Technical Publications

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Revision 1.0

ADVANTAGE CLUSTER STORAGE/ARCHIVE SYSTEM
CONFORMANCE STATEMENT
for DICOM v3.0

- ACS-C (ver. 2.11)
- ACS-C200 (ver. 2.11)

Do not duplicate

REVISION HISTORY

REV	DATE	REASON FOR CHANGE
1.0	June 16, 1997	Initial Release

LIST OF EFFECTIVE PAGES

SECTION	NUMBER	SECTION	NUMBER
Title Page	1.0		
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1 NETWORK CONFORMANCE STATEMENT

1.0   iNTRODUCTION

This section of the DICOM Conformance Statement specifies the compliance to DICOM conformance requirements for the relevant **Networking** features on this GEMS product. Note that the format of this section strictly follows the format defined in DICOM Standard PS 3.2 (Conformance). Please refer to that part of the standard while reading this section.

1.1   IMPLEMENTATION MODEL

1.1.1   Application Data Flow Diagram

All DICOM functionality on the Advantage Cluster Storage/Archive System (ACS) is handled by the ACS Application Entity (ACS AE). The Basic and Specific Application models for this device are shown in the following Illustration :

ILLUSTOTRATION 1-1
IMPLEMENTAION MODEL DATA FLOW DIAGRAM
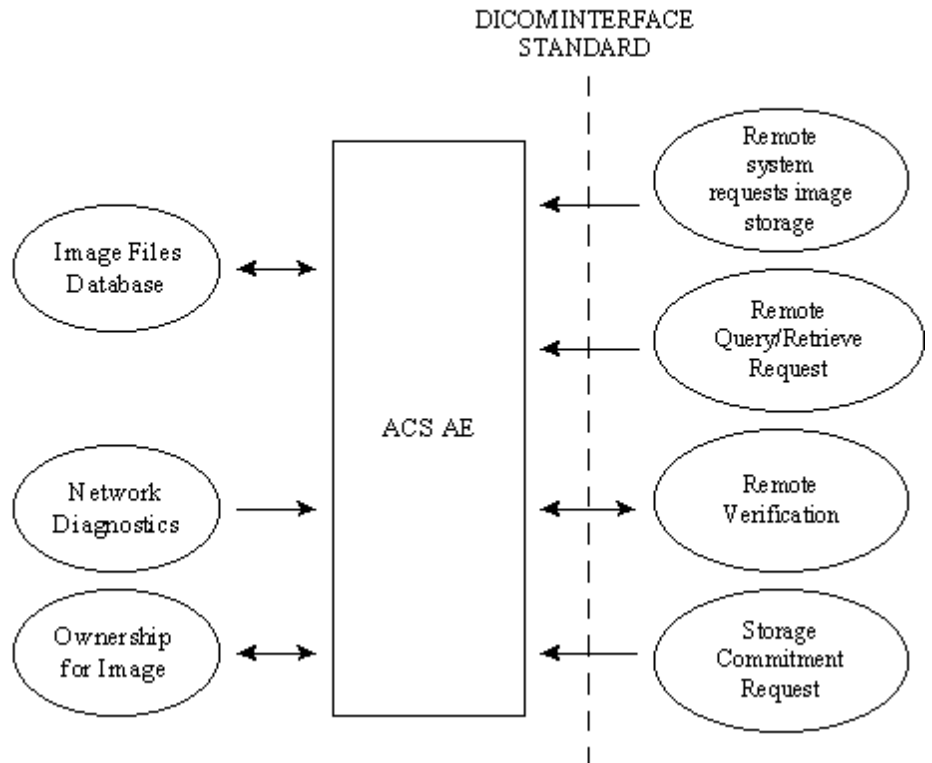
There is only one Real-World Activity that will cause the Advantage Cluster Storage Application Entity (ACS AE) to initiate a DICOM association to remote DICOM Application Entity.

Real-World Activity, Network Test, causes the ACS AE to initiate an association to the Remote DICOM AE and request the reply of the echo test. This operation will be performed only by the GEMS Field Service Engineer.

There is no Real-World activity required for the ACS AE to respond to an incoming DICOM Store, Query/Retrieve, Verify or Storage Commitment. The ACS AE is always prepared to respond to a DICOM Store, Query/Retrieve, Verify or Storage Commitment by any Remote DICOM AE.

The ACS AE will perform the Real-World activity, Image Installation, after the remote AE sends an image to the Advantage Cluster Storage/Archive System product.

Once a Query request is received, the ACS AE will search the local database for all entries that match the key requested by the Remote AE and send back the list of matches. The ACS AE will also respond to an incoming retrieval request from a Remote AE by sending the image(s) to the Destination AE.

1.1.2 Functional Definition of AE's

The ACS AE initiates the following operation:

- Initiate an association with a Remote AE to diagnostic the connectivity to the Remote host. A C-ECHO-RQ request will be sent to the Remote AE once an association has established.

The ACS AE waits for association requests from Remote AEs that wish to perform the following operations:

- **Verification**: If a C-ECHO-RQ message is received, the ACS AE will send back a C-ECHO-RSP message with a status of "success".

- **Image Storage**: If a C-STORE-RQ message is received, the ACS AE will receive the image and try to update the local database. If the image is stored successfully on storage media and the database updated a status of "success" will be returned in a C-STORE-RSP message.

- **Query**: If a C-FIND-RQ message is received, the ACS AE will search the database for the requested attributes and send back a C-FIND-RSP message containing a match and status of "pending" . After all matching records have been sent, a status of "success" will be returned in a C-FIND-RSP message. The Remote AE can terminate the query by sending a C-CANCEL-FIND-RQ message.

- **Retrieve**: If a C-MOVE-RQ message is received, the ACS AE will lookup its list of configured Remote AEs for the Destination AE. If the Destination AE is configured, the ACS AE will open a new association to the Destination AE and use C-STORE-RQ to send the image(s). The ACS AE will send a C-MOVE-RSP message with a

status of "pending" after each image is sent. When all images are sent or if ACS AE receives a C-CANCEL-MOVE-RQ a final C-STORE-RSP will be sent back with an appropriate status.

- **Storage Commitment**: If a N-ACTION message is received, the ACS AE search the SOP Instance on the local database. If the all SOP Instances exists, ACS AE will send back a N-EVENT-REPORT message with a status of "success". If one or more SOP Instances don't exist, the ACS AE would issue an N-EVENT-REPORT with a status of completed - failures exists. With the EVENT-REPORT it would include a list of the SOP Instances that were successfully stored and also a list of the SOP Instances for which storage failed.

1.1.3 Sequencing of Real-World Activities

Non Applicable.

1.2 AE SPECIFICATIONS

1.2.1 ACS AE Specification

This Application Entity provides Standard Conformance to the following DICOM V3.0 SOP Classes as an **SCU** :

SOP Class Name	SOP Class UID
Verification SOP Class	1.2.840.10008.1.1

This Application Entity provides Standard Conformance to the following DICOM V3.0 SOP Classes as an **SCP** :

SOP Class Name	SOP Class UID
Verification SOP Class	1.2.840.10008.1.1
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1
MR Image Storage	1.2.840.10008.5.1.4.1.1.4
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7

Stand-alone Overlay Storage	1.2.840.10008.5.1.4.1.1.8
Stand-alone Curve Storage	1.2.840.10008.5.1.4.1.1.9
Stand-alone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10
Stand-alone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11
X-ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2
X-Ray Angiographic Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2
Patient/Study Only Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.3.1
Patient/Study Only Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.3.2
Storage Commitment Push Model	1.2.840.10008.1.20.1

1.2.1.1 Association Establishment Policies

1.2.1.1.1 General

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

Application Context Name	**1.2.840.10008.3.1.1.1**

The Maximum Length PDU negotiation is included in all association establishment requests.

The maximum length PDU for an association initiated by the ACS AE is:

Maximum Length PDU	**32kbytes**

SOP class Extended Negotiation is not supported.

1.2.1.1.2   **Number of Associations**

The ACS AE can have associations as many as Remote AE initiated. But the number of associations are limited by hardware resources of Advantage Cluster Storage/Archive System.

1.2.1.1.3   **Asynchronous Nature**

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

1.2.1.1.4   **Implementation Identifying Information**

The Implementation UID for this DICOM v3.0 Implementation is:

Advantage Cluster Storage/Archive System Implementation UID	1.2.392.200045.4079.1

1.2.1.2   **Association Initiation Policy**

This AE attempts to initiate an association due to the C-MOVE sub-operation.

1.2.1.2.1   **Real-World Activity <Verify to Remote AE>**

1.2.1.2.1.1   **Associated Real-World Activity**

This operation must be performed by the GE Medical Systems Field Service Engineer.

1.2.1.2.1.2   **Proposed Presentation Context Table**

<table>
<tr><th colspan="6">Presentation Context Table - Proposed</th></tr>
<tr><th colspan="2">Abstract Syntax</th><th colspan="2">Transfer Syntax</th><th>Role</th><th>Extended</th></tr>
<tr><th>Name</th><th>UID</th><th>Name List</th><th>UID List</th><th></th><th>Negotiation</th></tr>
<tr><td>Verification (Echo)</td><td>1.2.840.10008.1.1</td><td>Implicit VR Little Endian
Explicit VR Little Endian
Explicit VR Big Endian</td><td>1.2.840.10008.1.2
1.2.840.10008.1.2.1
1.2.840.10008.1.2.2</td><td>SCU</td><td>None</td></tr>
</table>

1.2.1.2.1.2.1   SOP Specific DICOM Conformance Statement for Verification SOP Class

> After the "Network Test" is operated, the ACS AE will perform a C-ECHO-RQ request to the Remote DICOM AE

1.2.1.2.2   Real-World Activity <Send image(s) to Remote AE>

1.2.1.2.2.1   Associated Real-World Activity

> There is no Real-World Activity. When the C-MOVE-RQ is received, the ACS AE will open an association automatically.

1.2.1.2.2.2   Proposed Presentation Context Table

Presentation Context Table - Proposed					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended**
Name	**UID**	**Name List**	**UID List**		**Negotiation**
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Secondary Capture Image	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

Storage		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Stand-alone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Stand-alone Curve Storage	1.2.840.10008.5.1.4.1.1.9	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Stand-alone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Stand-alone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
X-Ray Angiographic Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Verification SOP Class	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

1.2.1.2.2.2.1   SOP Specific DICOM Conformance Statement for Image Storage SOP Class

If the C-STORE operation is terminated successfully, there is no effect on the storaged Images. Although the temporary file is created to transfer image(s), it will delete after transmit automatically.

If the C-STORE operation is terminated by Error, there is no effect on the storaged Images.

If the C-STORE operation is terminated by Warning, there is no effect on the storaged Images.

The ACS AE will only send optional and private data elements from stored images that it has previously received as a C-STORE SCP, and will not add any new elements.

1.2.1.3   Association Acceptance Policy

Any operations of ACS AE are worked by the request of Remote AE.

When the ACS AE accepts an association for image storage, it will receive any images transmitted on that association and store the images on the disk.

It will also respond to queries from Remote AEs by sending matching entries. Any Remote AE can request and receive a list of images on the local database. The Remote AE must be configured in the local database manager's list of Remote AE for it to be able to retrieve images from ACS AE.

1.2.1.3.1   Real-World Activity <Verification Request from Remote AE>

This AE indefinitely listening for associations. No operator action is required to a verification message.

1.2.1.3.1.1   Associated Real-World Activity

The Real-World Activities associated with the verification request is to send a C-ECHO response message with a status of "success" to the requesting AE.

1.2.1.3.1.2   Accepted Presentation Context Table

<table>
<tr><td colspan="6" align="center">Presentation Context Table - Accepted</td></tr>
<tr><td colspan="2" align="center">Abstract Syntax</td><td colspan="2" align="center">Transfer Syntax</td><td align="center">Role</td><td align="center">Extended</td></tr>
<tr><td align="center">Name</td><td align="center">UID</td><td align="center">Name List</td><td align="center">UID List</td><td></td><td align="center">Negotiation</td></tr>
<tr><td>Verification</td><td>1.2.840.10008.1.1</td><td>Implicit VR Little Endian
Explicit VR Little Endian
Explicit VR Big Endian</td><td>1.2.840.10008.1.2
1.2.840.10008.1.2.1
1.2.840.10008.1.2.2</td><td>SCP</td><td>None</td></tr>
</table>

1.2.1.3.1.2.1   SOP Specific DICOM Conformance Statement for Verification SOP Classes

The ACS AE provides standard conformance to the DICOM Verification Service Class.

1.2.1.3.1.3   Presentation Context Acceptance Criterion

ACS AE accepts any number of Presentation Contexts listed in the Accepted Presented Context Table.

1.2.1.3.1.4   Transfer Syntax Selection Policies

ACS AE will prioritize Transfer Syntax in order of configuration table of ACS.

1.2.1.3.2   Real-World Activity < Receive Image(s)>

This AE is indefinitely listening for associations. No operator action is required to receive an image.

1.2.1.3.2.1   Associated Real-World Activity

The Real-World Activities associated with the Receive Image(s) operation are the storage of the image and registration to database on the disk drive of the Advantage Cluster Storage/Archive System.

1.2.1.3.2.2   Accepted Presentation Context Table

Presentation Context Table - Accepted					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended**
Name	**UID**	**Name List**	**UID List**		**Negotiation**
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	Note
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	Note
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	Note
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	Note
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	Note
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	Note
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	Note
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Stand-alone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	Note
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Stand-alone Curve Storage	1.2.840.10008.5.1.4.1.1.9	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	Note
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Stand-alone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	Note
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Stand-alone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	Note
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	Note
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	Note
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
X-Ray Angiographic Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	Note
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

Note : Supporting following Extended Negotiation.

Field Name	Value	Description of Field
Level of Support	2	level 2 (Full) SCP
Element Coercion	0	does not coerce any element

1.2.1.3.2.2.1   SOP Specific DICOM Conformance Statement for Storage SOP Classes

The ACS AE conforms to the SOP's of the Storage Service Class at level 2 (full).

Following are the status codes the Application may send back to the SCU Equipment after performing the requested **Storage** :

Service Status	Status Codes	Further Meaning	Status Code sending explanation	Related Fields sent back to the SCU
Refused	A700	Out of resources	Lack of memory.	(0000,0902)
	A701	Out of resources	Lack of disk space.	(0000,0902)
	A702	Out of resources	Lack of media space.	(0000,0902)
Error	A900	Data Set does not match SOP Class	Wrong dataset value.	(0000,0901) (0000,0902)
	C000	Cannot understand	Other error.	(0000,0901) (0000,0902)
Warning	B000	Coercion of Data Elements	Can't convert some elements.	(0000,0901) (0000,0902)
Success	0000			None

In the event of a successful C-STORE operation, the image has been successfully been written to the disk. The image will then be accessed in the same manner as any other image by the applications on the Advantage Cluster Storage/Archive System

1.2.1.3.2.3   Presentation Context Acceptance Criterion

ACS AE accepts any number of Presentation Contexts listed in the Accepted Presented Context Table. It rejects requests from remote AE not listed in the local database.

1.2.1.3.2.4   Transfer Syntax Selection Policies

ACS AE will prioritize Transfer Syntax in order of configuration table of ACS.

1.2.1.3.3   Real-World Activity < Query Request from Remote AE>

This AE indefinitely listening for associations. No operator action is required to respond to a query request.

1.2.1.3.3.1   Associated Real-World Activity

The Real-World Activities associated with the query request is to search the local database for entries that match the request and send a C-FIND response message with a status of " pending" for each matching entry.

1.2.1.3.3.2   Accepted Presentation Context Table

Presentation Context Table - Accepted					
Abstract Syntax		Transfer Syntax		Role	Extended
Name	UID	Name List	UID List		Negotiation
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	Note
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	Note
Patient/Study Only Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.3.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	Note

Note : Supporting following Extended Negotiation.

Field Name	Value	Description of Field
Relational Queries	1	Relational queries supported

1.2.1.3.3.2.1   SOP Specific DICOM Conformance Statement for all FIND SOP Classes

Each C-FIND SCP operation supports the Relational Queries.

Study, Series and Image level keys are configurable at the installation time, by GEMS Field Engineer. By configuration, any additional field that is in the data dictionary can be made a search key. Following tables are default configured keys.

Patient level keys

Description	Type	Tag
Patient Name	R	0010, 0010

Patient ID	U (R:Note)	0010, 0020

Note : If the Study Root Query or the level Study of Patient/Study Only Query operate, this key is Required (R).

Study level keys

Description	Type	Tag
Study Instance UID	U	0020, 000D
Study ID	R	0020, 0010
Study Date	R	0008, 0020
Study Time	R	0008, 0030
Accession Number	R	0008, 0030

Series level keys

Description	Type	Tag
Modality	R	0008, 0060
Series Instance UID	U	0020, 000E
Series Number	R	0020, 0011

Image level keys

Description	Type	Tag
SOP Instance UID	U	0008, 0018
Contrast/Bolus Agent	O	0018, 0010
Image Number	R	0020, 0013

Following are the status codes the Application may send back to the SCU Equipment after performing the requested **FIND** :

Service Status	Status Codes	Further Meaning	Status Code sending explanation	Related Fields sent back to the SCU

Refused	A700	Out of resources		(0000,0902)
Failed	A900	Identifier does not match SOP Class	Wrong requested key.	(0000,0901) (0000,0902)
	C000	Unable to process	Other error.	(0000,0901) (0000,0902)
Cancel	FE00	Matching terminated due to Cancel request	Cancel response.	None
Success	0000	Matching is complete	No final Identifier is supplies	None
Pending	FF00	Matches are continuing	Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys	Identifier
	FF01	Matches are continuing	Warning that one or more Optional Keys were not supported for existence and/or matching for this Identifier	Identifier

1.2.1.3.3.3   Presentation Context Acceptance Criterion

ACS AE accepts any number of Presentation Contexts listed in the Accepted Presented Context Table.

1.2.1.3.3.4   Transfer Syntax Selection Policies

ACS AE will prioritize Transfer Syntax in order of configuration table of ACS.

1.2.1.3.4   Real-World Activity < Retrieve Request from Remote AE>

This AE indefinitely listening for associations. No operator action is required to respond to a retrieve request.

1.2.1.3.4.1   Associated Real-World Activity

The Real-World Activities associated with the Retrieve Request is to send all images corresponding to the C-MOVE request to the destination AE through a separate association.

1.2.1.3.4.2   Accepted Presentation Context Table

Presentation Context Table - Accepted

Abstract Syntax		Transfer Syntax		Role	Extended
Name	UID	Name List	UID List		Negotiation
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	Note
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	Note
Patient/Study Only Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.3.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	Note

Note : Supporting following Extended Negotiation.

Field Name	Value	Description of Field
Relational Queries	1	Relational queries supported

1.2.1.3.4.2.1   SOP Specific DICOM Conformance Statement for all MOVE SOP Classes

All images requester in a C-MOVE-RQ will be sent over a single association. A C-MOVE-RSP with a "pending" status will be returned to the requester every image.

Following are the status codes the Application may send back to the SCU Equipment after performing the requested **MOVE** :

Service Status	Status Codes	Further Meaning	Status Code sending explanation	Related Fields sent back to the SCU
Refused	A701	Out of resources	Unable to calculate number of matches.	(0000,0902)
	A702	Out of resources	Unable to perform sub-operations.	(0000,1020) (0000,1021) (0000,1022) (0000,1023)
	A801	Move destination unknown		(0000,0902)
Failed	A900	Identifier does not match SOP Class	Wrong requested key. Other error.	(0000,0901) (0000,0902)
	C000	Unable to process	Other error.	(0000,0901) (0000,0902)

Cancel	FE00	Sub operations terminated due to Cancel Indication		(0000,1020) (0000,1021) (0000,1022) (0000,1023)
Warning	B000	Sub operations complete	One or more failure or warning.	(0000,1020) (0000,1021) (0000,1022) (0000,1023)
Success	0000	Sub operation s complete	No failure	(0000,1020) (0000,1021) (0000,1022) (0000,1023)
Pending	FF00	Sub operations are continuing		(0000,1020) (0000,1021) (0000,1022) (0000,1023)

1.2.1.3.4.3 Presentation Context Acceptance Criterion

ACS AE accepts any number of Presentation Contexts listed in the Accepted Presented Context Table. It rejects requests from remote AE not listed in the local database.

1.2.1.3.4.4 Transfer Syntax Selection Policies

ACS AE will prioritize Transfer Syntax in order of configuration table of ACS.

1.2.1.3.5 Real-World Activity <Storage Commitment from Remote AE>

This AE indefinitely listening for associations. No operator action is required to a verification message.

1.2.1.3.5.1 Associated Real-World Activity

The Real-World Activities associated with the storage commitment is to send a N-EVENT-REPORT message with a status of "success" to the requesting AE.

1.2.1.3.5.2 Accepted Presentation Context Table

Presentation Context Table - Accepted

Abstract Syntax		Transfer Syntax		Role	Extended
Name	**UID**	**Name List**	**UID List**		**Negotiation**
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

1.2.1.3.5.2.1 SOP Specific DICOM Conformance Statement for Verification SOP Classes

The ACS AE provides standard conformance to the DICOM Storage Commitment Push Model Service Class.

1.2.1.3.5.3 Presentation Context Acceptance Criterion

ACS AE accepts any number of Presentation Contexts listed in the Accepted Presented Context Table.

1.2.1.3.5.4 Transfer Syntax Selection Policies

ACS AE will prioritize Transfer Syntax in order of configuration table of ACS.

1.3 COMMUNICATION PROFILES

1.3.1 Supported Communication Stacks (Parts 8, 9)

DICOM Upper Layer (Part 8) is supported using TCP/IP.

1.3.2 OSI Stack

OSI Stack not supported.

1.3.3 TCP/IP Stack

The TCP/IP stack is inherited from a UNIX Operating System.

1.3.3.1 API

Not applicable to this product.

1.3.3.2 Physical Media Support

Ethernet v2.0, IEEE 802.3

1.3.4 Point-to-Point Stack

A 50-pin ACR-NEMA connection is not applicable to this product.

1.4 EXTENSIONS / SPECIALIZATIONS / PRIVATIZATIONS

1.4.1 Standard Extended /Specialized/Private SOPs

Not applicable.

1.5 CONFIGURATION

1.5.1 AE Title/Presentation Address Mapping

Remote AE Title must be configured to access this product.

1.5.2 Configurable Parameters

The following fields are configurable for ACS AE:

- Local AE Title (default : ACS01)

- Local IP Address

- Accepting TCP/IP Port (default : 5900)

The following fields are configurable for every remote DICOM AE

- Remote AE Title

- Remote IP Address

- Responding TCP/IP Port

Note : All configurations should be performed by GEMS Field Service Engineer.

1.6 SUPPORT OF EXTENDED CHARACTER SETS

The Advantage Cluster Storage/Archive System supports the "DICOM supplement 9 Multi-byte Character Set Support", Japanese Single-byte Character Set (ISO-IR 13) and Japanese Multi-byte Character Set (ISO-IR 87, ISO-IR 159) as extended character sets.