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MagicWeb / ACOM.Web VA42A

HS

DICOM Conformance Statement

Rev. 4.0

15-Sept.-2003

Siemens AG Medical Solutions, Health Services
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Referenced Documents

Reference	Document
[1]	Mitra Broker Conformance Statement for PACS Broker 1.5.2 Revision 4.7
[2]	DICOM Standard 2003 PS 3.1 – 3.16
[3]	DICOM Supplement 64: Revised Part 2 (Conformance), Public Comment March 16, 2001

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1. Conformance Statement Overview

The MagicWeb/ACOM.Web system is designed for distributing medical images and reports within and outside of a clinical area.It allows external systems to send images to it for temporary storage, retrieve information about such images, and retrieve the images themselves. The system conforms to the DICOM 3.0 standard to allow the sharing of medical information with other digital imaging systems.

The supported SOP Classes are listed in the table below according to the present version of the MagicWeb/ACOM.Web system (Basic, Cardiology or Radiology).

SOP Class Name	User of Service (SCU)	Provider of Service (SCP)	Magic Web		ACOM. Web	
			Basic	Cardiology	Basic	Radiology
Verification						
Verification	Yes	Yes	X	X	X	X
Query/Retrieve						
Patient Root Q/R Information Model - FIND	No	Yes	X	X	X	X
Patient Root Q/R Information Model - MOVE	No	Yes	X	X	X	X
Study Root Q/R Information Model - FIND	Yes	Yes	X	X	X	X
Study Root Q/R Information Model - MOVE	Yes	Yes	X	X	X	X
Patient Study Only Information Model - FIND	No	Yes	X	X	X	X
Patient Study Only Information Model - MOVE	No	Yes	X	X	X	X
Image Transfer						
Computed Radiography Image Storage	Yes	Yes	X	X		X
Digital X-Ray Image Storage - For Presentation	Yes	Yes	X	X		X
Digital Mammography X-Ray Image Storage - For Presentation	Yes	Yes	X	X		X
CT Image Storage	Yes	Yes	X	X		X
MR Image Storage	Yes	Yes	X	X		X
Ultrasound Image Storage (Retired)	Yes	Yes	X	X	X	X
Ultrasound Image Storage	Yes	Yes	X	X	X	X
Secondary Capture Image Storage	Yes	Yes	X	X	X	X
Positron Emission Tomography Image Storage	Yes	Yes	X	X	X	X
X-Ray Angiographic Image Storage	Yes	Yes		X	X	X
X-Ray Radiofluoroscopic Image Storage	Yes	Yes	X	X	X	X
Ultrasound Multi-frame Image Storage (Retired)	Yes	Yes	X	X	X	X
Ultrasound Multi-frame Image Storage	Yes	Yes	X	X	X	X
Nuclear Medicine Image Storage	Yes	Yes	X	X	X	X
RT Image Storage	Yes	Yes	X	X	X	X
VL Endoscopic Image Storage	Yes	Yes	X	X		X

VL Microscopic Image Storage	Yes	Yes	X	X		X
VL Photographic Image Storage	Yes	Yes	X	X		X
CSA Non-Image Storage	No	Yes	X	X	X	X
12-lead ECG Waveform Storage	No	Yes		X	X	X
General ECG Waveform Storage	No	Yes		X	X	X
Ambulatory ECG Waveform Storage	No	Yes		X	X	X
Hemodynamic Waveform Storage	No	Yes		X	X	X
Cardiac Electrophysiology Waveform Storage	No	Yes		X	X	X
Basic Voice Audio Waveform Storage	No	Yes		X	X	X

Table 1: SUPPORTED NETWORKING DICOM SERVICE (SOP) CLASSES

Note:

Waveform and Non-Images are always discarded after reception so there is no necessity to support the according SOP Classes as SCU for Image Transfer. For a detailed description about discarding received DICOM objects see the note in 4.2.2.4.1.2.

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2. Table of Contents

Siemens AG Medical Solutions, Health Services
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Siemens AG Medical Solutions, Health Services
Henkestr. 127, D-91052 Erlangen

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Henkestr. 127, D-91052 Erlangen

3. Introduction

3.1 Audience

This document is intended for hospital staff, health system integrators, software designers or implementers. It is assumed that the reader has a working understanding of DICOM.

3.2 Remarks

This document is the DICOM Conformance Statement for the MagicWeb/ACOM.Web system. The document is formatted according to DICOM Supplement 64 [3].

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.

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 between the MagicWeb/ACOM.Web system and other DICOM systems. The Conformance Statement should be read and understood in conjunction with the DICOM Standard [DICOM]. 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:

- The comparison of different Conformance Statements is the first step towards assessing interconnectivity between MagicWeb/ACOM.Web system and other DICOM conformant equipment.
- Test procedures should be defined to validate the desired level of connectivity.

3.3 Abbreviations and Acronyms

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

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4. Networking

4.1 Implementation Model

4.1.1 Application Data Flow

By default all of the defined Application Entities have different AE Titles.

- AETs of QUERY-RETRIEVE-SCP (Level A) and QUERY-RETRIEVE-SCP (Level B) must differ.
- AET of STORAGE-SCP can be the same as the AET of QUERY-RETRIEVE-SCP (Level A) or QUERY-RETRIEVE-SCP (Level B).
- AET of STORGE-SCU is the same as the AET that is used to receive the move request (AET of QUERY-RETRIEVE-SCP (Level A) or QUERY-RETRIEVE-SCP (Level B)).
- AETs of QUERY-SCU, RETRIEVE-SCU and REPORT-SCU can be set to any value.

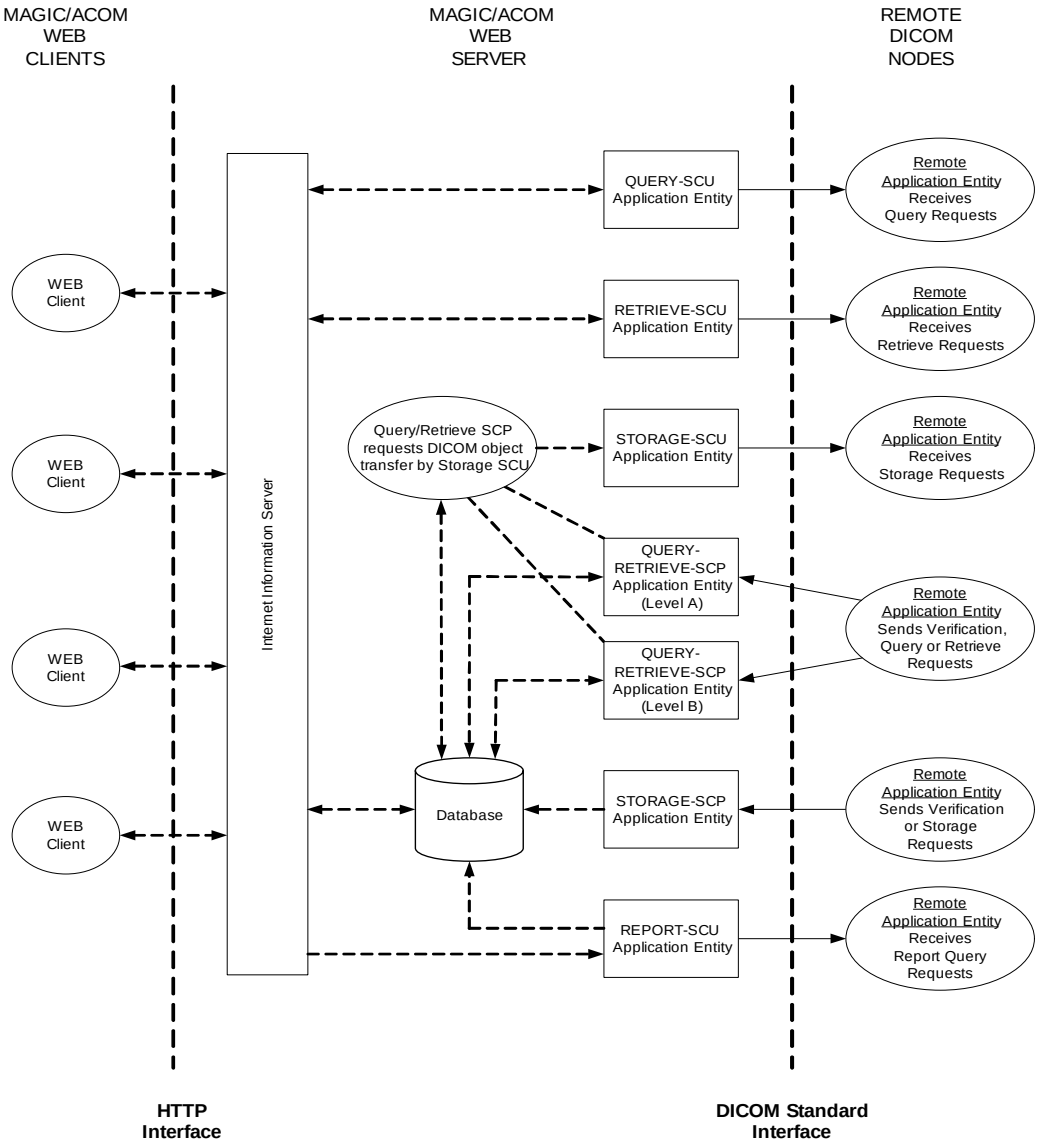

Figure 1: MAGICWEB/ACOMWEB DICOM DATA FLOW DIAGRAM

- The STORAGE-SCU AE can send Composite SOP Instances. It handles requests from the QUERY-RETRIEVE-SCP AE to transmit Images to a specific DICOM destination. The STORAGE-SCU AE functions as a C-STORE SCU. Note that this STORAGE-SCU AE does not allow a Local User to request that images be sent to a Remote AE.

- The STORAGE-SCP AE can receive incoming DICOM images and add them to the MagicWeb/ACOM.Web database. It can respond to external Storage and Verification Requests as a Service Class Provider (SCP) for solicited C-STORE and C-ECHO requests.

- The QUERY-SCU AE can query remote AEs for lists of studies.

- The RETRIEVE-SCU AE can direct remote AEs to transfer selected studies to the MagicWeb/ ACOM.Web system.

- The QUERY-RETRIEVE-SCP AE (Level A) can handle incoming query and retrieve requests regarding to SOP Instances stored in Compression Level A. It can handle external queries for Patient, Study, Series, and Image data, and also handle Image retrieval requests. The QUERY-RETRIEVE-SCP AE (Level A) handles retrieval requests by issuing a command to the STORAGE-SCU AE to send the requested Images to the destination specified by the Remote AE. The QUERY-RETRIEVE-SCP AE (Level A) functions as an SCP for C-FIND and C-MOVE requests.

- The QUERY-RETRIEVE-SCP AE (Level A) can handle incoming query and retrieve requests regarding to SOP Instances stored in Compression Level A. It can handle external queries for Patient, Study, Series, and Image data, and also handle Image retrieval requests. The QUERY-RETRIEVE-SCP AE (Level A) handles retrieval requests by issuing a command to the STORAGE-SCU AE to send the requested Images to the destination specified by the Remote AE. The QUERY-RETRIEVE-SCP AE (Level A) functions as an SCP for C-FIND and C-MOVE requests.

- The REPORT-SCU AE can query for reports on a Mitra Broker and merge it to an already stored Study in the MagicWeb/ACOM.Web database. The REPORT-SCU AE functions as an SCU for Mitra specific C-FIND requests.

4.1.2 Functional Definition of AEs

4.1.2.1 Functional Definition of STORAGE-SCU Application Entity

The STORAGE-SCU AE can be invoked by the QUERY-RETRIEVE-SCP AE to trigger the transfer of specific images to a remote destination AE. The STORAGE-SCU AE must be correctly configured with the host and port number of any external DICOM AE's that are to be C-MOVE retrieval destinations. The Presentation Contexts to use are determined from the headers of the DICOM files to be transferred. The conversion of the DICOM image objects to Transfer Syntax ‚Implicit VR Little Endian' is possible if the original Presentation Context is not supported by the remote destination AE or if decompression is preferred.

4.1.2.2 Functional Definition of STORAGE-SCP Application Entity

The STORAGE-SCP AE waits for another application to connect at the presentation address configured for its Application Entity Title. When another application connects, the STORAGE-SCP AE expects it to be a DICOM application. The STORAGE-SCP AE will accept Associations with Presentation Contexts for SOP Classes of the Verification and Storage Service Classes. Any images received on such Presentation Contexts will be added to the MagicWeb/ACOM.Web database.

4.1.2.3 Functional Definition of QUERY-SCU Application Entity

The QUERY-SCU AE is activated through the user interface when a user selects a remote AE to query (from a pre-configured list). Queries are performed on the study level of the Study Root Information Model. The QUERY-SCU AE must be correctly configured with the host and port number of any external DICOM AE's that are to be QUERY-SCP.

4.1.2.4 Functional Definition of RETRIEVE-SCU Application Entity

The RETRIEVE-SCU AE is activated through the user interface when a user selects a study of a previously performed query result data set. Retrieves are performed on the study level of the Study Root Information Model. The RETRIEVE-SCU AE must be correctly configured with the host and port number of any external DICOM AE's that are to be RETRIEVE-SCP. The requested SOP Instances are always transferred to thr MagicWeb/ACOM.Web system.

4.1.2.5 Functional Definition of QUERY-RETRIEVE-SCP Application Entity (Level A)

The QUERY-RETRIEVE-SCP AE waits for another application to connect at the presentation address configured for its Application Entity Title. When another application connects, QUERY-RETRIEVE-SCP AE expects it to be a DICOM application. QUERY-RETRIEVE-SCP AE will accept Associations with Presentation Contexts for SOP Classes of the DICOM Query-Retrieve Service Class and Verification Service Class. It will handle query and retrieve requests on these Presentation Contexts and respond with data objects with values corresponding to the contents of the Compression Level A of the MagicWeb/ACOM.Web database. For C-MOVE requests the destination for the image objects is determined from the Destination AE Title contained in the C-MOVE request. When a retrieval request is received, the QUERY-RETRIEVE-SCP AE issues a command to the STORAGE-SCU AE to send the specified images to the C-MOVE Destination AE.

4.1.2.6 Functional Definition of QUERY-RETRIEVE-SCP Application Entity (Level B)

The QUERY-RETRIEVE-SCP AE waits for another application to connect at the presentation address configured for its Application Entity Title. When another application connects, QUERY-RETRIEVE-SCP AE expects it to be a DICOM application. QUERY-RETRIEVE-SCP AE will accept Associations with Presentation Contexts for SOP Classes of the DICOM Query-Retrieve Service Class and Verification Service Class. It will handle query and retrieve requests on these Presentation Contexts and respond with data objects with values corresponding to the contents of the Compression Level B of the MagicWeb/ACOM.Web database. For C-MOVE requests the destination for the image objects is determined from the Destination AE Title contained in the C-MOVE request. When a retrieval request is received, the QUERY-RETRIEVE-SCP AE issues a command to the STORAGE-SCU AE to send the specified images to the C-MOVE Destination AE.

4.1.2.7 Functional Definition of REPORT-SCU Application Entity

The REPORT-SCU AE is activated either manually by the user or automatically when a new study is created in the database. Special Mitra queries are performed to get report information belonging to previously received studies. The REPORT-SCU AE must be correctly configured with the host and port number of any external DICOM AE's that are to be a Mitra Broker.

4.1.3 Sequencing of Real-World Activities

The only sequencing constraint that exists across all the MagicWeb/ACOM.Web Application Entities is the fact that a Composite SOP Instance must be received by the STORAGE-SCP AE before Query-Retrieve and Report Requests related to this SOP Instance can be successfully handled:

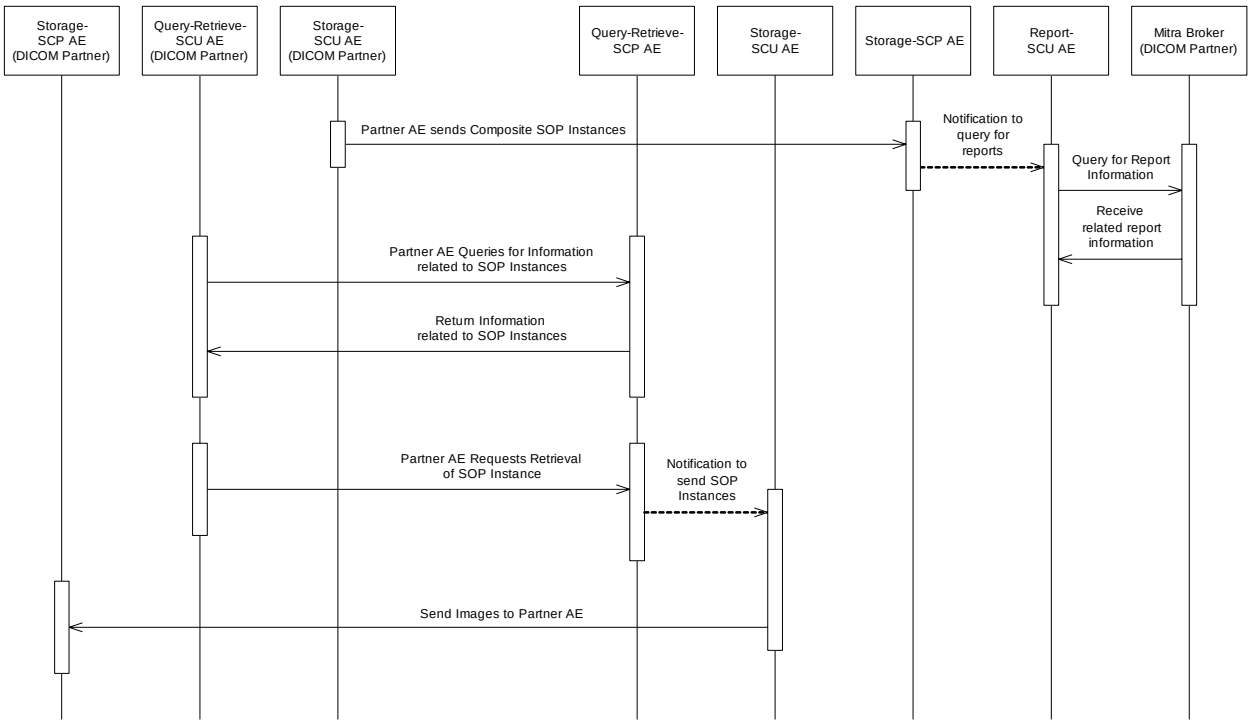

Figure 2: SEQUENCING CONSTRAINTS

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4.2 AE Specifications

4.2.1 STORAGE-SCU Application Entity Specification

4.2.1.1 SOP Classes

STORAGE-SCU AE will propose Presentation Contexts as shown in the following table:

SOP Class Name	SOP Class UID	SCU	SCP
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	No
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	No
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	Yes	No
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	No
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	No
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Yes	No
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	No
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	No
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	No
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Yes	No
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	No
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Yes	No
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	No
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Yes	No
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Yes	No
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Yes	No
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Yes	No
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Yes	No

Table 2: SOP CLASSES FOR STORAGE-SCU AE

4.2.1.2 Association Establishment Policies

4.2.1.2.1 General

The STORAGE -SCU AE can only form Associations when requested to do so by the QUERY-RETRIEVE-SCP AE. The STORAGE-SCU AE can only request the opening of an Association. It cannot accept requests to open Associations from external Application Entities.

The DICOM standard Application Context Name for DICOM 3.0 is always proposed:

Application Context Name	1.2.840.10008.3.1.1.1

Table 3: DICOM APPLICATION CONTEXT FOR STORAGE-SCU AE

4.2.1.2.2 Number of Associations

The configurable maximum number of simultaneous associations which are accepted by MagicWeb/ACOM.Web is limited to 16. Therefore the maximum number of simultaneous associations initiated by the STORAGE-SCU AE is also limited to this value because for each C-MOVE request one association to the C-MOVE Destination AE is established by the STORAGE-SCU AE.

There is no separate limit on the maximum number permitted to the same C-MOVE Destination AE.

Maximum number of simultaneous Associations	16 (Configurable)

Table 4: NUMBER OF ASSOCIATIONS AS A SCU FOR STORAGE-SCU AE

4.2.1.2.3 Asynchronous Nature

The STORAGE-SCU AE does not support asynchronous communication (multiple outstanding transactions over a single association). All association requests must be completed and acknowledged before a new operation can be initiated.

Maximum number of outstanding asynchronous transactions	1 (Not Configurable)

Table 5: ASYNCHRONOUS NATURE AS A SCU FOR STORAGE-SCU AE

4.2.1.2.4 Implementation Identifying Information

All MagicWeb/ACOM.Web AE's use the same Implementation Class UID and the same Implementation Version Name. This Version Name is updated with each new release of the product software, as the different AE versions are never released independently.

Implementation Class UID	1.3.12.2.1107.5.8.5.42
Implementation Version Name	MED_MWEB_VA42

Table 6: DICOM IMPLEMENTATION CLASS AND VERSION FOR STORAGE-SCU AE

4.2.1.3 Association Initiation Policy

4.2.1.3.1 Activity – Send Images Requested by an External Peer AE

4.2.1.3.1.1 Description and Sequencing of Activity

The STORAGE-SCU AE will initiate a new Association when the QUERY-RETRIEVE-SCP AE invokes the STORAGE-SCU AE to transmit images. The QUERY-RETRIEVE-SCP AE will issue such a command whenever it receives a valid C-MOVE Request. An Association Request is sent to the specified C-MOVE Destination AE and upon successful negotiation of the required Presentation Context the image transfer is started. All the indicated images are transmitted in a single association. The association will be released when all the images have been sent. If an error occurs during transmission over an open association then the image transfer is halted. The STORAGE-SCU AE will not attempt to independently retry the image export.
Note that the STORAGE-SCU AE does not support the unsolicited sending of SOP Instances using the DICOM Storage Service Class. It will only send SOP Instances in response to a C-MOVE Request from a partner AE.

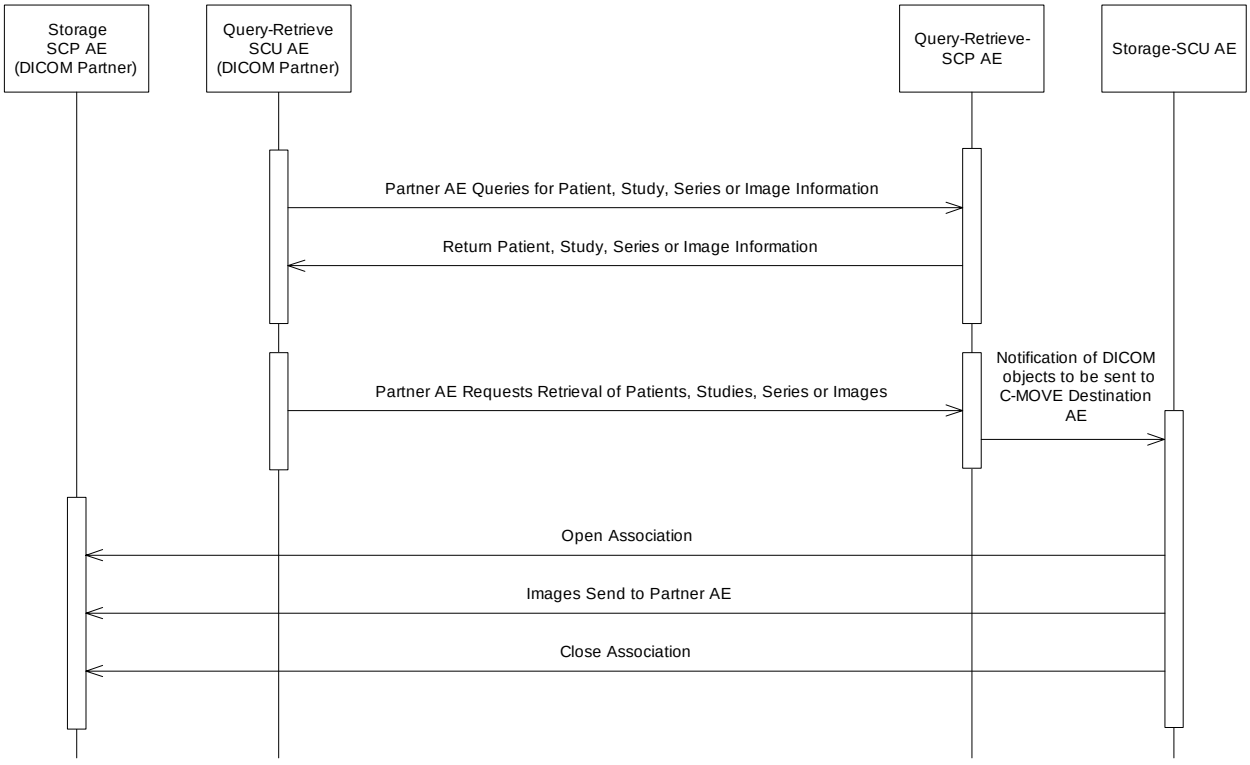

Figure 3: SEQUENCING OF ACTIVITY - SEND IMAGES REQUESTED BY AN EXTERNAL PARTNER AE

The following sequencing constraints illustrated in Figure 3 apply to the STORAGE-SCU AE:

1. Partner AE requests retrieval of Patient, Study, Series, or Images from QUERY-RETRIEVE-SCP AE (C-MOVE-RQ).
2. QUERY-RETRIEVE-SCP AE signals STORAGE-SCU AE to send the image Composite SOP Instances indicated in the C-MOVE-RQ to the C-MOVE Destination AE.
3. STORAGE-SCU AE opens a new association with the indicated C-MOVE Destination AE.
4. STORAGE-SCU AE sends the indicated Composite SOP Instances.
5. STORAGE-SCU AE closes the association.

4.2.1.3.1.2 Proposed Presentation Contexts

MagicWeb Basic Version:

The STORAGE-SCU AE of MagicWeb Basic Version will propose the Presentation Contexts as shown in Table 7.

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name**	**UID**		
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	see Table 11	see Table 11	SCU	None
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	see Table 11	see Table 11	SCU	None
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	see Table 11	see Table 11	SCU	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	see Table 11	see Table 11	SCU	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	see Table 11	see Table 11	SCU	None
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	see Table 11	see Table 11	SCU	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	see Table 11	see Table 11	SCU	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	see Table 11	see Table 11	SCU	None
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	see Table 11	see Table 11	SCU	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	see Table 11	see Table 11	SCU	None
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	see Table 11	see Table 11	SCU	None
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	see Table 11	see Table 11	SCU	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	see Table 11	see Table 11	SCU	None
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	see Table 11	see Table 11	SCU	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	see Table 11	see Table 11	SCU	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	see Table 11	see Table 11	SCU	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	see Table 11	see Table 11	SCU	None

Table 7: MAGICWEB BASIC VERSION PRESENTATION CONTEXTS

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MagicWeb Cardiology Version:

Additionally to the Presentation Contexts listed in Table 7 the STORAGE-SCU AE of MagicWeb Cardiology Version will propose the Presentation Context as shown in Table 8.

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	see Table 11	see Table 11	SCU	None

Table 8: MAGICWEB CARDIOLOGY VERSION ADDITIONAL PRESENTATION CONTEXT

ACOM.Web Basic Version:

The STORAGE-SCU AE of ACOM.Web Basic Version will propose the Presentation Contexts as shown in Table 9.

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	see Table 11	see Table 11	SCU	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	see Table 11	see Table 11	SCU	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	see Table 11	see Table 11	SCU	None
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	see Table 11	see Table 11	SCU	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	see Table 11	see Table 11	SCU	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	see Table 11	see Table 11	SCU	None
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	see Table 11	see Table 11	SCU	None
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	see Table 11	see Table 11	SCU	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	see Table 11	see Table 11	SCU	None
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	see Table 11	see Table 11	SCU	None

Table 9: ACOM.WEB BASIC VERSION PRESENTATION CONTEXTS

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ACOM.Web Radiology Version:

Additionally to the Presentation Contexts listed in Table 9 the STORAGE-SCU AE of ACOM.Web Radiology Version will propose the Presentation Contexts as shown in Table 10.

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	see Table 11	see Table 11	SCU	None
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	see Table 11	see Table 11	SCU	None
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	see Table 11	see Table 11	SCU	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	see Table 11	see Table 11	SCU	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	see Table 11	see Table 11	SCU	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	see Table 11	see Table 11	SCU	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	see Table 11	see Table 11	SCU	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	see Table 11	see Table 11	SCU	None

Table 10: ACOM.WEB RADIOLOGY VERSION ADDITIONAL PRESENTATION CONTEXTS

The table below describes the Transfer Syntaxes which are supported by the STORAGE-SCU AE.

Transfer Syntax Name	Transfer Syntax UID
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
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

Table 11: STORAGE-SCU AE TRANSFER SYNTAXES

The DICOM objects requested from the QUERY-RETRIEVE-SCP AE by a partner AE are transferred to the C-MOVE Destination AE with the Transfer Syntax with which they are stored within the accessed compression level of the MagicWeb/ ACOM.Web system.

In the following two situations the DICOM objects are converted to the default Transfer Syntax ‚Implicit VR Little Endian' before they are transmitted:

- The C-MOVE Destination AE does not support the present compressed Transfer Syntax.
- The C-MOVE Destination AE is configured in the administration interface to receive only uncompressed DICOM objects.

Note: Wavelet compressed DICOM objects will never be transferred because there is no appropriate Transfer Syntax available.

4.2.1.3.1.3 SOP Specific Conformance for Storage SOP Classes

Composite DICOM SOP Instances are maintained as DICOM Part 10 compliant files in the MagicWeb/ ACOM.Web database. The entire set of tags received with the image will be saved in MagicWeb/ ACOM.Web; this includes all Private and SOP Extended Elements. When a SOP Instance is selected for export from MagicWeb/ ACOM.Web, its content will be exported as it was originally received except the DICOM object was lossy compressed after reception. In this case a new SOP Instance UID and a new Series Instance UID is assigned to the object.

The STORAGE-SCU AE will exhibit the following behavior according to the Status Code value returned in a C-STORE Response from a destination C-STORE SCP:

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0x0000	The SCP has successfully stored the exported SOP Instance. A message is sent to the QUERY-RETRIEVE-SCP AE indicating successful export. The QUERY-RETRIEVE-SCP AE will send the appropriate PENDING or SUCCESS Status in the C-MOVE Response. Success indication message is stored in the Trace Database if Detailed Trace is switched on. No message is posted to the User Interface.
Refused	Out of Resources	0xA700	This is treated as a permanent Failure. A message is sent to the QUERY-RETRIEVE-SCP AE indicating an export failure and the Association is released. The QUERY-RETRIEVE-SCP AE will send an appropriate Status in the C-MOVE Response. Error indication message is stored in the Trace Database. No message is posted to the User Interface.
Error	Data Set does not match SOP Class	0xA900	
Error	Cannot Understand	0xC000	
Error	Processing Failure	0x0110	
Warning	Coercion of Data Elements	0xB000	Image transmission is considered successful. A message is sent to the QUERY-RETRIEVE-SCP AE indicating successful export. The QUERY-RETRIEVE-SCP AE will send the appropriate PENDING or SUCCESS Status in the C-MOVE Response. Warning indication message is stored in the Trace Database. No message is posted to the User Interface.
Warning	Data Set does not match SOP Class	0xB007	
Warning	Elements Discarded	0xB006	
*	*	Any other status code	This is treated as a permanent Failure. A message is sent to the QUERY-RETRIEVE-SCP AE indicating an export failure and the Association is released. The QUERY-RETRIEVE-SCP AE will send an appropriate Status in the C-MOVE Response. Error indication message is stored in the Trace Database. No message is posted to the User Interface.

Table 12: STORAGE-SCU AE C-STORE RESPONSE STATUS HANDLING BEHAVIOR

All Status Codes indicating an error or refusal are treated as a permanent failure. The STORAGE-SCU AE never automatically resends images when an error Status Code is returned in a C-STORE Response. For specific behavior regarding Status Code values returned in C-MOVE Responses, refer to the Services Supported as an SCP by the QUERY-RETRIEVE-SCP AE.

Exception	Behavior
Timeout expiry for an expected DICOM Message Response (DIMSE level timeout).	It is continued transferring the next DICOM object and a message is sent to the QUERY-RETRIEVE-SCP AE indicating an export failure. The QUERY-RETRIEVE-SCP AE will send an appropriate Status in the C-MOVE Response. Error indication message is stored in the Trace Database. No message is posted to the User Interface.
Timeout expiry for an expected DICOM PDU or TCP/IP packet (Low-level timeout).	It is continued transferring the next DICOM object and a message is sent to the QUERY-RETRIEVE-SCP AE indicating an export failure. The QUERY-RETRIEVE-SCP AE will send an appropriate Status in the C-MOVE Response. Error indication message is stored in the Trace Database. No message is posted to the User Interface.
Association A-ABORTed by the SCP or the network layers indicate communication loss (i.e. low-level TCP/IP socket closure)	A message is sent to the QUERY-RETRIEVE-SCP AE indicating an export failure. The QUERY-RETRIEVE-SCP AE will send an appropriate Status in the C-MOVE Response. Error indication message is stored in the Trace Database. No message is posted to the User Interface.

Table 13: STORAGE-SCU AE COMMUNICATION FAILURE BEHAVIOR

4.2.1.4 Association Acceptance Policy

The STORAGE-SCU AE does not accept Associations.

4.2.2 STORAGE-SCP Application Entity Specification

4.2.2.1 SOP Classes

The STORAGE-SCP AE provides Standard Conformance to the DICOM V3.0 SOP Classes listed in the table below according to the present version of the MagicWeb/ACOM.Web system (Basic, Cardiology or Radiology). The received DICOM objects that are indicated by the last column will be discarded after reception (not configurable).The other SOP Classes can be configured via the administration interface to be discarded too.

SOP Class Name	SOP Class UID	SCU	SCP	Magic Web		ACOM. Web		Discard always
				Basic	Cardiology	Basic	Radiology	
Verification	1.2.840.10008.1.1	No	Yes	X	X	X	X	-
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	No	Yes	X	X		X	
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	No	Yes	X	X		X	
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	No	Yes	X	X		X	
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	No	Yes	X	X		X	
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	No	Yes	X	X		X	
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	No	Yes	X	X	X	X	
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	No	Yes	X	X	X	X	
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	No	Yes	X	X	X	X	
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	No	Yes	X	X	X	X	
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	No	Yes		X	X	X	
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	No	Yes	X	X	X	X	
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	No	Yes	X	X	X	X	
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	No	Yes	X	X	X	X	
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	No	Yes	X	X	X	X	
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	No	Yes	X	X	X	X	
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	No	Yes	X	X		X	
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	No	Yes	X	X		X	
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	No	Yes	X	X		X	
CSA Non-Image Storage	1.3.12.2.1107.5.9.1	No	Yes	X	X	X	X	X
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	No	Yes		X	X	X	X
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	No	Yes		X	X	X	X

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Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	No	Yes		X	X	X	X
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	No	Yes		X	X	X	X
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	No	Yes		X	X	X	X
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	No	Yes		X	X	X	X

Table 14: SOP CLASSES FOR STORAGE-SCP AE

4.2.2.2 Association Establishment Policies

4.2.2.2.1 General

The STORAGE-SCP AE will never initiate Associations; it only accepts Association Requests from external DICOM AEs. The STORAGE-SCP AE will accept Associations for Verification and C-STORE requests.
The DICOM standard Application Context Name for DICOM 3.0 is always accepted:

Application Context Name	1.2.840.10008.3.1.1.1

Table 15: DICOM APPLICATION CONTEXT FOR STORAGE-SCP AE

4.2.2.2.2 Number of Associations

The STORAGE-SCP AE can support multiple simultaneous Associations. Each time the STORAGE-SCP AE receives an Association, a child process will be spawned to process the Verification or Store request. The maximum number of child processes, and thus the maximum number of simultaneous Associations that can be processed, is set by configuration. The default maximum is 16 in total.

Maximum number of simultaneous Associations	16 (Configurable)

Table 16: NUMBER OF SIMULTANEOUS ASSOCIATIONS AS AN SCP FOR STORAGE-SCP AE

4.2.2.2.3 Asynchronous Nature

The STORAGE-SCP AE does not support asynchronous communication (multiple outstanding transactions over a single association). All association requests must be completed and acknowledged before a new operation can be initiated.

Maximum number of outstanding asynchronous transactions	1 (Not Configurable)

Table 17: ASYNCHRONOUS NATURE AS A SCP FOR STORAGE-SCP AE

4.2.2.2.4 Implementation Identifying Information

All MagicWeb/ACOM.Web AE's use the same Implementation Class UID and the same Implementation Version Name. This Version Name is updated with each new release of the product software, as the different AE versions are never released independently.

Implementation Class UID	1.3.12.2.1107.5.8.5.42
Implementation Version Name	MED_MWEB_VA42

Table 18: DICOM IMPLEMENTATION CLASS AND VERSION FOR STORAGE-SCP AE

4.2.2.3 Association Initiation Policy

The STORAGE-SCP AE does not initiate Associations.

4.2.2.4 Association Acceptance Policy

4.2.2.4.1 Activity – Handling Storage Requests

4.2.2.4.1.1 Description and Sequencing of Activity

The STORAGE-SCP AE accepts Associations only if they have valid Presentation Contexts. If none of the requested Presentation Contexts are accepted then the Association Request itself is rejected. Only associations with Application Entity Titles of DICOM partner nodes are accepted that are configured on the administration interface.

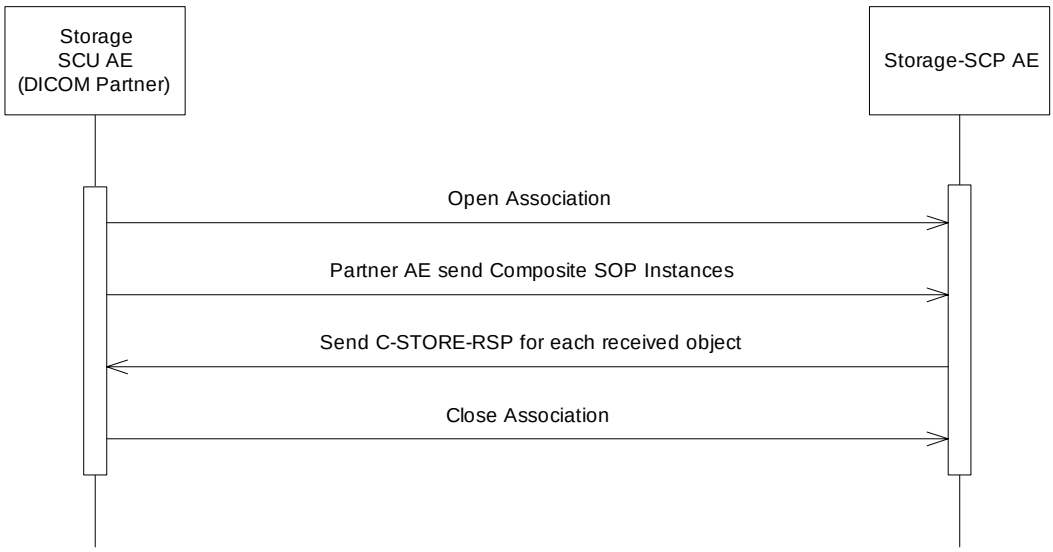

Figure 4: SEQUENCING OF ACTIVITY – RECEIVE IMAGES

The following sequencing constraints illustrated in Figure 4 apply to the STORAGE-SCP AE for handling image receiving (C-STORE-Requests):

1. Partner AE opens an Association with the STORAGE-SCP AE.
2. Partner AE sends one or more Composite SOP Instances.
3. STORAGE-SCP AE returns a C-STORE-RSP Message to the peer AE with the storage status.
4. Partner AE closes the Association. Note that the peer AE does not have to close the Association immediately. Further C-STORE Requests can be sent over the Association before it is closed.

The STORAGE-SCP AE may reject Association attempts as shown in Table 19. The Result, Source and Reason/Diag columns represent the values returned in the corresponding fields of an ASSOCIATE-RJ PDU (see PS 3.8, Section 9.3.4). The following abbreviations are used in the Source column:

a. 1 – DICOM UL service-user
b. 2 – DICOM UL service-provider (ASCE related function)
c. 3 – DICOM UL service-provider (Presentation related function)

Result	Source	Reason/Diag	Explanation
2 - rejected-transient	c	2 - local-limit-exceeded	The (configurable) maximum number of simultaneous Associations has been reached. An Association request with the same parameters may succeed at a later time.
1 - rejected-permanent	a	2 - application-context-name-not-supported	The Association request contained an unsupported Application Context Name. An association request with the same parameters will not succeed at a later time.
1 - rejected-permanent	a	7 - called-AE-title-not-recognized	The Association request contained an unrecognized Called AE Title. An Association request with the same parameters will not succeed at a later time unless configuration changes are made. This rejection reason normally occurs when the Association initiator is incorrectly configured and attempts to address the Association acceptor using the wrong AE Title.
1 - rejected-permanent	a	3 - calling-AE-title-not-recognized	The Association request contained an unrecognized Calling AE Title. An Association request with the same parameters will not succeed at a later time unless configuration changes are made. This rejection reason normally occurs when the Association acceptor has not been configured to recognize the AE Title of the Association initiator.
1 - rejected-permanent	b	1 - no-reason-given	The Association request could not be parsed. An Association request with the same format will not succeed at a later time.

Table 19: ASSOCIATION REJECTION REASONS

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4.2.2.4.1.2 Accepted Presentation Contexts

MagicWeb Basic Version:

The STORAGE-SCP AE of MagicWeb Basic Version will accept the Presentation Contexts as shown in Table 20.

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
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
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	see Table 24	see Table 24	SCP	None
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	see Table 24	see Table 24	SCP	None
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	see Table 24	see Table 24	SCP	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	see Table 24	see Table 24	SCP	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	see Table 24	see Table 24	SCP	None
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	see Table 24	see Table 24	SCP	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	see Table 24	see Table 24	SCP	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	see Table 24	see Table 24	SCP	None
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	see Table 24	see Table 24	SCP	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	see Table 24	see Table 24	SCP	None
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	see Table 24	see Table 24	SCP	None
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	see Table 24	see Table 24	SCP	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	see Table 24	see Table 24	SCP	None
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	see Table 24	see Table 24	SCP	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	see Table 24	see Table 24	SCP	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	see Table 24	see Table 24	SCP	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	see Table 24	see Table 24	SCP	None
CSA Non-Image Storage	1.3.12.2.1107.5.9.1	see Table 24	see Table 24	SCP	None

Table 20: MAGICWEB BASIC VERSION PRESENTATION CONTEXTS

MagicWeb Cardiology Version:

Additionally to the Presentation Contexts listed in Table 20 the STORAGE-SCP AE of MagicWeb Cardiology Version will accept the Presentation Context as shown in Table 21.

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	see Table 24	see Table 24	SCP	None

Table 21: MAGICWEB CARDIOLOGY VERSION ADDITIONAL PRESENTATION CONTEXT

ACOM.Web Basic Version:

The STORAGE-SCP AE of ACOM.Web Basic Version will accept the Presentation Contexts as shown in Table 22.

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
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
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	see Table 24	see Table 24	SCP	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	see Table 24	see Table 24	SCP	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	see Table 24	see Table 24	SCP	None
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	see Table 24	see Table 24	SCP	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	see Table 24	see Table 24	SCP	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	see Table 24	see Table 24	SCP	None
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	see Table 24	see Table 24	SCP	None
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	see Table 24	see Table 24	SCP	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	see Table 24	see Table 24	SCP	None
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	see Table 24	see Table 24	SCP	None
CSA Non-Image Storage	1.3.12.2.1107.5.9.1	see Table 24	see Table 24	SCP	None
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	see Table 24	see Table 24	SCP	None
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	see Table 24	see Table 24	SCP	None
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	see Table 24	see Table 24	SCP	None

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Henkestr. 127, D-91052 Erlangen

Presentation Context Table					
Abstract Syntax		Transfer Syntax			
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	see Table 24	see Table 24	SCP	None
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	see Table 24	see Table 24	SCP	None
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	see Table 24	see Table 24	SCP	None

Table 22: ACOM.WEB BASIC VERSION PRESENTATION CONTEXTS

ACOM.Web Radiology Version:

Additionally to the Presentation Contexts listed in Table 22 the STORAGE-SCP AE of ACOM.Web Radiology Version will accept the Presentation Contexts as shown in Table 23.

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	see Table 24	see Table 24	SCP	None
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	see Table 24	see Table 24	SCP	None
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	see Table 24	see Table 24	SCP	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	see Table 24	see Table 24	SCP	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	see Table 24	see Table 24	SCP	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	see Table 24	see Table 24	SCP	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	see Table 24	see Table 24	SCP	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	see Table 24	see Table 24	SCP	None

Table 23: ACOM.WEB RADIOLOGY VERSION ADDITIONAL PRESENTATION CONTEXTS

The table below describes the Transfer Syntaxes which are supported by the STORAGE-SCP AE. If multiple Transfer Syntaxes are proposed per Presentation Context then only the most preferable Transfer Syntax is accepted. The order of Transfer Syntax preference for the STORAGE-SCP AE is not configurable. The default preference order if multiple Transfer Syntaxes are proposed in a single Presentation Context corresponds to the order of Transfer Syntaxes listed in the table.

Transfer Syntax Name	Transfer Syntax UID
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
Explicit VR Little Endian	1.2.840.10008.1.2.1
Implicit VR Little Endian	1.2.840.10008.1.2

Table 24: STORAGE-SCP AE TRANSFER SYNTAXES

Note:
To make some STORAGE-SCU partner DICOM nodes work it is desired to accept DICOM Objects of certain SOP Classes even though they should not be stored within the MagicWeb/ACOM.Web system. A set of SOP Classes will be discarded anyway after reception (see last column of Table 14). The others can be configured via administration interface to be discarded or not.

4.2.2.4.1.3 SOP Specific Conformance for Verification SOP Class

The STORAGE-SCP AE provides standard conformance to the Verification SOP Class as an SCP.

4.2.2.4.1.4 SOP Specific Conformance for Storage SOP Classes

The associated Real-World Activity with the Storage service is the storage of medical image data received over the network on a designated hard disk. The STORAGE-SCP AE will return a failure status if it is unable to store the images on to the hard disk.

The STORAGE-SCP AE does not have any dependencies on the number of Associations used to send images to it. Images belonging to more than one Study or Series can be sent over a single or multiple Associations. Images belonging to a single Study or Series can also be sent over different Associations. There is no limit on either the number of SOP Instances or the maximum amount of total SOP Instance data that can be transferred over a single Association.

The STORAGE-SCP AE is configured to retain the original DICOM data in DICOM Part 10 compliant file format. The STORAGE-SCP AE is Level 2 (Full) conformant as a Storage SCP. In addition, all Private and SOP Class Extended Elements are maintained in the DICOM format files. In addition to saving all Elements in files, a subset of the Elements are stored in the MagicWeb/ACOM.Web database to support query and retrieval requests.

The behavior for handling duplicate SOP Instances is configurable via administration interface. The default behavior is to replace the original object with the conflicting SOP Instance UID by the new SOP Instance. An alternative configuration is possible that causes the new received SOP Instance to be discarded.

If SOP Instances are compressed in a lossy format by the MagicWeb/ACOM.Web system new SOP Instance UIDs and new Series Instance UIDs are assigned to these objects. Additionally Reference UIDs will be resolved to keep the cross references persistent.

For the purposes of image display the system supports the following photometric interpretations: MONOCHROME1, MONOCHROME2, RGB, PALETTE COLOR, YBR FULL 422, and YBR FULL.

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

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0x0000	The Composite SOP Instance was successfully received and stored temporarily on the hard disk. A 'Success' status indicates not that the SOP Instance is verified and stored in the system database. Note: If the belonging SOP Class UID is configured to be discarded the response status is also set to 'Success'.
Refused	Out of Resources	0xA700	Indicates that there was not enough disk space to store the image. Error message is stored in the Trace Database. The SOP Instance will not be saved.
Error	Data Set does not match SOP Class	0xA900	Indicates that the Data Set does not encode a valid instance of the SOP Class specified. This status is returned if the DICOM Object stream can be successfully parsed but does not contain values for one or more elements which are necessary to store the object on hard disk. Error message is stored in the Trace Database. The SOP Instance will not be saved.
	Unable to process	0x0110	An internal processing error occurred which makes further proceesing of the store request impossible. Error message is stored in the Trace Database. The SOP Instance will not be saved.

Table 25: STORAGE-SCP AE C-STORE RESPONSE STATUS RETURN BEHAVIOR

Note:

If a failure condition does occur when handling an Association then all images previously received successfully over the Association are maintained in the MagicWeb/ACOM.Web database. No previously successfully received images are discarded. Even if an image is successfully received but an error occurs transmitting the C-STORE Response then this final image is maintained rather than discarded. If the loss of an Association is detected then the Association is closed

The behavior of STORAGE-SCP AE during communication failure is summarized in the following table:

Exception	Behavior
Timeout expiry for an expected DICOM Message Request (DIMSE level timeout). I.e. The STORAGE-SCP AE is waiting for the next C-STORE Request on an open Association but the timer expires.	The Association is aborted by issuing a DICOM A-ABORT. Error message is stored in the Trace Database. If some Composite SOP Instances have already been successfully received then they are maintained in the database. They are not automatically discarded because of a later failure.
Timeout expiry for an expected DICOM PDU or TCP/IP packet (Low-level timeout). I.e. The STORAGE-SCP AE is waiting for the next C-STORE Data Set PDU but the timer expires.	The Association is aborted by issuing a DICOM A-ABORT. Error message is stored in the Trace Database If a C-STORE Data Set has not been fully received then the data already received is discarded. If some Composite SOP Instances have already been successfully received over the Association then they are maintained in the database.
Association A-ABORTed by the SCU or the network layers indicate communication loss (i.e. low-level TCP/IP socket closure)	Error message is stored in the Trace Database. If some Composite SOP Instances have already been successfully received then they are maintained in the database. They are not automatically discarded because of a later failure.

Table 26: STORAGE-SCP AE COMMUNICATION FAILURE BEHAVIOR

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4.2.3 Query-SCU Application Entity Specification

4.2.3.1 SOP Classes

The QUERY-SCU AE provides Standard Conformance to the following DICOM V3.0 SOP Classes:

SOP Class Name	SOP Class UID	SCU	SCP
Verification	1.2.840.10008.1.1	Yes	No
Study Root Q/R Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Yes	No

Table 27: SOP CLASSES FOR QUERY-SCU AE

4.2.3.2 Association Establishment Policies

4.2.3.2.1 General

The QUERY-SCU AE forms Associations when requested to do so by the user. The QUERY-SCU AE can only request the opening of an Association. It cannot accept requests to open Associations from external Application Entities.

The DICOM standard Application Context Name for DICOM 3.0 is always proposed:

Application Context Name	1.2.840.10008.3.1.1.1

Table 28: DICOM APPLICATION CONTEXT FOR QUERY-SCU AE

4.2.3.2.2 Number of Associations

It is not possible to perform several associations simultanously. Only one association at a time can be handled by the QUERY-SCU AE. An association must be completed before a new operation can be initiated.

Maximum number of simultaneous Associations	1 (Not Configurable)

Table 29: NUMBER OF ASSOCIATIONS AS A SCU FOR QUERY-SCU AE

4.2.3.2.3 Asynchronous Nature

The QUERY-SCU AE does not support asynchronous communication (multiple outstanding transactions over a single association). All association requests must be completed and acknowledged before a new operation can be initiated.

Maximum number of outstanding asynchronous transactions	1 (Not Configurable)

Table 30: ASYNCHRONOUS NATURE AS A SCU FOR QUERY-SCU AE

4.2.3.2.4 Implementation Identifying Information

All MagicWeb/ACOM.Web AE's use the same Implementation Class UID and the same Implementation Version Name. This Version Name is updated with each new release of the product software, as the different AE versions are never released independently.

Implementation Class UID	1.3.12.2.1107.5.8.5.42
Implementation Version Name	MED_MWEB_VA42

Table 31: DICOM IMPLEMENTATION CLASS AND VERSION FOR QUERY-SCU AE

4.2.3.3 Association Initiation Policy

4.2.3.3.1 Activity – Send Query Requests to an External Peer AE

4.2.3.3.1.1 Description and Sequencing of Activity

The QUERY-SCU AE will initiate a new Association when the user performs the query action from the user interface. An Association Request is sent to the specified QUERY-SCP AE and upon successful negotiation of the required Presentation Context the query is started. The result messages are transmitted in the same association. The QUERY-SCU AE will not attempt to independently retry the query request if an error occurs. It is configurable to perform a Verification before the query is started in order to test the remote application.

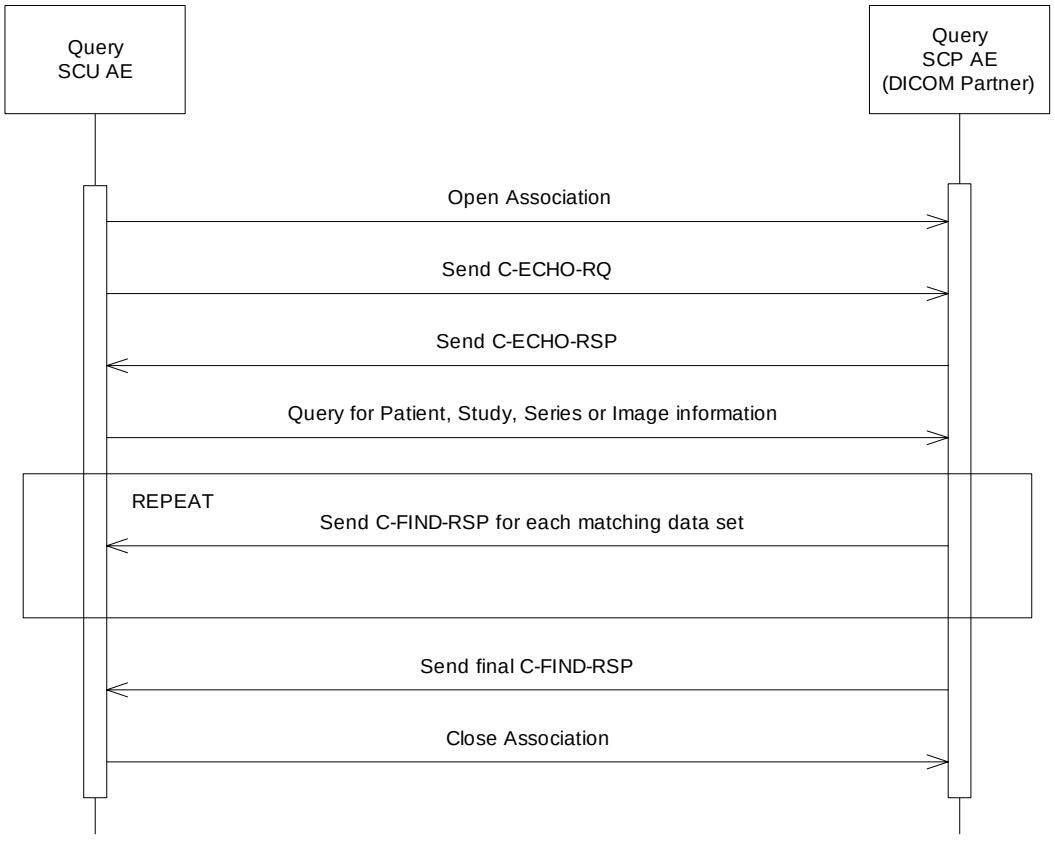

Figure 5: SEQUENCING OF ACTIVITY – PERFOMING QUERY REQUESTS

The following sequencing constraints illustrated in Figure 7 apply to the QUERY-SCU AE for initiating queries (C-FIND-Requests):

1. QUERY-SCU AE opens an Association with the Partner AE.
2. QUERY-SCU AE sends a C-ECHO-RQ Message (configurable).
3. Partner AE sends a C-ECHO-RSP Message (if configured).
4. QUERY-SCU AE sends a C-FIND-RQ Message.
5. Partner AE returns a C-FIND-RSP Message to the QUERY-SCU AE with matching information. A C-FIND-RSP is sent for each entity matching the identifier specified in the C-FIND-RQ. A final C-FIND-RSP is sent indicating that the matching is complete.
6. QUERY-SCU AE closes the Association.

4.2.3.3.1.2 Proposed Presentation Contexts

QUERY-SCU AE will propose Presentation Contexts as shown in the following table:

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
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	SCU	None
Study Root Q/R Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None

Table 32: PROPOSED PRESENTATION CONTEXTS BY THE QUERY-SCU AE

4.2.3.3.1.3 SOP Specific Conformance for Verification SOP Class

The QUERY-SCU AE provides standard conformance to the Verification SOP Class as an SCP

4.2.3.3.1.4 SOP Specific Conformance for Query SOP Classes

The QUERY-SCU AE provides standard conformance to the supported C-FIND SOP Classes. Only a single information model, Study Root, is supported. All queries are initiated at the highest level of the information model (STUDY Level). The supported attributes are listed in the following tables. The last three columns indicate if the user can specify a matching value, the wildcard '*' is appended to the user input and the return value is displayed in the web interface. The Attribute Names that are used in former versions of the DICOM Standard are added in brackets.

Level Name Attribute Name	Tag	VR	Types of Matching	User Input	Wildcard appended	Value displayed
Study Level						
Patient's Name	(0010,0010)	PN	wild card, universal	X	X	X
Patient ID	(0010,0020)	LO	wild card, universal	X	X	X
Patient´s Birth Date	(0010,0030)	DA	universal			X
Patient´s Sex	(0010,0040)	CS	universal			X
Patient Comments	(0010,4000)	LT	wild card, universal	X	X	X
Study Instance UID	(0020,000D)	UI	universal			
Study ID	(0020,0010)	SH	wild card, universal	X	X	
Study Date	(0008,0020)	DA	single value, range, universal	X		X
Study Time	(0008,0030)	TM	universal			X
Accession Number	(0008,0050)	SH	wild card, universal	X	X	X
Referring Physician's Name	(0008,0090)	PN	single value, universal	X	X	X
Study Description	(0008,1030)	LO	wild card, universal	X	X	X
Number of Study Related Instances (Number of Study Related Images)	(0020,1208)	IS	universal			X

Table 33: STUDY ROOT C-FIND SCU REQUESTED ELEMENTS

SIENET® Special:

For Remote AEs which represent a SIENET® Archive the Storage-File-set ID is used to display the archive status to the user. The SIENET® Archive can store following states within this attribute:

- ONLINE
- NEARLINE
- OFFLINE

Level Name Attribute Name	Tag	VR	Types of Matching	User Input	Value displayd	Wildcard appended
Storage File-set ID	(0088,0130)	SH	universal		X	

Table 34: ADDITIONAL STUDY ROOT C-FIND SCP SUPPORTED ELEMENT

4.2.3.4 Association Acceptance Policy

The QUERY-SCU AE does not accept Associations.

4.2.4 Retrieve-SCU Application Entity Specification

4.2.4.1 SOP Classes

The RETRIEVE-SCU AE provides Standard Conformance to the following DICOM V3.0 SOP Class:

SOP Class Name	SOP Class UID	SCU	SCP
Study Root Q/R Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Yes	No

Table 35: SOP CLASSES FOR RETRIEVE-SCU AE

4.2.4.2 Association Establishment Policies

4.2.4.2.1 General

The RETRIEVE-SCU AE forms Associations when requested to do so by the user. The RETRIEVE-SCU AE can only request the opening of an Association. It cannot accept requests to open Associations from external Application Entities.

The DICOM standard Application Context Name for DICOM 3.0 is always proposed:

Application Context Name	1.2.840.10008.3.1.1.1

Table 36: DICOM APPLICATION CONTEXT FOR RETRIEVE-SCU AE

4.2.4.2.2 Number of Associations

It is not possible to perform several associations simultanously. Retrieve requests initiated from the user interface will be stored persistently in a job queue and processing starts when the previous request is completed.

Maximum number of simultaneous Associations	1 (Not Configurable)

Table 37: NUMBER OF ASSOCIATIONS AS A SCU FOR RETRIEVE-SCU AE

4.2.4.2.3 Asynchronous Nature

The RETRIEVE-SCU AE does not support asynchronous communication (multiple outstanding transactions over a single association). All association requests must be completed and acknowledged before a new operation can be initiated.

Maximum number of outstanding asynchronous transactions	1 (Not Configurable)

Table 38: ASYNCHRONOUS NATURE AS A SCU FOR RETRIEVE-SCU AE

4.2.4.2.4 Implementation Identifying Information

All MagicWeb/ACOM.Web AE's use the same Implementation Class UID and the same Implementation Version Name. This Version Name is updated with each new release of the product software, as the different AE versions are never released independently.

Implementation Class UID	1.3.12.2.1107.5.8.5.42
Implementation Version Name	MED_MWEB_VA42

Table 39: DICOM IMPLEMENTATION CLASS AND VERSION FOR RETRIEVE-SCU AE

4.2.4.3 Association Initiation Policy

4.2.4.3.1 Activity – Send Retrieve Requests to an External Peer AE

4.2.4.3.1.1 Description and Sequencing of Activity

The RETRIEVE-SCU AE will initiate a new Association when the user performs the retrieve action from the user interface. An Association Request is sent to the specified RETRIEVE-SCP AE and upon successful negotiation of the required Presentation Context the retrieve is started. The response messages are transmitted in the same association. For transferring the requested SOP Instances the RETRIEVE-SCP AE has to establish an Association with the the STORAGE-SCP AE of the MagicWeb/ACOM.Web system. It is not possible to configure an other C-MOVE Destination than the own STORAGE-SCP AE. The RETRIEVE-SCU AE will not attempt to independently retry the retrieve request if an error occurs.

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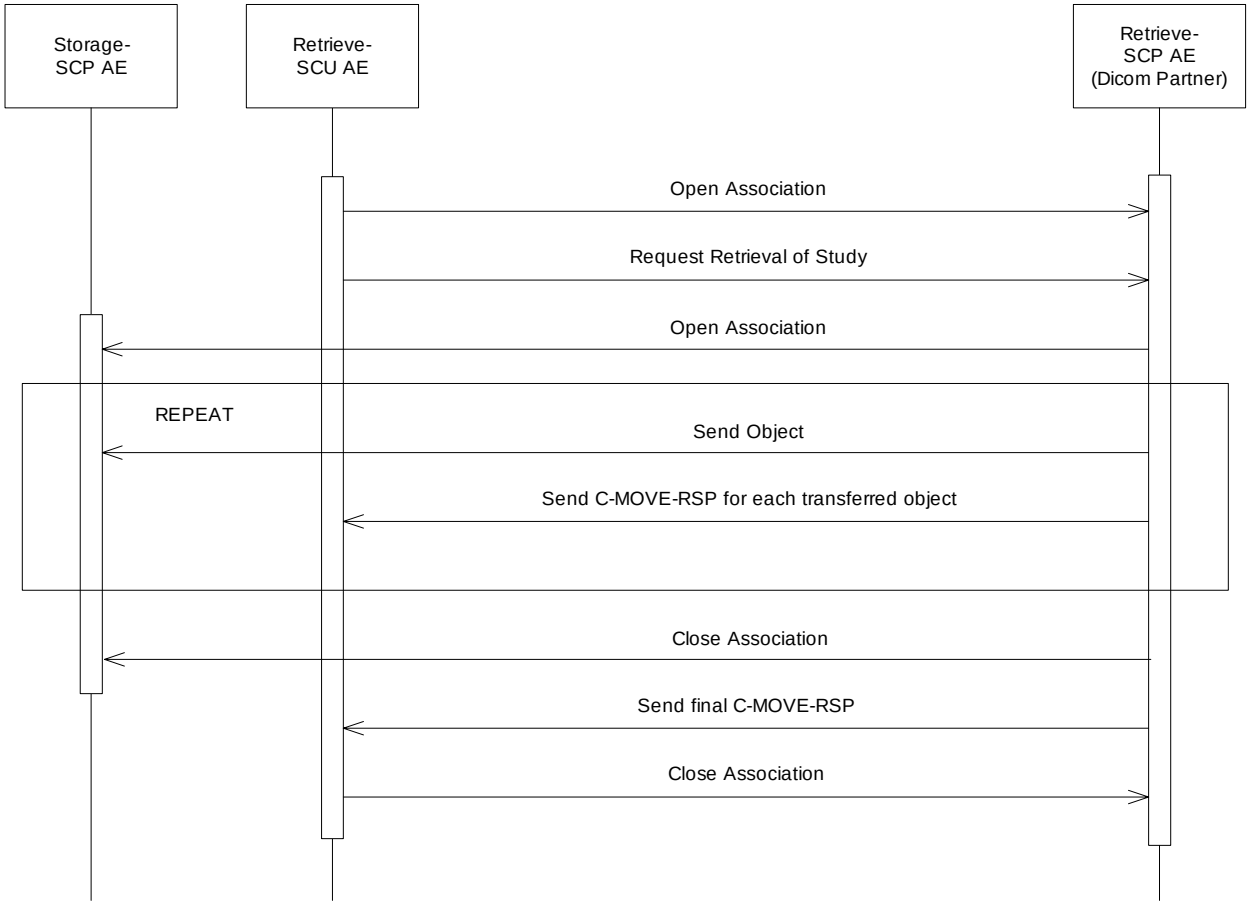

Figure 6: SEQUENCING OF ACTIVITY – PERFOMING RETRIEVE REQUESTS

The following sequencing constraints illustrated in Figure 6 apply to the RETRIEVE-SCU AE for initiating retrieves (C-MOVE-Requests):

1. RETRIEVE-SCU AE opens an Association with the Partner AE.
2. RETRIEVE-SCU AE sends a C-MOVE-RQ Message.
3. Partner AE sends the Composite SOP Instances to the STORAGE-SCP AE.
4. Partner AE sends a C-MOVE-RSP Message to the RETRIEVE-SCU AE for each transferred SOP Instance.
5. Partner AE sends a final C- MOVE-RSP indicating that the SOP Instance transfer is complete.
6. RETRIEVE-SCU AE closes the Association.

4.2.4.3.1.2 Proposed Presentation Contexts

RETRIEVE-SCU AE will propose Presentation Contexts as shown in the following table:

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name**	**UID**		
Study Root Q/R Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None

Table 40: PROPOSED PRESENTATION CONTEXTS BY THE QUERY-SCU AE

4.2.4.3.1.3 SOP Specific Conformance for Retrieve SOP Classes

MOVE-SCU provides standard conformance to the supported C-MOVE SOP Classes. Only a single information model, Study Root, is supported. All retrieves are initiated at the highest level of the information model (the STUDY level) so the Study Instance UID is the Request Identifier. The instances are retrieved to the current application's local database since the destination is always the AE Title of the STORE-SCP AE of the local application.

Note:

It is not necessary to configure the RETRIEVE-SCP AE as a STORAGE SCU in the administration interface of MagicWeb/ACOM.Web to allow the partner AE to send SOP Instances after a retrieve request. A partner AE configured as a MOVE-SCP has always the permission to send DICOM objects to the MagicWeb/ACOM.Web system.

4.2.4.4 Association Acceptance Policy

The RETRIEVE-SCU AE does not accept Associations.

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4.2.5 QUERY-RETRIEVE-SCP Application Entity (Level A) Specification

The MagicWeb/ACOM.Web system stores received DICOM objects in two different compression levels specified as Level A and Level B. The compression type can be configured for each level via administration interface. The Query/Retrieve-SCU AE decides which Level is accessed for Query and Retrieve requests by using the appropriate AE Title that is assigned to each Level.

This chapter describes the DICOM behavior of the QUERY-RETRIEVE-SCP AE which represents the compression Level A.

4.2.5.1 SOP Classes

The QUERY-RETRIEVE-SCP AE (Level A) provides Standard Conformance to the following DICOM V3.0 SOP Classes:

SOP Class Name	SOP Class UID	SCU	SCP
Verification	1.2.840.10008.1.1	No	Yes
Patient Root Q/R Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	No	Yes
Patient Root Q/R Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	No	Yes
Study Root Q/R Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	No	Yes
Study Root Q/R Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	No	Yes
Patient Study Only Information Model - FIND	1.2.840.10008.5.1.4.1.2.3.1	No	Yes
Patient Study Only Information Model - MOVE	1.2.840.10008.5.1.4.1.2.3.2	No	Yes

Table 41: SOP CLASSES FOR QUERY-RETRIEVE-SCP AE (Level A)

4.2.5.2 Association Establishment Policies

4.2.5.2.1 General

The QUERY-RETRIEVE-SCP AE will never initiate Associations; it only accepts Association Requests from external DICOM AEs. The QUERY-RETRIEVE-SCP AE will accept Associations for Verification, C-FIND, and C-MOVE requests. In the case of a C-MOVE request, the QUERY-RETRIEVE-SCP AE will issue a command to the STORAGE-SCU AE to initiate an Association with the Destination DICOM AE to send images as specified by the originator of the C-MOVE Request.
The DICOM standard Application Context Name for DICOM 3.0 is always accepted:

Application Context Name	1.2.840.10008.3.1.1.1

Table 42: DICOM APPLICATION CONTEXT FOR QUERY-RETRIEVE-SCP AE (LEVEL A)

4.2.5.2.2 Number of Associations

The QUERY-RETRIEVE-SCP AE can support multiple simultaneous Associations. Each time the QUERY-RETRIEVE-SCP AE receives an Association, a child process will be spawned to process the Verification, Query, or Retrieval request. The maximum number of child processes, and thus the maximum number of simultaneous Associations that can be processed, is set by configuration. The default maximum is 16 in total.

Maximum number of simultaneous Associations	16 (Configurable)

Table 43: NUMBER OF ASSOCIATIONS AS A SCP FOR QUERY-RETRIEVE-SCP AE

4.2.5.2.3 Asynchronous Nature

The QUERY-RETRIEVE-SCP AE does not support asynchronous communication (multiple outstanding transactions over a single association). All association requests must be completed and acknowledged before a new operation can be initiated.

Maximum number of outstanding asynchronous transactions	1 (Not Configurable)

Table 44: ASYNCHRONOUS NATURE AS A SCP FOR QUERY-RETRIEVE-SCP AE

4.2.5.2.4 Implementation Identifying Information

All MagicWeb/ACOM.Web AE's use the same Implementation Class UID and the same Implementation Version Name. This Version Name is updated with each new release of the product software, as the different AE versions are never released independently.

Implementation Class UID	1.3.12.2.1107.5.8.5.42
Implementation Version Name	MED_MWEB_VA42

Table 45: DICOM IMPLEMENTATION CLASS AND VERSION FOR QUERY-RETRIEVE-SCP AE

4.2.5.3 Association Initiation Policy

The QUERY-RETRIEVE-SCP AE does not initiate Associations.

4.2.5.4 Association Acceptance Policy

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4.2.5.4.1 Activity – Handling Query and Retrieval Requests

4.2.5.4.1.1 Description and Sequencing of Activity

The QUERY-RETRIEVE-SCP AE accepts Associations only if they have valid Presentation Contexts. If none of requested Presentation Contexts are accepted then the Association Request itself is rejected. Only associations with Application Entity Titles of DICOM partner nodes are accepted that are configured on the administration interface. If QUERY-RETRIEVE-SCP AE receives a query (C-FIND) request then the response(s) will be sent over the same Association used to send the C-FIND-Request.

If QUERY-RETRIEVE-SCP AE receives a retrieval (C-MOVE) request then the responses will be sent over the same Association used to send the C-MOVE-Request. The QUERY-RETRIEVE-SCP AE will notify the STORAGE-SCU to send the requested SOP Instances to the C-MOVE Destination. The STORAGE-SCU AE notifies the QUERY-RETRIEVE-SCP AE of the success or failure of each attempt to send a Composite SOP Instance to the partner C-MOVE Destination AE. The QUERY-RETRIEVE-SCP AE then sends a C-MOVE Response indicating this status after each attempt. Once the STORAGE-SCU

AE has finished attempting to transfer all the requested SOP Instances, the QUERY-RETRIEVE-SCP AE sends a final C-MOVE Response indicating the overall status of the attempted retrieval.

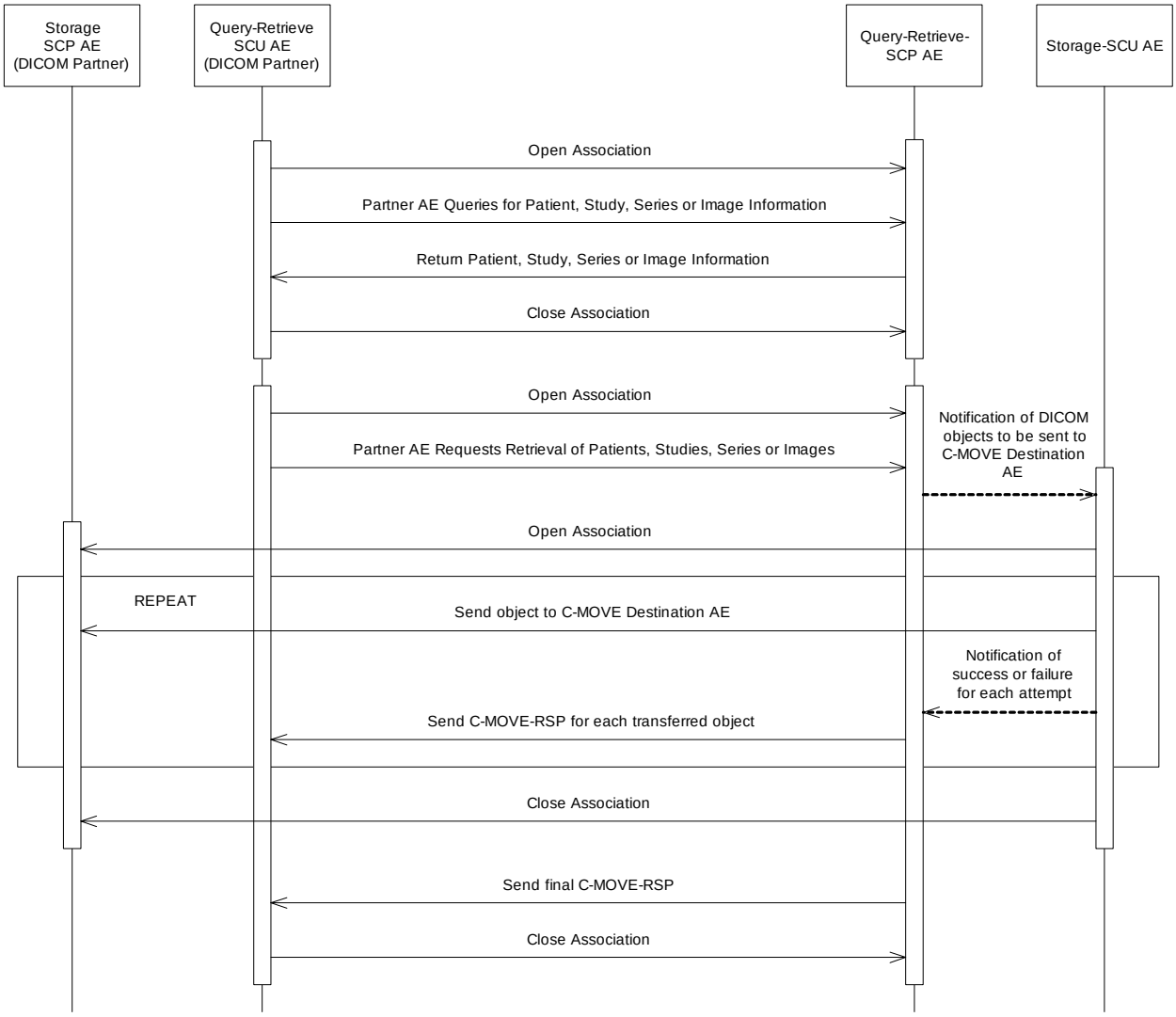

Figure 7: SEQUENCING OF ACTIVITY - HANDLING QUERY AND RETRIEVAL REQUESTS

The following sequencing constraints illustrated in Figure 7 apply to the QUERY-RETRIEVE-SCP AE for handling queries (C-FIND-Requests):

1. Partner AE opens an Association with the QUERY-RETRIEVE-SCP AE.
2. Partner AE sends a C-FIND-RQ Message.
3. QUERY-RETRIEVE-SCP AE returns a C-FIND-RSP Message to the peer AE with matching information. A C-FIND-RSP is sent for each entity matching the identifier specified in the C-FIND-RQ. A final C-FIND-RSP is sent indicating that the matching is complete.
4. Partner AE closes the Association. Note that the peer AE does not have to close the Association immediately. Further C-FIND or C-MOVE Requests can be sent over the Association before it is closed.

The following sequencing constraints illustrated in Figure 7 apply to the QUERY-RETRIEVE-SCP AE for handling retrievals (C-MOVE-Requests):

1. Partner AE opens an Association with the QUERY-RETRIEVE-SCP AE.
2. Partner AE sends a C-MOVE-RQ Message.
3. QUERY-RETRIEVE-SCP AE notifies the STORAGE-SCU AE to send the Composite SOP Instances to the peer C-MOVE Destination AE as indicated in the C-MOVE-RQ.
4. After attempting to send a SOP Instance, the STORAGE-SCU AE indicates to the QUERY-RETRIEVE-SCP AE whether the transfer succeeded or failed. The QUERY-RETRIEVE-SCP AE then returns a C-MOVE-RSP indicating this success or failure
5. Once the STORAGE-SCU AE has completed all attempts to transfer the SOP Instances to the C-MOVE Destination AE, or the first failure occurred, the QUERY-RETRIEVE-SCP AE sends a final C-MOVE-RSP indicating the overall success or failure of the retrieval.
6. Partner AE closes the Association. Note that the peer AE does not have to close the Association immediately. Further C-FIND or C-MOVE Requests can be sent over the Association before it is closed.

The QUERY-RETRIEVE-SCP AE may reject Association attempts as shown in Table 46. The Result, Source and Reason/Diag columns represent the values returned in the corresponding fields of an ASSOCIATE-RJ PDU (see PS 3.8, Section 9.3.4). The following abbreviations are used in the Source column:

a. 1 – DICOM UL service-user
b. 2 – DICOM UL service-provider (ASCE related function)
c. 3 – DICOM UL service-provider (Presentation related function)

Result	Source	Reason/Diag	Explanation
2 - rejected-transient	c	2 - local-limit-exceeded	The (configurable) maximum number of simultaneous Associations has been reached. An Association request with the same parameters may succeed at a later time.
1 - rejected-permanent	a	2 - application-context-name-not-supported	The Association request contained an unsupported Application Context Name. An association request with the same parameters will not succeed at a later time.
1 - rejected-permanent	a	7 - called-AE-title-not-recognized	The Association request contained an unrecognized Called AE Title. An Association request with the same parameters will not succeed at a later time unless configuration changes are made. This rejection reason normally occurs when the Association initiator is incorrectly configured and attempts to address the Association acceptor using the wrong AE Title.
1 - rejected-permanent	a	3 - calling-AE-title-not-recognized	The Association request contained an unrecognized Calling AE Title. An Association request with the same parameters will not succeed at a later time unless configuration changes are made. This rejection reason normally occurs when the Association acceptor has not been configured to recognize the AE Title of the Association initiator.
1 - rejected-permanent	b	1 - no-reason-given	The Association request could not be parsed. An Association request with the same format will not succeed at a later time.

Table 46: ASSOCIATION REJECTION REASONS

4.2.5.4.1.2 Accepted Presentation Contexts

QUERY-RETRIEVE-SCP AE will accept Presentation Contexts as shown in the following table:

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
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
Patient Root Q/R Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None
Patient Root Q/R Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None
Study Root Q/R Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None
Study Root Q/R Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None
Patient Study Only Information Model - FIND	1.2.840.10008.5.1.4.1.2.3.1	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None
Patient Study Only Information Model - MOVE	1.2.840.10008.5.1.4.1.2.3.2	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None

Table 47: ACCEPTED PRESENTATION CONTEXTS BY THE QUERY-RETRIEVE-SCP AE

4.2.5.4.1.3 SOP Specific Conformance for Verification SOP Class

The STORAGE-SCP AE provides standard conformance to the Verification SOP Class as an SCP

4.2.5.4.1.4 SOP Specific Conformance for Query SOP Classes

The QUERY-RETRIEVE-SCP AE supports hierarchical queries and not relational queries. The attributes Query/Retrieve Level (0008,0052) and Retrieve AE Title (0008,0054) are returnd by default. Query responses always return values from the MagicWeb/ACOM.Web database.

Patient Root Information Model

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

Patient Level:	Patient ID	(0010,0020)
Study Level:	Study Instance UID	(0020,000D)

Series Level: Series Instance UID (0020,000E)
Image Level: SOP Instance UID (0008,0018)

Study Root Information Model

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

Study Level: Study Instance UID (0020,000D)
Series Level: Series Instance UID (0020,000E)
Image Level: SOP Instance UID (0008,0018)

Patient/Study Only Information Model

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

Patient Level: Patient ID (0010,0020)
Study Level: Study Instance UID (0020,000D)

The supported attributes on the various query levels of the three implemented information models are listed in the following tables. Please note that lists of UIDs are not supported. The Attribute Names that are used in former versions of the DICOM Standard are added in brackets.

Level Name Attribute Name	Tag	VR	Types of Matching
Patient Level			
Patient's Name	(0010,0010)	PN	single value, wild card, universal
Patient ID	(0010,0020)	LO	single value, wild card, universal
Patient´s Birth Date	(0010,0030)	DA	single value, range, universal
Patient´s Sex	(0010,0040)	CS	single value, wild card, universal
Patient Comments	(0010,4000)	LT	single value, wild card, universal
Number of Patient Related Studies	(0020,1200)	IS	universal
Number of Patient Related Series	(0020,1202)	IS	universal
Number of Patient Related Instances (Number of Patient Related Images)	(0020,1204)	IS	universal
Study Level			
Study Instance UID	(0020,000D)	UI	single value, universal
Study ID	(0020,0010)	SH	single value, wild card, universal
Study Date	(0008,0020)	DA	single value, range, universal
Study Time	(0008,0030)	TM	single value, range, universal
Accession Number	(0008,0050)	SH	single value, wild card, universal
Referring Physician's Name	(0008,0090)	PN	single value, wild card, universal
Modalities in Study	(0008,0061)	CS	single value, wild card, universal
Study Description	(0008,1030)	LO	single value, wild card, universal
Study Comments	(0032,4000)	LT	single value, wild card, universal
Name of Physician(s) Reading Study	(0008,1060)	PN	single value, wild card, universal
Number of Study Related Series	(0020,1206)	IS	universal
Number of Study Related Instances (Number of Study Related Images)	(0020,1208)	IS	universal
Series Level			
Series Instance UID	(0020,000E)	UI	single value, universal

Series Number	(0020,0011)	IS	single value, wild card, universal
Modality	(0008,0060)	CS	single value, wild card, universal
Series Date	(0008,0021)	DA	single value, range, universal
Series Time	(0008,0031)	TM	single value, range, universal
Series Description	(0008,103E)	LO	single value, wild card, universal
Performing Physician's Name	(0008,1050)	PN	single value, wild card, universal
Body Part Examined	(0018,0015)	CS	single value, wild card, universal
Manufacturer	(0008,0070)	LO	single value, wild card, universal
Number of Series Related Instances (Number of Series Related Images)	(0020,1209)	IS	universal
Image Level			
SOP Instance UID	(0008,0018)	UI	single value, universal
SOP Class UID	(0008,0016)	UI	single value, universal
Content Date (Image Date)	(0008,0023)	DA	single value, range, universal
Content Time (Image Time)	(0008,0033)	TM	single value, range, universal
Instance Number (Image Number)	(0020,0013)	IS	single value, wild card, universal
Number of Frames	(0028,0008)	IS	single value, wild card, universal
Rows	(0028,0010)	US	single value, wild card, universal
Columns	(0028,0011)	US	single value, wild card, universal

Table 48: PATIENT ROOT C-FIND SCP SUPPORTED ELEMENTS

Level Name Attribute Name	Tag	VR	Types of Matching
Study Level			
Patient's Name	(0010,0010)	PN	single value, wild card, universal
Patient ID	(0010,0020)	LO	single value, wild card, universal
Patient´s Birth Date	(0010,0030)	DA	single value, range, universal
Patient´s Sex	(0010,0040)	CS	single value, wild card, universal
Patient Comments	(0010,4000)	LT	single value, wild card, universal
Number of Patient Related Studies	(0020,1200)	IS	universal
Number of Patient Related Series	(0020,1202)	IS	universal
Number of Patient Related Instances (Number of Patient Related Images)	(0020,1204)	IS	universal
Study Instance UID	(0020,000D)	UI	single value, universal
Study ID	(0020,0010)	SH	single value, wild card, universal
Study Date	(0008,0020)	DA	single value, range, universal
Study Time	(0008,0030)	TM	single value, range, universal
Accession Number	(0008,0050)	SH	single value, wild card, universal
Referring Physician's Name	(0008,0090)	PN	single value, wild card, universal
Modalities in Study	(0008,0061)	CS	single value, wild card, universal
Study Description	(0008,1030)	LO	single value, wild card, universal
Study Comments	(0032,4000)	LT	single value, wild card, universal
Name of Physician(s) Reading Study	(0008,1060)	PN	single value, wild card, universal
Number of Study Related Series	(0020,1206)	IS	universal
Number of Study Related Instances (Number of Study Related Images)	(0020,1208)	IS	universal
Series Level			
Series Instance UID	(0020,000E)	UI	single value, universal
Series Number	(0020,0011)	IS	single value, wild card, universal
Modality	(0008,0060)	CS	single value, wild card, universal
Series Date	(0008,0021)	DA	single value, range, universal
Series Time	(0008,0031)	TM	single value, range, universal
Series Description	(0008,103E)	LO	single value, wild card, universal
Performing Physician's Name	(0008,1050)	PN	single value, wild card, universal
Body Part Examined	(0018,0015)	CS	single value, wild card, universal

Manufacturer	(0008,0070)	LO	single value, wild card, universal
Number of Series Related Instances (Number of Series Related Images)	(0020,1209)	IS	universal
Image Level			
SOP Instance UID	(0008,0018)	UI	single value, universal
SOP Class UID	(0008,0016)	UI	single value, universal
Content Date (Image Date)	(0008,0023)	DA	single value, range, universal
Content Time (Image Time)	(0008,0033)	TM	single value, range, universal
Instance Number (Image Number)	(0020,0013)	IS	single value, wild card, universal
Number of Frames	(0028,0008)	IS	single value, wild card, universal
Rows	(0028,0010)	US	single value, wild card, universal
Columns	(0028,0011)	US	single value, wild card, universal

Table 49: STUDY ROOT C-FIND SCP SUPPORTED ELEMENTS

Level Name Attribute Name	Tag	VR	Types of Matching
Patient Level			
Patient's Name	(0010,0010)	PN	single value, wild card, universal
Patient ID	(0010,0020)	LO	single value, wild card, universal
Patient´s Birth Date	(0010,0030)	DA	single value, range, universal
Patient´s Sex	(0010,0040)	CS	single value, wild card, universal
Patient Comments	(0010,4000)	LT	single value, wild card, universal
Number of Patient Related Studies	(0020,1200)	IS	universal
Number of Patient Related Series	(0020,1202)	IS	universal
Number of Patient Related Instances (Number of Patient Related Images)	(0020,1204)	IS	universal
Study Level			
Study Instance UID	(0020,000D)	UI	single value, universal
Study ID	(0020,0010)	SH	single value, wild card, universal
Study Date	(0008,0020)	DA	single value, range, universal
Study Time	(0008,0030)	TM	single value, range, universal
Accession Number	(0008,0050)	SH	single value, wild card, universal
Referring Physician's Name	(0008,0090)	PN	single value, wild card, universal
Modalities in Study	(0008,0061)	CS	single value, wild card, universal
Study Description	(0008,1030)	LO	single value, wild card, universal
Study Comments	(0032,4000)	LT	single value, wild card, universal
Name of Physician(s) Reading Study	(0008,1060)	PN	single value, wild card, universal
Number of Study Related Series	(0020,1206)	IS	universal
Number of Study Related Instances (Number of Study Related Images)	(0020,1208)	IS	universal

Table 50: PATIENT/STUDY ONLY ROOT C-FIND SCP SUPPORTED ELEMENTS

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0x0000	Matching is complete. No final identifier is supplied.
Failed	Identifier does not match SOP Class	0xA900	The C-FIND query identifier contains invalid Elements or values, or is missing mandatory Elements or values for the specified SOP Class. Error message is stored in the Trace Database.

	Unable to process	0xC001	An internal processing error occurred which makes further proceesing of the query request impossible.. Error message is stored in the Trace Database.
Pending	Matches are continuing and current match is supplied	0xFF00	Indicates that the search for further matches is continuing. This is returned when each successful match is returned and when further matches are forthcoming. This status code is returned if all optional keys in the query identifier are actually supported.

Table 51: QUERY-RETRIEVE-SCP AE C-FIND RESPONSE STATUS RETURN BEHAVIOR

4.2.5.4.1.5 SOP Specific Conformance for Retrieval SOP Classes

The QUERY-RETRIEVE-SCP AE will convey to the STORAGE-SCU AE that an Association with a DICOM Application Entity named by the external C-MOVE SCU (through a MOVE Destination AE Title) should be established. It will also convey to the STORAGE-SCU AE to perform C-STORE operations on specific instances requested by the external C-MOVE SCU. One or more of the Image Storage Presentation Contexts listed in Table 7 - Table 10 will be negotiated.

An initial C-MOVE Response is always sent after confirming that the C-MOVE Request itself can be processed. After this, the QUERY-RETRIEVE-SCP AE will return a response to the C-MOVE SCU after the STORAGE-SCU AE has attempted to send each image. This response reports the number of remaining SOP Instances to transfer, and the number transferred having a successful, failed, or warning status.

Service Status	Further Meaning	Error Code	Behavior
Success	Sub-operations complete – No Failures	0x0000	All the Composite SOP Instances have been successfully sent to the C-MOVE Destination AE.
Warning	Sub-operations complete – One or more Failures	0xB000	Some of the Composite SOP Instances have been successfully sent to the C-MOVE Destination AE. A list with all the failed SOP Instance UIDs is sent along with the response message (Tag 0008,0058).
Refused	Out of Resources – Unable to calculate number of matches	0xA701	Number of matches cannot be determined due to system failure. Returned if the server's database is not functioning so the search for matches to the C-MOVE Request cannot be found. Error indication message is stored in the Trace Database. No message is posted to the User Interface.
	Refused: Out of Resources – Unable to perform sub-operations	0xA702	C-STORE sub-operations cannot be performed due to failure to access Composite SOP Instances, or failure of a C-STORE Request. For example, this Status will be returned if the required SOP Instances are deleted in the meantime. Error indication message is stored in the Trace Database. No message is posted to the User Interface.
	Move destination unknown	0xA801	The Destination Application Entity named in the C-MOVE Request is unknown to Query-Retrieve SCP AE. Error indication message is stored in the Trace Database. No message is posted to the User Interface.

Failed	Data set does not match SOP Class	0xA900	The C-MOVE identifier contains invalid Elements or values, or is missing mandatory Elements or values for the specified SOP Class or retrieval level. Error message is stored in the Trace Database. No message is posted to the User Interface.
	Unable to process	0xC001	An internal processing error occurred which makes further proceesing of the retrieve request impossible. Error message is stored in the Trace Database. No message is posted to the User Interface.
Pending	Sub-operations are continuing	0xFF00	A Response with this Status Code is sent every time a Composite SOP Instance has been successfully sent to the C-MOVE Destination AE.

Table 52: QUERY-RETRIEVE-SCP AE C-MOVE RESPONSE STATUS RETURN BEHAVIOR

The behavior of QUERY-RETRIEVE-SCP AE during communication failure is summarized in the following table:

Exception	Behavior
Timeout expiry for an expected DICOM Message Request (DIMSE level timeout). I.e. The QUERY-RETRIEVE-SCP AE is waiting for the next C-FIND or C-MOVE Request on an open Association but the timer expires.	The Association is aborted by issuing a DICOM A-ABORT. Error message is stored in the Trace Database. If the STORAGE-SCU AE is still exporting Composite SOP Instances as a result of an earlier C-MOVE Request received on this Association, it will continue attempting to complete the entire C-MOVE Request.
Timeout expiry for an expected DICOM PDU or TCP/IP packet (Low-level timeout). I.e. The QUERY-RETRIEVE-SCP AE is waiting for the next message PDU but the timer expires.	The Association is aborted by issuing a DICOM A-ABORT. Error message is stored in the Trace Database. If the STORAGE-SCU AE is still exporting Composite SOP Instances as a result of an earlier C-MOVE Request received on this Association, it will continue attempting to complete the entire C-MOVE Request.
Association A-ABORTed by the SCU or the network layers indicate communication loss (i.e. low-level TCP/IP socket closure)	Error message is stored in the Trace Database. If the STORAGE-SCU AE is still exporting Composite SOP Instances as a result of an earlier C-MOVE Request received on this Association, it will continue attempting to complete the entire C-MOVE Request.

Table 53: QUERY-RETRIEVE-SCP AE COMMUNICATION FAILURE BEHAVIOR

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4.2.6 QUERY-RETRIEVE-SCP Application Entity (Level B) Specification

The MagicWeb/ACOM.Web system stores received DICOM objects in two different compression levels specified as Level A and Level B. The compression type can be configured for each level via administration interface. The Query/Retrieve-SCU AE decides which Level is accessed for Query and Retrieve requests by using the appropriate AE Title that is assigned to each Level.

Since the difference between the two Levels is only the configured compression type and the DICOM behavior is identical to QUERY-RETRIEVE-SCP AE which represents the compression Level A see chapter 4.2.5 for the description of the Level B QUERY-RETRIEVE-SCP AE.

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4.2.7 Report-SCU Application Entity Specification

4.2.7.1 SOP Classes

The REPORT-SCU AE provides Conformance to the following Mitra Broker Private SOP Class:

SOP Class Name	SOP Class UID	SCU	SCP
Mitra Report Management - FIND	1.2.840.113532.3500.8	Yes	No

Table 54: SOP CLASSES FOR REPORT-SCU AE

4.2.7.2 Association Establishment Policies

4.2.7.2.1 General

The RETRIEVE-SCU AE forms Associations when requested to do so by the user. The RETRIEVE-SCU AE can only request the opening of an Association. It cannot accept requests to open Associations from external Application Entities.

The DICOM standard Application Context Name for DICOM 3.0 is always proposed:

Application Context Name	1.2.840.10008.3.1.1.1

Table 55: DICOM APPLICATION CONTEXT FOR REPORT-SCU AE

4.2.7.2.2 Number of Associations

It is not possible to perform several associations simultanously. Report requests initiated automatically or from the user interface will be stored in a queue and processing starts when the previous request is completed.

Maximum number of simultaneous Associations	1 (Not Configurable)

Table 56: NUMBER OF ASSOCIATIONS AS A SCU FOR REPORT-SCU AE

4.2.7.2.3 Asynchronous Nature

The REPORT-SCU AE does not support asynchronous communication (multiple outstanding transactions over a single association). All association requests must be completed and acknowledged before a new operation can be initiated.

Maximum number of outstanding asynchronous transactions	1 (Not Configurable)

Table 57: ASYNCHRONOUS NATURE AS A SCU FOR REPORT-SCU AE

4.2.7.2.4 Implementation Identifying Information

All MagicWeb/ACOM.Web AE's use the same Implementation Class UID and the same Implementation Version Name. This Version Name is updated with each new release of the product software, as the different AE versions are never released independently.

Implementation Class UID	1.3.12.2.1107.5.8.5.42
Implementation Version Name	MED_MWEB_VA42

Table 58: DICOM IMPLEMENTATION CLASS AND VERSION FOR REPORT-SCU AE

4.2.7.3 Association Initiation Policy

4.2.7.3.1 Activity – Send Report Requests to an External Peer AE

4.2.7.3.1.1 Description and Sequencing of Activity

The REPORT-SCU AE will initiate a new Association when the user performs the query action from the user interface or an automatic query is initiated after a new study is created. An Association Request is sent to the specified Mitra Broker and upon successful negotiation of the required Presentation Context the query is started. The result messages are transmitted in the same association. The reports are stored in a specific Results Folder in the form of text files. The administrator can configure if the Accession Number or the Requested Procedure ID is used to assign the reports to the belonging studies. When no assignment is possible the reports are moved to a folder for failed objects.

For an Auto Report Query the number of retries, the delay time between the retries and the delay time before the query is started is configurable on the administration interface. If the report query is initiated by the user the REPORT-SCU AE will not attempt to independently retry the query request if an error occurs.

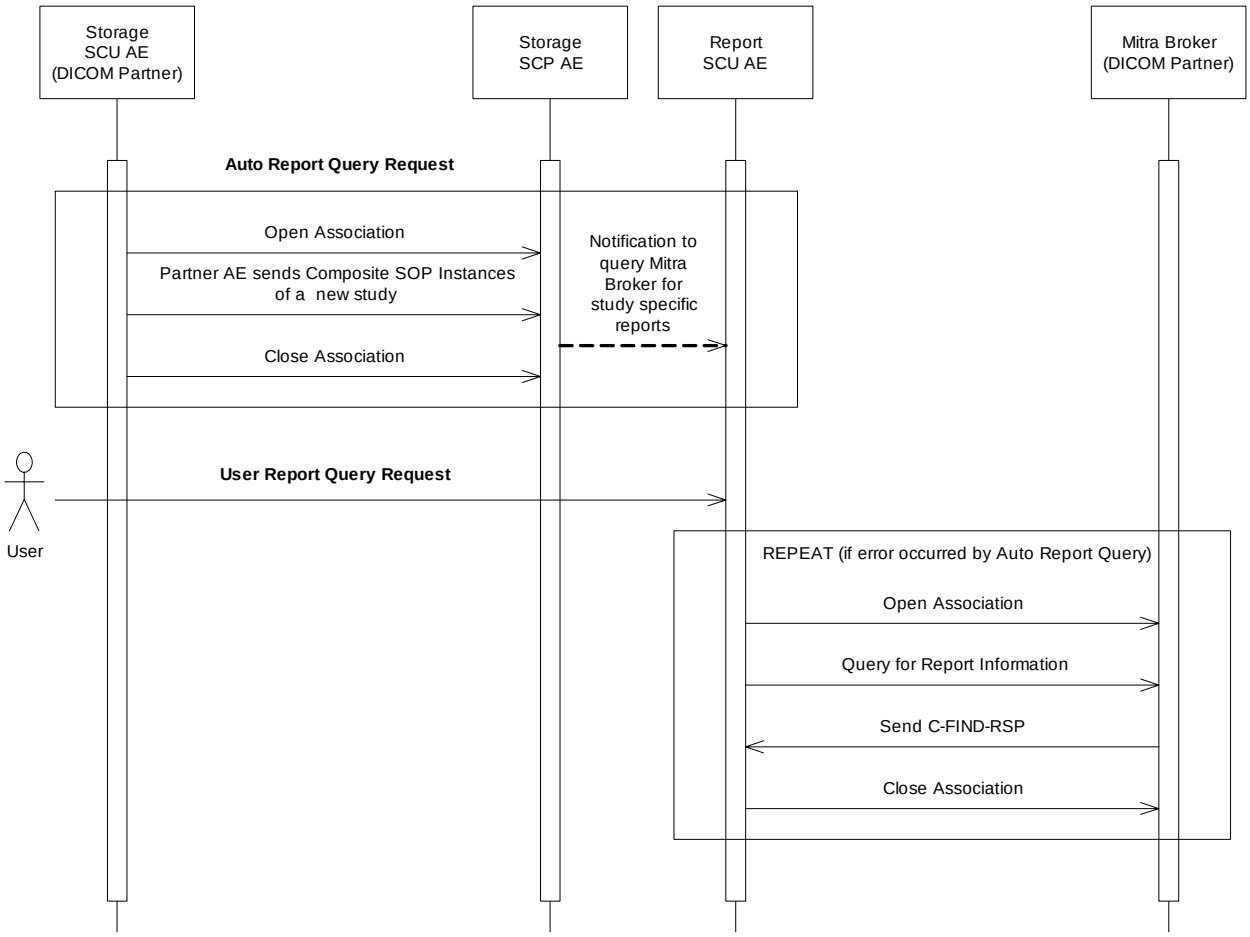

Figure 8: SEQUENCING OF ACTIVITY – PERFOMING REPORT REQUESTS

The following sequencing constraints illustrated in Figure 7 apply to the REPORT-SCU AE for initiating Mitra Report queries (C-FIND-Requests):

User Report Query Request

1. User initiates a report request
2. REPORT-SCU AE opens an Association with the Mitra Broker AE.
3. REPORT-SCU AE sends a C-FIND-RQ Message.
4. Mitra Broker AE returns a C-FIND-RSP Message to the REPORT-SCU AE with matching information.
5. REPORT-SCU AE closes the Association.

Auto Report Query Request

1. Partner AE opens an Association with the STORAGE-SCP AE
2. Partner AE sends one or more Composite SOP Instances of a new study.
3. Partner AE closes the Association.
4. REPORT-SCU AE opens an Association with the Mitra Broker AE.
5. REPORT-SCU AE sends a C-FIND-RQ Message.
6. Mitra Broker AE returns a C-FIND-RSP Message to the REPORT-SCU AE with matching information.
7. REPORT-SCU AE closes the Association.
8. The points 4. – 7. will be repeated if an error occurred during report request.

4.2.7.3.1.2 Proposed Presentation Contexts

REPORT-SCU AE will propose Presentation Contexts as shown in the following table:

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name**	**UID**		
Mitra Report Management - FIND	1.2.840.113532.3500.8	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

Table 59: PROPOSED PRESENTATION CONTEXTS BY THE REPORT-SCU AE

4.2.7.3.1.3 SOP Specific Conformance for Report SOP Classes

REPORT-SCU provides private conformance to the Mitra Broker. No CANCEL requests are ever issued. In the table below the attributes to be matched are listed.

Attribute Name	Tag	VR	Types of Matching
Patient ID	(0010,0020)	LO	single value
Accession Number	(0008,0050)	SH	single value
Study ID	(0020,0010)	SH	single value
Study Instance UID	(0020,000D)	UI	single value
Requested Procedure ID	(0040,1001)	SH	single value
Specific Character Set	(0008,0005)	CS	universal
Interpretation Text	(4008,010B)	ST	universal
Impressions	(4008,0300)	ST	universal

Table 60: REPORT C-FIND SCU REQUESTED ELEMENTS

Note:

Patient ID and one of Accession Number, Study ID, Study Instance UID or Requested Procedure ID is required in the query request message.

4.2.7.4 Association Acceptance Policy

The REPORT-SCU AE does not accept Associations.

4.3 Physical Network Interfaces

4.3.1 Supported Communication Stacks

MagicWeb/ACOM.Web DICOM AEs provide DICOM 3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

4.3.1.1 TCP/IP Stack

MagicWeb/ACOM.Web DICOM AEs inherit their TCP/IP stack from the Windows 2000® Operating System upon which they execute.

4.3.2 Physical Network Interface

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.

4.3.3 Additional Protocols

When host names rather than IP addresses are used in the configuration properties to specify presentation addresses for remote AEs, the application is dependent on the name resolution mechanism of the underlying operating system

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4.4 Configuration

4.4.1 AE Title/Presentation Address Mapping

4.4.1.1 Local AE Titles

The mapping from AE Title to TCP/IP addresses and ports is configurable and set at the time of installation by Installation Staff.

Application Entity	Role	Default AE Title	Default TCP/IP Port
STORAGE-SCU	SCU	OWN_AET_SEND (Example)	None
STORAGE-SCP	SCP	DICOMWEB_SCP	2010
QUERY-SCU	SCU	OWN_AET_FIND (Example)	None
RETRIEVE-SCU	SCU	OWN_AET_MOVE (Example)	None
QUERY-RETRIEVE-SCP (Level A)	SCP	DICOMWEB_QR_LA	2010
QUERY-RETRIEVE-SCP (Level B)	SCP	DICOMWEB_QR_LB	2010
REPORT-SCU	SCU	OWN_AET_FIND (Example)	None

Table 61: DEFAULT APPLICATION ENTITY CHARACTERISTICS

All Application Entities can be configured to have the same AE Title except the AET of QUERY-RETRIEVE-SCP (Level A) must differ from QUERY-RETRIEVE-SCP (Level B).

4.4.1.2 Remote AE Title/Presentation Address Mapping

The mapping of external AE Titles to TCP/IP addresses and ports is configurable and set at the time of installation by Installation Staff. This mapping is necessary for resolving the IP address and port of C-MOVE Destination Application Entities and must be correctly configured for the QUERY-RETRIEVE-SCP AE to correctly function as a C-MOVE SCP.

4.4.2 Parameters

Parameter	Configurable	Default Value
General Parameters		
TCP/IP Listen Port (for SCP AEs)	Yes	2010
Maximum PDU length (for SCP and STORAGE-SCU AEs)	Yes	16384
Maximum number of DICOM connections for SCP AEs	Yes	16
DICOM Connection Timeout (for SCP and STORAGE-SCU AEs)	Yes	60 sec.

Number of retries to read incoming messages (for SCP AEs)	No	10
STORAGE-SCU AE Parameters		
Application Entity Title (Partner node specific)	Yes	OWN_AET_SEND
Read Timeout (Partner node specific)	Yes	10 sec.
Connect Timeout (Partner node specific)	Yes	30 sec.
Send SOP Instances always uncompressed (Partner node specific)	Yes	Off
STORAGE-SCP AE Parameters		
Application Entity Title	Yes	DICOMWEB_SCP
QUERY-SCU AE Parameters		
Application Entity Title	Yes	OWN_AET_FIND
Read Timeout (same as configured for RETRIEVE-SCU AE) (Partner node specific)	Yes	10 sec.
Connect Timeout (same as configured for RETRIEVE-SCU AE) (Partner node specific)	Yes	30 sec.
Maximum PDU length (same as configured for RETRIEVE-SCU AE) (Partner node specific)	Yes	16384
Send DICOM echo before query	Yes	Off
Maximum number of study records to be returned as query results	Yes	200
RETRIEVE-SCU AE Parameters		
Application Entity Title	Yes	OWN_AET_MOVE
Read Timeout (same as configured for QUERY-SCU AE) (Partner node specific)	Yes	10 sec.
Connect Timeout (same as configured for QUERY-SCU AE) (Partner node specific)	Yes	30 sec.
Maximum PDU length (same as configured for QUERY-SCU AE) (Partner node specific)	Yes	16384
Retrieve job timeout	Yes	10 min.
QUERY-RETRIEVE-SCP AE Parameters (Level A)		
Application Entity Title	Yes	DICOMWEB_QR_LA
Send SOP Instances always uncompressed (Partner node specific)	Yes	Off
QUERY-RETRIEVE-SCP AE Parameters (Level B)		
Application Entity Title	Yes	DICOMWEB_QR_LB

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Send SOP Instances always uncompressed (Partner node specific)	Yes	Off
REPORT SCU AE Parameters		
Application Entity Title	Yes	OWN_AET_FIND
Read Timeout (Partner node specific)	Yes	10 sec.
Connect Timeout (Partner node specific)	Yes	30 sec.
Maximum PDU length (Partner node specific)	Yes	16384
Assign the Reports to Study by Accession Number or Request ID	Yes	Accession Number
Auto Report Query enabled	Yes	Off
Delay Time at Start	Yes	120 sec.
Number of Retries	Yes	720 sec.
Delay Time between Retries	Yes	3

Table 62: CONFIGURATION PARAMETERS

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5. Media Storage

MagicWeb/ACOM.Web does not support Media Storage.

6. Support of Extended Character Sets

All MagicWeb/ACOM.Web DICOM applications support the following extended character set:

ISO_IR 100 (ISO 8859-1:1987 Latin Alphabet No. 1 supplementary set)

As well as supporting this Extended Character Set for DICOM messaging, the Query-Server system database and user interface can support the expected display of this character set.

The use of any other extended character sets may produce incorrect and unreadable output on the Web interface.

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7. Security

7.1 Security Profiles

None supported.

7.2 Association Level Security

An association request is only accepted by the MagicWeb/ACOM.Web system if the called AE Title is equivalent to the AE Title of one of the SCP AEs. Additionally the calling AE Title is checked in order to give only those DICOM Partner Nodes the permission for accessing the MagicWeb/ACOM.Web system which are configured on the DICOM Partners page of the administration interface.
The Destination DICOM node for retrieving SOP Instances must be configured as a STORAGE-SCP Partner Node if it differs from the DICOM node which has initiated the retrieve request.

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Annex A: Extensions/Specializations/Privatizations

Image Processing

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], MagicWeb/ ACOM.Web will calculate the average over all the given values and diplays the scene with the speed of the calculated average value.

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