	1.2.840.10008.5.1.4.1.1.481.5	YES	Implicit VR Little Endian	SCP

RTBrachyTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.6	YES	Implicit VR Little Endian	SCP
RTTreatmentSummaryRecordStorage	1.2.840.10008.5.1.4.1.1.481.7	YES	Implicit VR Little Endian	SCP
GEMRStorage	1.2.840.113619.4.2	NO	Implicit VR Little Endian	SCP
GECTStorage	1.2.840.113619.4.3	NO	Implicit VR Little Endian	SCP
GE3DModelObjectStorage	1.2.840.113619.4.26	YES	Implicit VR Little Endian	SCP
GERTPlanStorage	1.2.840.113619.5.249	YES	Implicit VR Little Endian	SCP
GERTPlanStorage2	1.2.840.113619.4.5.249	YES	Implicit VR Little Endian	SCP
GESaturnTDSObjectStorage	1.2.840.113619.5.253	YES	Implicit VR Little Endian	SCP
Philips3DVolumeStorage	1.2.46.670589.5.0.1	YES	Implicit VR Little Endian	SCP
Philips3DObjectStorage	1.2.46.670589.5.0.2	YES	Implicit VR Little Endian	SCP
PhilipsSurfaceStorage	1.2.46.670589.5.0.3	YES	Implicit VR Little Endian	SCP
PhilipsCompositeObjectStorage	1.2.46.670589.5.0.4	YES	Implicit VR Little Endian	SCP
PhilipsMRCardioProfileStorage	1.2.46.670589.5.0.7	YES	Implicit VR Little Endian	SCP
PhilipsMRCardioImageStorage	1.2.46.670589.5.0.8	YES	Implicit VR Little Endian	SCP

2.2.3.1.3 SOP Specific Conformance for Verification SOP Class (SCP)
DCMburner provides standard conformance to the DICOM Verification Service Class as a SCP.

2.2.3.1.4 SOP Specific Conformance for Storage SOP Class (SCP)
DCMburner conforms to the SOP's of the Storage Service Class at Level 2. No elements are discarded or coerced by DCMburner. In the event of a successful C-STORE operation, the image has successfully been written to disk as a standard file. As such, it may be accessed in the same manner as any other file. DCMburner will never delete a file which it has received; the duration of the storage of the image is determined by the user of the system (storage management policies).

The filename of the files stored to the local hard drive has the following syntax: UID.dcm, where UID is the SOP Instance UID of the image. The file will be stored in a folder having the following name: "Application Folder name\images\StudyUID\".

2.2.3.1.5 Presentation Context Acceptance Criterion
N/A

2.2.3.1.6 Transfer Syntax Selection Policies
N/A

2.2.3.2 Real-World activity: Processing queries
N/A

2.3 Communication Profiles

2.3.1 Supported Communications Stacks
DCMburner provides DICOM V3.0 TCP/IP Network Communication Support as defined in PS 3-8 of the DICOM Standard.

2.3.2 TCP/IP Stack
DCMburner inherits its TCP/IP stack from the Windows system upon which it executes.

2.3.3 Physical Media Support
DCMburner is indifferent to the physical medium over which TCP/IP executes; it inherits this from the system upon which it executes.

2.4 Extensions/Specialization/Privatization
No extensions defined.

2.5 Configuration
DCMburner configuration is included in the application user interface through the Preferences – Dicom Server tab.

2.5.1 AE Title/Presentation Address Mapping
Not Applicable.

2.5.2 Configurable Parameters

2.5.2.1 Standard Configuration

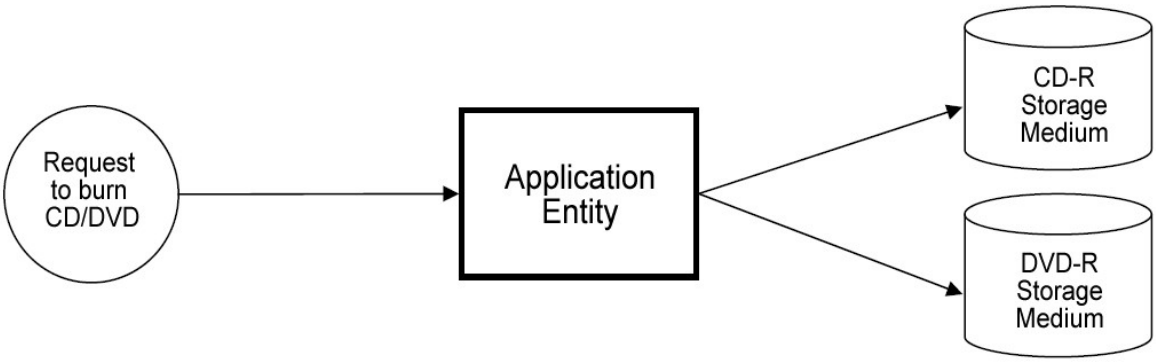
DCMburner configurable parameters may be defined in the Preferences form of the user interface. They main configuration parameters related to the DICOM communication are:

- TCP/IP port: default is 104
- AE Title: default is DCMBURNER
- Incoming Study TimeOut: Default 20 sec.
- Incoming Compression: Default “Do not change”.

3 Media Interchange

3.1 Application data flow diagram

DCMburner is a Windows application intended to record DICOM Compact Disc Recordable (CD-R or DVD-R) with images coming from a local storage directory.



DCMburner burns DICOM files to CD or DVD in response to user actions performed through the DCMburner Graphical User Interface (GUI). These actions normally correspond to the selection of the Patients or Studies to be copied to the optical medium. DCMburner acts as a File-set Reader (FSC): it stores DICOM files that are compliant with the Part 10 of the DICOM 3.0 standard.

3.1.1 Functional definitions of AE’s

DCMburner supports and initializes CD-R or DVD-R media, and writes new DICOM File Sets onto those media.

3.1.2 Sequencing of Real-World activities

Through the GUI of the DCMburner software application, the operator selects entries from the patient-study-series-instance hierarchy and initiates the transfer of DICOM images to the optical medium. The entries appearing in the patient-study-series-instance hierarchy have been previously received through the DICOM protocol or imported from local disks.

3.2 Application Entity specifications

3.2.1 DCMburner AE

DCMburner provides Standard Conformance to the Interchange Option of the Media Storage Service Class.

Table 3.2-1: Supported SOP Classes for DCMburner (SCP role)

Application Profile	Real World Activity	Role	SC Option
STD-GEN-CD	Create CD	FSC	Interchange

3.2.1.1 File Meta Information for the Application Entity

DCMburner writes the following Meta Information attributes in the Part 10-compliant DICOM files it produces.

Table 3.2-2: Meta Information Attributes

Name	Value
Implementation Class UID	1.2.826.0.1.3680043.2.135.1066.101
Source Application Entity Title	DCMBURNER (can be edit)
Implementation Version Name	DCMBURNER

3.2.1.2 Real World Activities
There is only one real world activity associated with the media creation by DCMburner.

3.2.1.2.1 Real World Activity: Create CD Request
DCMburner acts as an FSC using the interchange option when requested to export SOP Instances from the local database to a CD-R medium.

3.2.1.2.1.1 Media Storage Application Profiles
The DCMburner Application Entity supports the STD-GEN-CD Application Profile. In particular, it strictly adheres to what specified by the STD-GEN-CD profile when the burn images are encoded with the Transfer Syntax supported by this profile.

3.2.1.2.1.1.1 Media Storage Directory IOD for STD-GEN-CD
The following tables specify the directory record keys and optional attributes used by DCMburner in the Media Storage Directory IOD (DICOMDIR file).
PATIENT Record Keys:

Record Keys
PATIENT

Description	Tag
Patient Name	(0010,0010)
Patient ID	(0010,0020)

STUDY

Description	Tag
Study Date	(0008,0020)
Study Time	(0008,0030)
Accession Number	(0008,0050)
Study Description	(0008,1030)
Study Instance UID	(0020,000D)
Study ID	(0020,0010)

SERIES

Description	Tag
Modality	(0008,0060)
Series Description	(0008,103E)
Series Instance UID	(0020,000E)
Series Number	(0020,0011)

INSTANCE

Description	Tag
Image Type	(0008,0008)
Instance Number	(0020,0013)

3.3 Extensions, Specializations, Privatizations of SOP Classes and Transfer Syntaxes
None.

3.4 Other Extensions
None.

3.5 Configuration
The DCMburner software supports several application-level configurations, available through its GUI. Nevertheless, none of these configuration parameters affects the conformance of DCMburner with media profiles.

3.6 Character Sets

The DCMburner application supports SOP Instances containing the following character sets:

- DICOM Default repertoire as defined in PS 3.5
- DICOM ISO_IR 100

3.7 Codes and Controlled Terminology

The SOP Classes supported by this implementation do not support the use of Codes and Controlled Terminology