SIEMENS

MagicWeb/ACOM.Web VA40

[redacted] AX

DICOM Conformance Statement

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Preface

DICOM, by itself, does not guarantee interoperability. However, the Conformance Statement facilitates a first-level validation for interoperability between different applications supporting the same DICOM functionality as SCU and SCP, respectively.

This Conformance Statement is not intended to replace validation with other DICOM equipment to ensure proper exchange of information intended.

The scope of this Conformance Statement is to facilitate communication with Siemens and other vendors' Medical equipment. The Conformance Statement should be read and understood in conjunction with the DICOM 3.0 Standard [2]. However, by itself it is not guaranteed to ensure the desired interoperability and a successful interconnectivity.

The user should be aware of the following important issues:

1. The comparison of different conformance statements is the first step towards assessing interconnectivity between Siemens and non-Siemens equipment.
2. Test procedures should be defined and tests should be performed by the user to validate the connectivity desired. DICOM itself and the conformance parts do not specify this.
3. The standard will evolve to meet the users' future requirements. Siemens is actively involved in developing the standard further and therefore reserves the right to make changes to its products or to discontinue its delivery.
4. Siemens reserves the right to modify the design and specifications contained herein without prior notice. Please contact your local Siemens representative for the most current information.

Abbreviations

Abbreviation	Description
AE	Application Entity
AET	Application Entity Title
DICOM	Digital Imaging and Communications in Medicine
IP	Internet Protocol
JPEG	Joint Pictures Expert Group
SCP	Service Class Provider
SCU	Service Class User
SOP	Service Object Pair
TCP	Transmission Control Protocol
UID	Unique Identifier

Referenced Documents

Reference	Document
[1]	Mitra Broker Conformance Statement for PACS Broker 1.5.2 Revision 4.7
[2]	DICOM Standard 1999 PS 3.1 – 3.14

Table of Contents

1. Introduction

This documents describes the DICOM implementation of the Siemens products „MagicWeb" and „ACOM.Web". The DICOM implementation consists of four separate components:

DICOM Store/Query/Retrieve SCP

This component acts as a DICOM service class provider for DICOM nodes who want to store images on the MagicWeb / ACOM.Web server. Additionally this component provides the functionality to query for images on and retrieve images from the MagicWeb / ACOM.Web server.

DICOM Query

This component is initiated by the Web-Client, and performs a DICOM Query to other DICOM nodes.

DICOM Retrieve

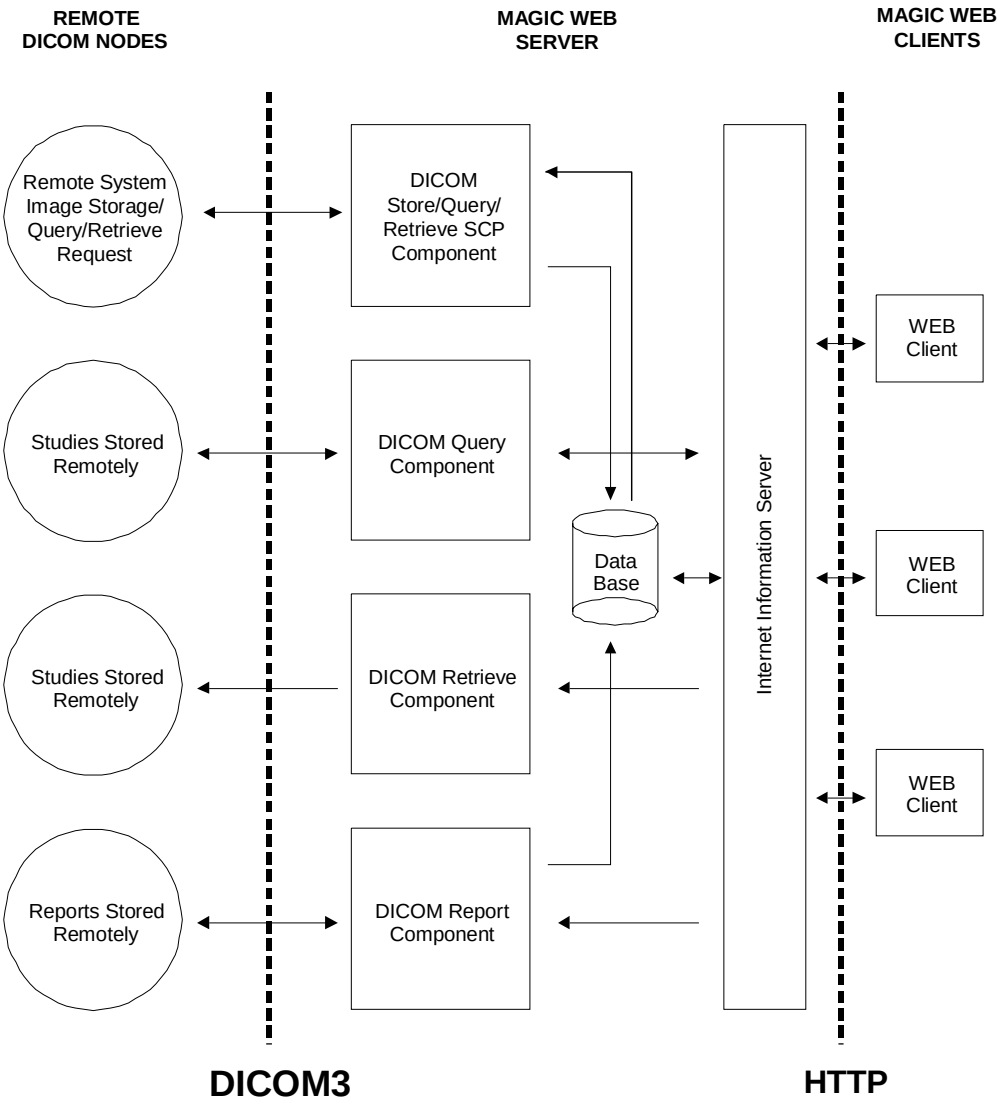
This component is also initiated by the Web-Client, and its purpose is to retrieve images from a remote DICOM node.

DICOM Report

This component is also initiated by the WEB-Client, and its purpose is to retrieve reports from Mitra Broker[1].

2. Implementation Model

2.1 Application Data Flow Diagram



2.2 Functional Definitions of AE's

DICOM Store/Query/Retrieve SCP

This component waits for another application to connect at the presentation address configured for its Application Entity Title. Whenever another application connects, DICOM Store/Query/Retrieve SCP expects it to be a DICOM application.

The DICOM Store SCP 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 specified in PS 3.10 [2].

Additionally, another MagicWeb / ACOM.Web component will extract patient demographic data from those files and store them in the MagicWeb / ACOM.Web database.

The DICOM Query / Retrieve SCP is able to respond to query and to retrieve requests to the MagicWeb / ACOM.Web server and sends either the query results or the images back to the calling DICOM node. It supports the Patient Root and Study Root Query / Retrieve Information Model specified in PS 3.4 [2].

DICOM Query / DICOM Retrieve SCU

The DICOM Query / Retrieve components acting as a SCU are able to send DICOM Query / Retrieve requests to a remote application. They support the Study Root Query / Retrieve Information Model specified in PS 3.4 [2], but only at the study level.

Because the Query / Retrieve is issued by Web Components, they are realized in two separate components. So it is possible that one MagicWeb / ACOM.Web client is quering for studies while another MagicWeb / ACOM.Web client retrieves studies.

Here in the conformance statement they are treated as one component.

DICOM Report

The DICOM Report component acts as a SCU of a private SOP Class of the Mitra Broker[1].

So it is possible to get report information belonging to a given Patient ID and Accession Number and merging it to an already stored Study in the MagicWeb / ACOM.Web database.

2.3 Sequencing of Real-World Activities

not applicable

3. AE Specifications

3.1 DICOM Store / Query / Retrieve SCP

3.1.1 General

DICOM Store/Query/Retrieve SCP will accept associations in order to provide the service classes listed in the following sections.

The minimum PDU size is 8192 Bytes, maximum PDU size is 65536 Bytes. The default size is 16384 Bytes.

3.1.2 Association Acceptance Policy

The MagicWeb / ACOM.Web server will accept associations for the following DIMSE-C operations as SCP:

- C-STORE
- C-FIND
- C-MOVE
- C-ECHO

The MagicWeb / ACOM.Web server does support multiple C-STORE/C-FIND/C-MOVE over the same association.

Note:

When MagicWeb / ACOM.Web receives an association request the own AE Title is checked only case insensitive.

3.1.3 Number of Associations

The maximum number of associations is configurable, limited to 16.

3.1.4 Asynchronous Nature

Not applicable.

3.1.5 Implementation Identifying Information

The DICOM Store/Query/Retrieve SCP will provide an implementation class UID which is 1.3.12.2.1107.5.8.2.2.40, and an implementation version name of MED_MWEB_VA40A.

3.1.6 Association Initiation by Real-World Activity

- DICOM Store SCP never initiates an Association.
- DICOM Query / Retrieve initiates an association to send images to the calling DICOM node.

3.1.7 Real-World Activity - Receive C-ECHO

3.1.7.1 Associated Real-World Activity

The Real-World activity associated with the C-ECHO operation is responding to a C-ECHO request from a remote DICOM node.

3.1.7.2 Presentation Context Table

Any of the Presentation Contexts shown in the following table are acceptable for DICOM Store/Query/Retrieve SCP to receive the verification request.

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None

3.1.7.3 SOP Specific Conformance to Storage SOP Classes

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

3.1.7.4 Presentation Context Acceptance Criterion

DICOM Store/Query/Retrieve SCP accepts all presentation contexts listed in the table above.

3.1.7.5 Transfer Syntax Selection Policies

The order preference in accepting Transfer Syntaxes within Presentation Contexts is:

1. Explicit VR Little Endian
2. Implicit VR Little Endian

3.1.8 Real-World Activity - Receive C-STORE

3.1.8.1 Associated Real-World Activity

The Real-World activity associated with the C-STORE operation is the storage of an image on the MagicWeb / ACOM.Web server. DICOM Store SCP will issue a failure status if it is unable to store an image on the harddisk.

3.1.8.2 Presentation Context Table

Any of the Presentation Contexts shown in the following table are acceptable for DICOM Store SCP to receive images:

MagicWeb Basic Version:

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
CR Storage	1.2.840.10008.5.1.4.1.1.1	see table below	see table below	SCP	None

CT Storage	1.2.840.10008.5.1.4.1.1.2	see table below	see table below	SCP	None
MR Storage	1.2.840.10008.5.1.4.1.1.4	see table below	see table below	SCP	None
US Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	see table below	see table below	SCP	None
US Storage	1.2.840.10008.5.1.4.1.1.6.1	see table below	see table below	SCP	None
SC Storage	1.2.840.10008.5.1.4.1.1.7	see table below	see table below	SCP	None
X-Ray RF Storage	1.2.840.10008.5.1.4.1.1.12.2	see table below	see table below	SCP	None
US Multi-frame Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	see table below	see table below	SCP	None
US Multi-frame Storage	1.2.840.10008.5.1.4.1.1.3.1	see table below	see table below	SCP	None
NM Storage	1.2.840.10008.5.1.4.1.1.20	see table below	see table below	SCP	None
RT Storage	1.2.840.10008.5.1.4.1.1.481.1	see table below	see table below	SCP	None
PET Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	see table below	see table below	SCP	None
MG Digital Mammography Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	see table below	see table below	SCP	None
DX Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	see table below	see table below	SCP	None
VL Endoscopic Image	1.2.840.10008.5.1.4.1.1.77.1.1	see table below	see table below	SCP	None
VL Microscopic Image	1.2.840.10008.5.1.4.1.1.77.1.2	see table below	see table below	SCP	None
VL Photographic Image	1.2.840.10008.5.1.4.1.1.77.1.4	see table below	see table below	SCP	None
CSA Non-Image Storage	1.3.12.2.1107.5.9.1	see table below	see table below	SCP	None

MagicWeb Cardiology Version:

This Version provides following additional Presentation Contexts:

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
X-Ray Angiographic Storage	1.2.840.10008.5.1.4.1.1.12.1	see table below	see table below	SCP	None

ACOM.Web Basic Version:

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
US Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	see table below	see table below	SCP	None
US Storage	1.2.840.10008.5.1.4.1.1.6.1	see table below	see table below	SCP	None
SC Storage	1.2.840.10008.5.1.4.1.1.7	see table below	see table below	SCP	None
X-Ray Angiographic Storage	1.2.840.10008.5.1.4.1.1.12.1	see table below	see table below	SCP	None
X-Ray RF Storage	1.2.840.10008.5.1.4.1.1.12.2	see table below	see table below	SCP	None
US Multi-frame Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	see table below	see table below	SCP	None
US Multi-frame Storage	1.2.840.10008.5.1.4.1.1.3.1	see table below	see table below	SCP	None
NM Storage	1.2.840.10008.5.1.4.1.1.20	see table below	see table below	SCP	None
RT Storage	1.2.840.10008.5.1.4.1.1.481.1	see table below	see table below	SCP	None
PET Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	see table below	see table below	SCP	None

ACOM.Web Radiology Version:

This Version provides following additional Presentation Contexts:

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
CR Storage	1.2.840.10008.5.1.4.1.1.1	see table below	see table below	SCP	None
CT Storage	1.2.840.10008.5.1.4.1.1.2	see table below	see table below	SCP	None
MR Storage	1.2.840.10008.5.1.4.1.1.4	see table below	see table below	SCP	None
MG Digital Mammography Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	see table below	see table below	SCP	None
DX Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	see table below	see table below	SCP	None
VL Endoscopic Image	1.2.840.10008.5.1.4.1.1.77.1.1	see table below	see table below	SCP	None
VL Microscopic Image	1.2.840.10008.5.1.4.1.1.77.1.2	see table below	see table below	SCP	None
VL Photographic Image	1.2.840.10008.5.1.4.1.1.77.1.4	see table below	see table below	SCP	None
CSA Non-Image Storage	1.3.12.2.1107.5.9.1	see table below	see table below	SCP	None

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

Transfer Syntax Name	UID
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Default lossless JPEG Compressed	1.2.840.10008.1.2.4.70
Lossy JPEG 8 Bit Compressed	1.2.840.10008.1.2.4.50
Lossy JPEG 12 Bit Compressed	1.2.840.10008.1.2.4.51
RLE Compressed	1.2.840.10008.1.2.5

3.1.8.3 SOP Specific Conformance to Storage SOP Classes

DICOM Store SCP conforms to the SOP's of the Storage Service Class at Level 2 (Full) for image type SOPClasses. No elements are discarded or coerced by DICOM Store SCP but Non-Image information is not stored in database for further processing. In the event of a successful C-Store operation, the image has been successfully written to the hard drive as a DICOM file specified in PS 3.10 [2].

Caution: MagicWeb / ACOM.Web is not an archive like a PACS. Normally, no images are stored forever!

DICOM Store SCP returns following DICOM states:

Success:	0x0000	
Refused:	0xA700	Out of Resource (there is not enough space to store the image)
Error:	0xA900, 0x0110	Unable to proceed

Restriction:

DICOM Store SCP accepts all SOPs of the presentation context table above, regardless of their photometric interpretation. But MagicWeb / ACOM.Web is only able to work with following photometric interpretation models:

- MONOCHROME1
- MONOCHROME2
- PALETTE COLOR
- RGB

- YBR_FULL
- YBR_FULL_442

3.1.8.4 Presentation Context Acceptance Criterion

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

3.1.8.5 Transfer Syntax Selection Policies

The order preference in accepting Transfer Syntaxes within Presentation Contexts is:

1. Default lossless JPEG Compressed
2. Lossy JPEG 8 Bit Compressed
3. Lossy JPEG 12 Bit Compressed
4. RLE Compressed
5. Explicit VR Little Endian
6. Implicit VR Little Endian

3.1.9 Real-World Activity - Receive C-Find

3.1.9.1 Associated Real-World Activity

The Real-World activity associated with the C-FIND operation is to respond query requests to the MagicWeb / ACOM.Web server with the query model Patient Root and Study Root.

3.1.9.2 Presentation Context Table

DICOM Query SCP will accept Presentation Contexts as shown in the following table:

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended**
Name	**UID**	**Name**	**UID**		**Negotiation**
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit Little Endian Explicit Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit Little Endian Explicit Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None

3.1.9.3 SOP Specific Conformance Statement for SOP Class Receive C-FIND

The supported attributes on the various query levels of the two supported information models are listed in the tables of the following sections. Please note that lists of UIDs are not supported.

3.1.9.3.1 Patient Root Information Model

Attribute	DICOM Tag	matching
Patient Level		
Patient's Name	(0010,0010)	single value, wild card, universal
Patient ID	(0010,0020)	single value, wild card, universal

Patient´s Birth Date	(0010,0030)	single value, range, universal
Patient´s Sex	(0010,0040)	single value, wild card, universal
PatientComments	(0010,4000)	single value, wild card, universal
Study Level		
StudyInstanceUID	(0020,000D)	single value, universal
StudyID	(0020,0010)	single value, wild card, universal
StudyDate	(0008,0020)	single value, range, universal
StudyTime	(0008,0030)	single value, range, universal
AccessionNumber	(0008,0050)	single value, wild card, universal
ReferringPhysiciansName	(0008,0090)	single value, wild card, universal
StudyDescription	(0008,1030)	single value, wild card, universal
StudyComments	(0032,4000)	single value, wild card, universal
Series Level		
SeriesInstanceUID	(0020,000E)	single value, universal
SeriesNumber	(0020,0011)	single value, wild card, universal
Modality	(0008,0060)	single value, wild card, universal
SeriesDate	(0008,0021)	single value, range, universal
SeriesTime	(0008,0031)	single value, range, universal
SeriesDescription	(0008,103E)	single value, wild card, universal
PerformingPhysiciansName	(0008,1050)	single value, wild card, universal
Image Level		
SOPInstanceUID	(0008,0018)	single value, universal
ImageDate	(0008,0023)	single value, range, universal
ImageTime	(0008,0033)	single value, range, universal
InstanceNumber	(0020,0013)	single value, wild card, universal

3.1.9.3.2 Study Root Information Model

Study Level		
Patient's Name	(0010,0010)	single value, wild card, universal
Patient ID	(0010,0020)	single value, wild card, universal
Patient´s Birth Date	(0010,0030)	single value, range, universal
Patient´s Sex	(0010,0040)	single value, wild card, universal
PatientComments	(0010,4000)	single value, wild card, universal
StudyInstanceUID	(0020,000D)	single value, universal
StudyID	(0020,0010)	single value, wild card, universal
StudyDate	(0008,0020)	single value, range, universal
StudyTime	(0008,0030)	single value, range, universal
AccessionNumber	(0008,0050)	single value, wild card, universal
ReferringPhysiciansName	(0008,0090)	single value, wild card, universal
StudyDescription	(0008,1030)	single value, wild card, universal
StudyComments	(0032,4000)	single value, wild card, universal
Series Level		
SeriesInstanceUID	(0020,000E)	single value, universal
SeriesNumber	(0020,0011)	single value, wild card, universal

SeriesDate	(0008,0021)	single value, range, universal
SeriesTime	(0008,0031)	single value, range, universal
Modality	(0008,0060)	single value, wild card, universal
SeriesDescription	(0008,103E)	single value, wild card, universal
PerformingPhysiciansName	(0008,1050)	single value, wild card, universal
Image Level		
SOPInstanceUID	(0008,0018)	single value, universal
ImageDate	(0008,0023)	single value, range, universal
ImageTime	(0008,0033)	single value, range, universal
InstanceNumber	(0020,0013)	single value, wild card, universal

3.1.9.3.3 Status Codes

DICOM Query SCP returns following DICOM states:

Success:	0x0000	Matching is complete - No final Identifier is supplied
Error:	0xC001	Unable to process
Pending:	0xFF00	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys

3.1.9.4 Presentation Context Acceptance Criterion

DICOM Query SCP accepts all presentation contexts listed in the table above.

3.1.9.5 Transfer Syntax Selection Policies

The order preference in accepting Transfer Syntaxes within Presentation Contexts is:

1. Explicit VR Little Endian
2. Implicit VR Little Endian

3.1.10 Real-World Activity - Receive C-Move

3.1.10.1 Associated Real-World Activity

The Real-World activity associated with the C-MOVE operation is to respond to retrieve requests to the MagicWeb / ACOM.Web server with the query model Patient Root and Study Root.

3.1.10.2 Presentation Context Table

DICOM Retrieve SCP will accept Presentation Contexts as shown in the following table:

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Patient Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit Little Endian Explicit Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit Little Endian Explicit Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None

3.1.10.3 SOP Specific Conformance Statement for SOP Class Receive C-MOVE

At association establishment time the C-MOVE presentation context shall be negotiated. The C-STORE sub-operations is done on a different association to send images to that DICOM node which has initiated the move request. An image transfer to an other DICOM node is not supported.

All unique keys have to be supplied according to the selected Query/Retrieve Level. The supported attributes on the various retrieve levels of the two supported information models are listed in the tables of the following sections. Please note that lists of UIDs are not supported.

3.1.10.3.1 Patient Root Information Model

Attribute	DICOM Tag
Patient Level	
Patient ID	(0010,0020)
Study Level	
StudyInstanceUID	(0020,000D)
Series Level	
SeriesInstanceUID	(0020,000E)
Image Level	
SOPInstanceUID	(0008,0018)

3.1.10.3.2 Study Root Information Model

Attribute	DICOM Tag
Study Level	
StudyInstanceUID	(0020,000D)
Series Level	
SeriesInstanceUID	(0020,000E)
Image Level	
SOPInstanceUID	(0008,0018)

3.1.10.3.3 Status Codes

DICOM Retrieve SCP returns following DICOM states:

Success:	0x0000	Sub-operations Complete - No Failures or Warning
Failed:	0xC001	Unable to process

Note:

There are no status messages with the state ‘Pending’. This has to be considered for the timeout settings made for the DICOM nodes which initiate the move requests.

3.1.10.4 Presentation Context Acceptance Criterion

DICOM Retrieve SCP accepts all presentation contexts listed in the table above.

3.1.10.5 Transfer Syntax Selection Policies

The images stored within the MagicWeb / ACOM.Web server are available in two different compression levels. The image with the best quality is sent to the recipient. Following order for the store suboperations is used:

- Original
- JPEG Lossless
- JPEG Lossy
- Already Lossy
- Lossy with unknown quality factor

If images are available only in compressed mode and there is no valid presentation context for compressed images, no image transfer is possible. MagicWeb / ACOM.Web does not transform the transfer syntax.

Retrieval of wavelet compressed images is not supported.

3.2 DICOM Query / Retrieve SCU

The DICOM Query / Retrieve provides Standard Conformance to the following DICOM V3.0 SOP Classes as a SCU:

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1
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

3.2.1 Association Establishment Policies

3.2.1.1 General

DICOM Query / Retrieve will initiate associations in order to provide the service classes listed in the table above.

The minimum PDU size is 8192 Bytes, maximum PDU size is 65536 Bytes. The default size is 16384 Bytes.

3.2.1.2 Number of Associations

There is only one association for query and a second one for retrieve. That means, if one association for query is active, no further associations for query are possible. An association for retrieve is possible at this time, if two different AETs for query and retrieve are defined. If not, there is also no association for retrieve possible. All other queries and retrieves are queued.

3.2.1.3 Asynchronous Nature

Not applicable.

3.2.1.4 Implementation Identifying Information

The DICOM Query / Retrieve will provide an implementation class UID which is 1.3.12.2.1107.5.8.2.2.40, and an implementation version name of MED_MWEB_VA40A.

3.2.2 Association Initiation by Real-World Activity

DICOM Query / Retrieve initiates an association to

- send a C-ECHO command to test a remote application or
- query a remote application via C-FIND or
- retrieve studies from a remote DICOM node via C-MOVE

3.2.2.1 Real-World Activity – Send C-ECHO

3.2.2.1.1 Associated Real-World Activity

DICOM Query / Retrieve sends a C-ECHO Request to check the remote DICOM node if it is available for this AET.

3.2.2.1.2 Proposed Presentation Contexts

DICOM Query / Retrieve will propose Presentation Contexts as shown in the following table:

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Verification	1.2.840.10008.1.1	Implicit Little Endian	1.2.840.10008.1.2	SCU	None
Verification	1.2.840.10008.1.1	Explicit Little Endian	1.2.840.10008.1.2.1	SCU	None

3.2.2.1.3 SOP Specific Conformance Statement for SOP Class Verification

DICOM Query / Retrieve provides standard conformance to the DICOM Verification Service Class.

3.2.2.2 Real-World Activity – Send C-FIND

3.2.2.2.1 Associated Real-World Activity

DICOM Query / Retrieve sends a C-FIND Request to query the remote DICOM node for a specified study.

3.2.2.2.2 Proposed Presentation Contexts

DICOM Query / Retrieve will propose Presentation Contexts as shown in the following table:

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit Little Endian	1.2.840.10008.1.2	SCU	None
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Explicit Little Endian	1.2.840.10008.1.2.1	SCU	None

3.2.2.2.3 SOP Specific Conformance Statement for SOP Class FIND

DICOM Query / Retrieve provides standard conformance.

Only queries at study level will be executed.

The table below show the attributes to be matched.

Attribute	DICOM Tag	matching
Patient's Name	(0010,0010)	wild card, universal
Patient ID	(0010,0020)	wild card, universal
Accession Number	(0008,0050)	wild card, universal
Study ID	(0020,0010)	wild card, universal
Date of Study	(0008,0020)	single value, range, universal
Referring Physician's Name	(0008,0090)	single value, universal
Patient Comments	(0010,4000)	wild card, universal
Study Description	(0008,1030)	wild card, universal

The table below show the attributes used as return keys, which are only queried.

Study Instance UID	(0020,000D)
Time of Study	(0008,0030)
Patient's Birth Date	(0010,0030)
Patient's Sex	(0010,0040)
Number of Study Related Images	(0020,1208)

The table below shows the attributes, which are only read if present.

Storage File-Set ID	(0088,0130)

Note: If the remote DICOM node is a SIENET® Archive, the attribute „Storage File-Set ID“ (0088,0130) is used to show the archive status. Following archive states are defined by SIENET® Archive:

- ONLINE
- NEARLINE
- OFFLINE

3.2.2.3 Real-World Activity – Send C-MOVE

3.2.2.3.1 Associated Real-World Activity

DICOM Query / Retrieve sends a C-MOVE Request to retrieve the requested study from the remote DICOM node.

3.2.2.3.2 Proposed Presentation Contexts

DICOM Query / Retrieve will propose Presentation Contexts as shown in the following table:

Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit Little Endian	1.2.840.10008.1.2	SCU	None
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Explicit Little Endian	1.2.840.10008.1.2.1	SCU	None

3.2.2.3.3 SOP Specific Conformance Statement for SOP Class Move

DICOM Query / Retrieve initiates the C-MOVE only at study level.

DICOM Query / Retrieve supports no Store association, therefore the DICOM Store SCP shall be used!

That means, a remote DICOM server has to be able to build an association for the C-STORE with the DICOM Store SCP.

3.2.3 Association Acceptance Policy

DICOM Query / Retrieve never accepts an association.

3.3 DICOM Report SCU

The DICOM Report provides Standard Conformance to the following DICOM V3.0 SOP Classes as a SCU:

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1

The DICOM Report provides Conformance to the following Mitra Broker[1] Private SOP Classes as a SCU:

SOP Class Name	SOP Class UID
Mitra Report Management - FIND	1.2.840.113532.3500.8

3.3.1 Association Establishment Policies

3.3.1.1 General

DICOM Report will initiate associations in order to provide the service classes listed in the table above.

The minimum PDU size is 8192 Bytes, maximum PDU size is 65536 Bytes. The default size is 16384 Bytes.

3.3.1.2 Number of Associations

There is only one association for the Report Query. All other queries will be queued.

3.3.1.3 Asynchronous Nature

Not applicable.

3.3.1.4 Implementation Identifying Information

The DICOM Report will provide an implementation class UID which is 1.3.12.2.1107.5.8.2.2.40, and an implementation version name of MED_MWEB_VA40A.

3.3.2 Association Initiation by Real-World Activity

DICOM Report initiates an association to

- send a C-ECHO command to test a remote application or
- query a remote application for report information via C-FIND

3.3.2.1 Real-World Activity – Send C-ECHO

3.3.2.1.1 Associated Real-World Activity

DICOM Report sends a C-ECHO Request to check the remote DICOM node if it is available for this AE.

3.3.2.1.2 Proposed Presentation Contexts

DICOM Report will propose Presentation Contexts as shown in the following table:

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

3.3.2.1.3 SOP Specific Conformance Statement for SOP Class Verification

DICOM Report provides standard conformance to the DICOM Verification Service Class.

3.3.2.2 Real-World Activity – Send C-FIND

3.3.2.2.1 Associated Real-World Activity

DICOM Report sends a C-FIND Request to query the remote Mitra Broker[1] node for specified reports.

3.3.2.2.2 Proposed Presentation Contexts

DICOM Report will propose Presentation Contexts as shown in the following table:

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Mitra Report Management - FIND	1.2.840.113532.3500.8	Implicit Little Endian	1.2.840.10008.1.2	SCU	None

3.3.2.2.3 SOP Specific Conformance Statement for SOP Class Mitra Report Management

DICOM Report provides private conformance to the Mitra Broker[1].

There is only one query to get report information.

The table below show the attributes to be matched.

Attribute	DICOM Tag	matching
Patient ID	(0010,0020)	single value
Accession Number	(0008,0050)	single value
Study ID	(0020,0010)	single value
Study Instance UID	(0020,000D)	single value

Note: The Patient ID and one of Study Instance UID, Study ID or Accession Number is required!

The table below show the attributes used as return keys, which are only queried.

Specific Character Set	(0008,0005)
Impressions	(4008,0300)
Interpretation Text	(4008,010B)

3.3.3 Association Acceptance Policy

DICOM Report never accepts an association.

4. Communication Profiles

4.1 Supported Communication Stacks (Parts 8)

All MagicWeb / ACOM.Web DICOM components provide DICOM 3 TCP/IP network communication support as defined in PS 3.8 [2].

4.2 TCP/IP Stack

All MagicWeb / ACOM.Web DICOM components inherit their TCP/IP stack from the Windows 2000® operating system upon which they execute.

4.2.1 Physical Media Support

All MagicWeb / ACOM.Web DICOM components are indifferent to the physical medium over which TCP/IP executes; they inherit this from the Windows 2000® operating system upon which they execute.

5. Extensions/Specializations/Privatizations

5.1 Image Processing

5.1.1 Description of the restriction using Tag Frame Time Vector [0018,1065]

If the Tag Frame Time Vector [0018,1065] ist used instead of Tag Frame Time [0018,1063], the Magicweb will calculate the average over all the given values and diplays the scene with the speed of the calculated average value.

6. Configuration

6.1 DICOM Store/Query/Retrieve SCP

The MagicWeb / ACOM.Web DICOM Store SCP component obtains its configuration from parameters in the Database of MagicWeb / ACOM.Web. These parameters can be configured with a Web interface.

6.1.1 AE Title/Presentation Address Mapping

The following Application Entity/Address Mapping parameters are configurable for the DICOM Store/Query/Retrieve SCP component:

- Own Application Entity Title
- TCP/IP port

There are no restrictions of AET's of remote DICOM nodes.

6.1.2 Configurable Parameters

Additionally, the following operational parameters are configurable with the Administration Web Interface:

- Number of simultaneous associations
- Maximum PDU size
- Timeout

6.2 DICOM Query/Retrieve SCU

The MagicWeb / ACOM.Web DICOM Query/Retrieve component obtains its configuration from parameters in the Database of MagicWeb / ACOM.Web. These parameters can be configured with a Web interface.

6.2.1 AE Title/Presentation Address Mapping

The following Application Entity/Address Mapping parameters are configurable for the DICOM Query/Retrieve component:

- Own Application Entity Title (Query)
- Own Application Entity Title (Retrieve)
- Remote Application Entity Title
- Remote Host name or TCP/IP address
- Remote TCP/IP port

6.2.2 Configurable Parameters

Additionally, the following operational parameters are configurable with the Administration Web Interface:

- Read timeout
- Connect timeout
- Maximum PDU size

6.3 DICOM Report SCU

The MagicWeb / ACOM.Web DICOM Report component obtains its configuration from parameters in the Database of MagicWeb / ACOM.Web. These parameters can be configured with a Web interface.

6.3.1 AE Title/Presentation Address Mapping

The following Application Entity/Address Mapping parameters are configurable for the DICOM Report component:

- Own Application Entity Title

- Remote Application Entity Title
- Remote Host name or TCP/IP address
- Remote TCP/IP port

There is only one remote AE configurable.

6.3.2 Configurable Parameters

Additionally, the following operational parameters are configurable with the Administration Web Interface:

- Read timeout
- Connect timeout
- Maximum PDU size

7. Support of Extended Character Sets

7.1 DICOM Store/Query/Retrieve SCP

The MagicWeb / ACOM.Web DICOM Store/Query/Retrieve SCP component does support ISO Latin 1 (ISO-IR 100) Character Set. The use of any other extended character sets may produce incorrect and unreadable output on the Web interface.

7.2 DICOM Query/Retrieve SCU

The MagicWeb / ACOM.Web DICOM Query/Retrieve component does support ISO Latin 1 (ISO-IR 100) Character Set. The use of any other extended character sets may produce incorrect and unreadable output on the Web interface.

7.3 DICOM Report SCU

The MagicWeb / ACOM.Web DICOM Report component does support ISO Latin 1 (ISO-IR 100) Character Set. The use of any other extended character sets may produce incorrect and unreadable output on the Web interface.