



RamSoft  
**Gateway Router**

**DICOM Conformance Statement**

# Gateway Router DICOM Conformance Statement

PowerServer, Gateway 4.2 DICOM Conformance Statement .....	2
1 Introduction .....	3
2 Implementation Model.....	3
2.1 Application Data Flow Diagram .....	3
2.2 Functional Definitions of AE's .....	5
3 AE Specifications.....	5
3.1 RamSoft PACS AE Specification .....	5
3.1.1 Association Establishment Policies .....	7
3.1.1.1 General.....	7
3.1.1.2 Number of Associations.....	7
3.1.1.3 Asynchronous Nature .....	7
3.1.1.4 Implementation Identifying Information.....	7
3.1.2 Association Initiation by Real-World Activity.....	7
3.1.2.1 Real-World Activity – User initiates storage.....	7
3.1.2.1.1 Associated Real-world Activity .....	7
3.1.2.1.2 Proposed Presentation Contexts.....	8
3.1.2.1.2.1 SOP Specific Conformance - Storage.....	8
3.1.2.1.2.2 SOP Specific Conformance – Grayscale Softcopy Presentation State Storage .....	9
3.1.2.1.2.3 SOP Specific Conformance – Structured Reporting Storage .....	9
3.1.2.2 Real-World Activity – User initiates a query.....	9
3.1.2.2.1 Proposed Presentation Contexts .....	9
3.1.2.2.1.1 SOP Specific Conformance – Verification.....	9
3.1.2.2.1.2 SOP Specific Conformance – Query/Retrieve.....	10
3.1.3 Association Acceptance Policy .....	10
3.1.3.1 Real-World Activity – External system initiates a transfer.....	10
3.1.3.1.1 Presentation Context Table.....	10
3.1.3.1.1.1 SOP Specific Conformance – Storage.....	10
3.1.3.1.2 Presentation Context Acceptance Criterion .....	11
3.1.3.1.3 Transfer Syntax Selection Policies .....	11
3.1.3.2 Real-World Activity – External system initiates a query.....	11
3.1.3.2.1 Associated Real-World Activity .....	11
3.1.3.2.2 Presentation Context Table.....	11
3.1.3.2.2.1 SOP Specific Conformance – Verification.....	12
3.1.3.2.2.3 SOP Specific Conformance - Query/Retrieve.....	12
3.1.3.2.3 Presentation Context Acceptance Criterion .....	12
3.1.3.2.4 Transfer Syntax Selection Policies .....	12
4 Communication Profiles .....	12
4.1 Supported Communications Stacks .....	12
4.2 TCP/IP Stack .....	12
4.2.1 Physical Media Support.....	12
5 Extensions/Specializations/Privatizations .....	12
5.1 Image IOD Description .....	12
6 Configuration.....	13
6.1 AE Title/Presentation Address Mapping .....	13
6.2 Configurable Parameters .....	13
7 Support of Extended Character Sets.....	14
8 Security Profiles .....	14

# 1 Introduction

This is the DICOM 3.0 Conformance Statement for Gateway Router software produced by RamSoft Inc.

Gateway Router is a self-contained network computer systems used for capturing, storing, displaying, reporting, transmitting and archiving diagnostic medical images. The system conforms to the DICOM 3.0 standard to share medical data with other medical imaging devices.

## 2 Implementation Model

### 2.1 Application Data Flow Diagram

Gateway Router can send and receive DICOM data. DICOM parameters are configurable through the Station List. DICOM communications can be secured through TLS.

The RamSoft DICOM Service is typically installed to start up automatically. Once the computer is turned on and Windows XP/Vista/2003 is started, the RamSoft DICOM Service is ready for DICOM communication.

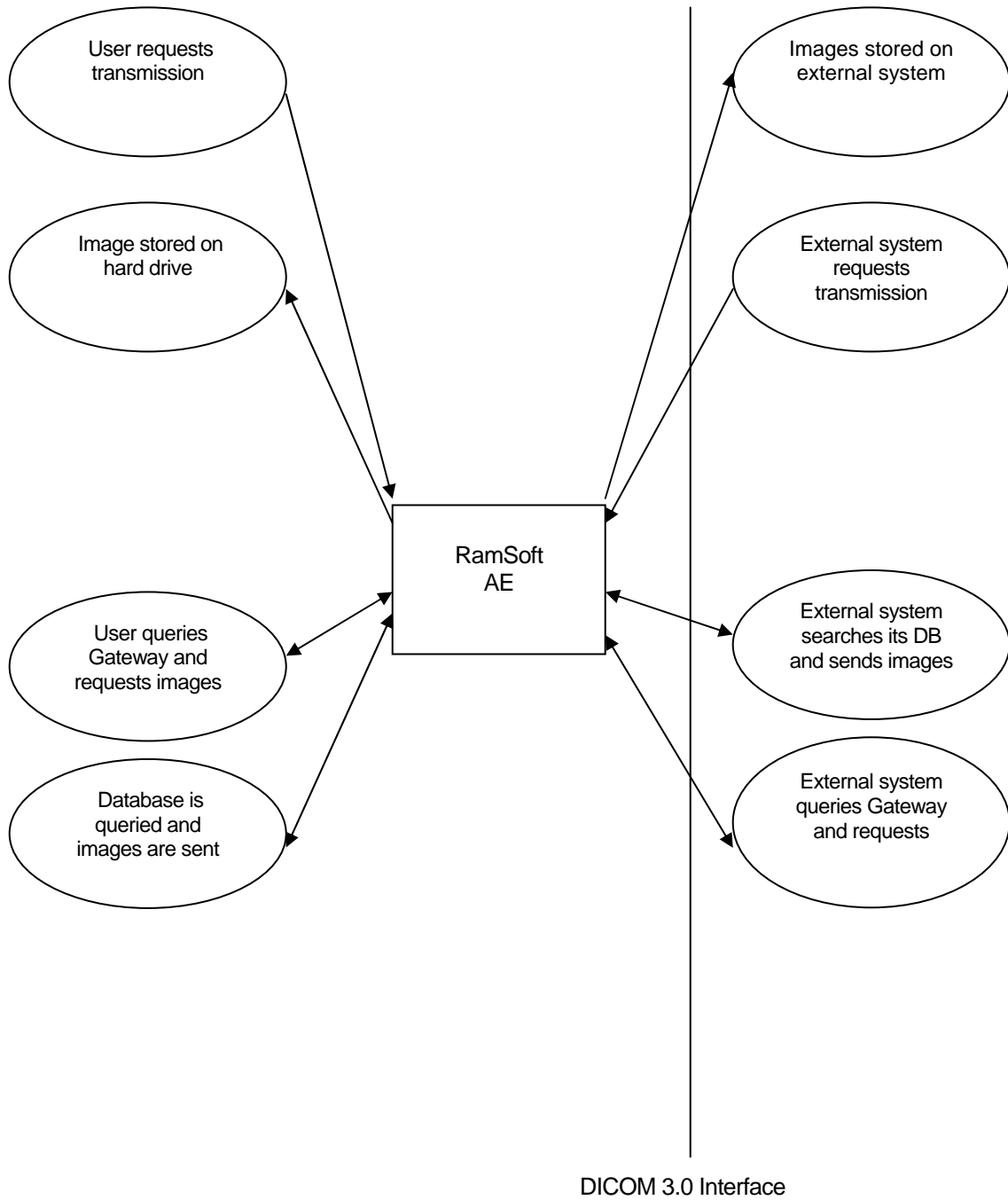
DICOM data can be pushed from the server to a DICOM AE by clicking on the Push button and selecting Station for Target. Once Target and Destination stations are selected and the priority level is set, then data is sent in the background. If any failures occur, the error is recorded in the Transmit List. Gateway Router will retry transmission until it completes.

DICOM data can also be set to be automatically routed from a RamSoft server.

DICOM data can be requested from a DICOM AE through Query/Retrieve Service, by selecting Request after finding the desired patients or studies on a remote workstation/server.

Gateway Router can send and receive images, presentation states and SR document objects. It contains bi-directional query capabilities. RamSoft users can query and request information from other PACS stations. Gateway Router can process query requests.

**Figure 2.1 RamSoft PACS Implementation Model**



## 2.2 Functional Definitions of AE's

Gateway Router contains a single Application Entity that implements the Verification Service Class, Storage Service Class, Grayscale Softcopy Presentation State Storage SOP Class, Structured Reporting Storage SOP Class, and the Query/Retrieve Service Class as a Service Class User (SCU) and a Service Class Provider (SCP). Verification (SCP), Storage (SCU and SCP), Grayscale Softcopy Presentation State Storage (SCP), Structured Reporting Storage (SCP), and Query (SCP)/Retrieve (SCU and SCP) are handled by the RamSoft DICOM Service. All DICOM operations are performed by a single RamSoft AE.

## 3 AE Specifications

### 3.1 RamSoft AE Specification

This Application Entity provides Standard Conformances to the SOP Classes listed in Table 3.1 as an SCU and SCP.

**Table 3.1 SOP Class Conformance as SCU and SCP**

SOP Class Name	SOP Class UID
<b>Service SOP Classes</b>	
Verification SOP Class	1.2.840.10008.1.1
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18
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
Patient Root Query/Retrieve Information Model - GET	1.2.840.10008.5.1.4.1.2.1.3
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
Study Root Query/Retrieve Information Model - GET	1.2.840.10008.5.1.4.1.2.2.3
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
Patient/Study Only Query/Retrieve Information Model - GET	1.2.840.10008.5.1.4.1.2.3.3
<b>Storage SOP Classes</b>	
Digital X-Ray Pres Image Storage	1.2.840.10008.5.1.4.1.1.1.1
Digital X-Ray Proc Image Storage	1.2.840.10008.5.1.4.1.1.1.1.1
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1
Digital Mammography X-Ray Image Storage for Presentation	1.2.840.10008.5.1.4.1.1.1.2
Digital Mammography X-Ray Image Storage for Processing	1.2.840.10008.5.1.4.1.1.1.2.1
Digital Intra Oral X-Ray Image Storage for Presentation	1.2.840.10008.5.1.4.1.1.1.3
Digital Intra Oral X-Ray Image Storage for Processing	1.2.840.10008.5.1.4.1.1.1.3.1
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
RETIRED Ultrasound Multi Frame Image Storage	1.2.840.10008.5.1.4.1.1.3
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
MR Enhanced Image Storage	1.2.840.10008.5.1.4.1.1.4.1
MR Spectroscopy Image Storage	1.2.840.10008.5.1.4.1.1.4.2
RETIRED Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.5
RETIRED Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6
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

Multi Frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1
Multi Frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2
Multi Frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3
Multi Frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29
Hardcopy Color Image Storage	1.2.840.10008.5.1.1.30
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Fluoroscopy Image Storage	1.2.840.10008.5.1.4.1.1.12.2
RETIRED X-Ray Angiographic Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20
RETIRED VL Image Storage	1.2.840.10008.5.1.4.1.1.77.1
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4
VL Slide Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3
RETIRED VL Multi Frame Image Storage	1.2.840.10008.5.1.4.1.1.77.2
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50
Key Object Selection	1.2.840.10008.5.1.4.1.1.88.59
PET Image Storage	1.2.840.10008.5.1.4.1.1.128

## 3.1.1 Association Establishment Policies

### 3.1.1.1 General

The DICOM standard application context name, which is always proposed, is:

Application context name	1.2.840.10008.3.1.1.1
--------------------------	-----------------------

This AE will initiate a new association whenever the user requests or sends a study. Multiple studies to a single destination may be transmitted in a single association. In Station List, a preference for compressed transfer syntaxes can be configured for each station. Default compression can be set through Settings/Server Settings/Compression. The order in which compressed transfer syntaxes are to be presented is also configured through Station List. Lossy compressed images will be sent as is, so long as the receiving station supports that transfer syntax. Otherwise, images will be decoded and encoded as necessary.

An association will be accepted with an external SCU if the requesting SCU provides valid parameters. Valid parameters include a valid presentation context. The AE's title is verified with RamSoft's Station List.

The maximum PDU size is configurable through maintenance.

### 3.1.1.2 Number of Associations

This AE will initiate at most one association with each destination for each task. A dedicated connection may be created for the following tasks: storing objects, moving objects, and querying an image database.

Each time the AE accepts an association, an available thread is assigned to complete the transfer of medical image data or service the verification request. The maximum number of concurrent associations supported by RamSoft is set by configuration. Once this number is reached, no more associations will be accepted until one of the threads become available.

### 3.1.1.3 Asynchronous Nature

RamSoft AE's do not provide asynchronous behavior. All association requests must be completed and acknowledged before a new operation can be performed.

### 3.1.1.4 Implementation Identifying Information

An implementation class UID of "1.2.124.113540.1.4.0" will be provided. The implementation version name will be "RAMSOFT 4.0".

## 3.1.2 Association Initiation by Real-World Activity

### 3.1.2.1 Real-World Activity – User initiates storage

#### 3.1.2.1.1 Associated Real-world Activity

An association is initiated when Gateway Router is requested to transmit a study. Gateway Router will continue to retry unless the study is removed from the Transmit List.

### 3.1.2.1.2 Proposed Presentation Contexts

**Table 3.2 Proposed Presentation Contexts**

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
See Note	See Note	Implicit VR, Little Endian	1.2.840.10008.1.2	SCU	None
See Note	See Note	Explicit VR, Little Endian	1.2.840.10008.1.2.1	SCU	None
See Note	See Note	Deflated Explicit VR, Little Endian	1.2.840.10008.1.2.1.99	SCU	None
See Note	See Note	Explicit VR, Lossy JPEG 8-bit Image Compression	1.2.840.10008.1.2.4.50	SCU	None
See Note	See Note	Explicit VR, Lossy JPEG 12-bit Image Compression	1.2.840.10008.1.2.4.51	SCU	None
See Note	See Note	Explicit VR, Lossless JPEG, Non-hierarchical First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
See Note	See Note	DICOM RLE Lossless Transfer Syntax	1.2.840.10008.1.2.5	SCU	None
See Note	See Note	JPEG 2000 Lossy (Baseline)	1.2.840.10008.1.2.4.91	SCU	None
See Note	See Note	JPEG 2000 Lossless	1.2.840.10008.1.2.4.90	SCU	None

NOTE: All Storage SOP classes in Table 3.1 support all of the above transfer syntaxes except the following SOP Classes:

SOP Class Name	SOP Class UID
Multiframe Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50
Key Object Selection	1.2.840.10008.5.1.4.1.1.88.59
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1

For these SOP Classes only the first three entries from Table 3.1 are supported

#### 3.1.2.1.2.1 SOP Specific Conformance - Storage

After a successful C-STORE response from the SCP, the AE will continue to send any unsent images or SR documents belonging to the same study. If a particular image cannot be sent in the current transfer syntax (due to limitations of some compressed transfer syntaxes), the association will be released and a new association will be created. If a particular image and the association have the same transfer syntax then the image is sent keeping the original encapsulation format (compressed/uncompressed) even if the compression is disabled for association (as a user data configuration).

If an unsuccessful C-STORE response is received from the SCP, the AE will record the failure and close the association. The study will remain in the Transmit List for retry at the next available time.

Warnings in the C-STORE response from the SCP are ignored.

Gateway Router saves all tags received with the image. Thus, when these images are transmitted, all optional tags originally received by Gateway Router will also be transmitted.

If the acquired image has no DICOM SOP class item and the user has not specified a default SOP Class then Gateway Router stores the image as a Secondary Capture Image Storage object.

### 3.1.2.1.2.2 SOP Specific Conformance – Grayscale Softcopy Presentation State Storage

This AE provides standard conformance to Grayscale Softcopy Presentation State Storage.

### 3.1.2.1.2.3 SOP Specific Conformance – Structured Reporting Storage

This AE provides standard conformance to Structured Reporting Storage.

### 3.1.2.2 Real-World Activity – User initiates a query

An association is initiated when the user requests a query.

#### 3.1.2.2.1 Proposed Presentation Contexts

**Table 3.3 Proposed Presentation Contexts**

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
See Note	See Note	Implicit VR, Little Endian	1.2.840.10008.1.2	SCU	None
See Note	See Note	Explicit VR, Little Endian	1.2.840.10008.1.2.1	SCU	None
See Note	See Note	Deflated Explicit VR, Little Endian	1.2.840.10008.1.2.1.99	SCU	None
See Note	See Note	Explicit VR, Lossy JPEG 8-bit Image Compression	1.2.840.10008.1.2.4.50	SCU	None
See Note	See Note	Explicit VR, Lossy JPEG 12-bit Image Compression	1.2.840.10008.1.2.4.51	SCU	None
See Note	See Note	Explicit VR, Lossless JPEG, Non-hierarchical First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
See Note	See Note	DICOM RLE Lossless Transfer Syntax	1.2.840.10008.1.2.5	SCU	None
See Note	See Note	JPEG 2000 Lossy (Baseline)	1.2.840.10008.1.2.4.91	SCU	None
See Note	See Note	JPEG 2000 Lossless	1.2.840.10008.1.2.4.90	SCU	None

NOTE: All move and find SOP classes from Table 3.1 are supported.

#### 3.1.2.2.1.1 SOP Specific Conformance – Verification

This AE provides standard conformance to this SOP Class as an SCU.

### 3.1.2.2.1.2 SOP Specific Conformance – Query/Retrieve

This AE provides standard conformance to this SOP Class as an SCU. Modalities in Study (0008, 0061) is supported as an optional key. The user is permitted to enter multiple values for this key.

### 3.1.3 Association Acceptance Policy

Associations are accepted only if they contain valid presentation contexts. Once the association is accepted for Storage Service, an available background thread is assigned to receive objects transmitted on that association and store them on the hard disk in a format required by the Gateway Router system. No background thread is assigned for Verification, and Query/Retrieve Service.

#### 3.1.3.1 Real-World Activity – External system initiates a transfer

This activity is the transfer of medical images from an external SCU to the Gateway Router system.

The associated activity with the C-STORE service is the storage of medical objects on the configured hard disk. The AE will return a failure status if it is unable to perform this action.

##### 3.1.3.1.1 Presentation Context Table

Any of the presentation contexts shown in the following table are acceptable for receiving images.

**Table 3.4 Proposed Presentation Contexts**

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
See Note	See Note	Implicit VR, Little Endian	1.2.840.10008.1.2	SCP	None
See Note	See Note	Explicit VR, Little Endian	1.2.840.10008.1.2.1	SCP	None
See Note	See Note	Deflated Explicit VR, Little Endian	1.2.840.10008.1.2.1.99	SCP	None
See Note	See Note	Explicit VR, Lossy JPEG 8-bit Image Compression	1.2.840.10008.1.2.4.50	SCP	None
See Note	See Note	Explicit VR, Lossy JPEG 12-bit Image Compression	1.2.840.10008.1.2.4.51	SCP	None
See Note	See Note	Explicit VR, Lossless JPEG, Non-hierarchical First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
See Note	See Note	DICOM RLE Lossless Transfer Syntax	1.2.840.10008.1.2.5	SCP	None
See note	See Note	JPEG 2000 Lossy (Baseline)	1.2.840.10008.1.2.4.91	SCP	None
See note	See Note	JPEG 2000 Lossless	1.2.840.10008.1.2.4.90	SCP	None

NOTE: These presentation contexts are accepted for all storage SOP classes listed in Table 3.1.

##### 3.1.3.1.1.1 SOP Specific Conformance – Storage

The Storage AE provides Level 2 (Full) conformance to the Storage SOP Class. A successful storage operation means that the image data has been written to the internal storage on the Gateway Router system.

The following status codes are returned if the C-STORE operation was unsuccessful:

1. A700 (Out of Resources) – Not enough disk space. Image will not be saved, association will be dropped.
2. A800 (SOP Class Not Supported) – SOP Class of image didn't match negotiated presentation context.
3. A900 (Data does not match SOP Class) – The data set doesn't encode an instance of the specified SOP class.
4. C000 (Cannot understand) – The Storage AE couldn't parse the data set into elements.

### 3.1.3.1.2 Presentation Context Acceptance Criterion

This AE will accept the Presentation Contexts given in Table 3.4.

### 3.1.3.1.3 Transfer Syntax Selection Policies

Gateway Router's transfer syntax selection policy can be configured in the Station List. Support for any of Uncompressed, Lossy Compressed and Lossless Compressed transfer syntaxes may be enabled or disabled. The preference of each type of compression may also be set in the Station List.

## 3.1.3.2 Real-World Activity – External system initiates a query

### 3.1.3.2.1 Associated Real-World Activity

This activity is a request from an external SCU to perform a database query and to possibly retrieve medical images from the Gateway Router system.

The associated activity with the C-FIND, C-MOVE and C-GET services is a query on the Gateway Router database. For the C-MOVE and C-GET service, a C-STORE sub-operation will be initiated to transmit the appropriate images to the destination.

### 3.1.3.2.2 Presentation Context Table

Any of the presentation contexts shown in the following table are acceptable for querying the database.

**Table 3.5 Proposed Presentation Contexts**

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
See Note	See Note	Implicit VR, Little Endian	1.2.840.10008.1.2	SCP	None
See Note	See Note	Explicit VR, Little Endian	1.2.840.10008.1.2.1	SCP	None
See Note	See Note	Deflated Explicit VR, Little Endian	1.2.840.10008.1.2.1.99	SCP	None
See Note	See Note	Explicit VR, Lossy JPEG 8-bit Image Compression	1.2.840.10008.1.2.4.50	SCP	None
See Note	See Note	Explicit VR, Lossy JPEG 12-bit Image Compression	1.2.840.10008.1.2.4.51	SCP	None
See Note	See Note	Explicit VR, Lossless JPEG, Non-hierarchical First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
See Note	See Note	DICOM RLE Lossless Transfer Syntax	1.2.840.10008.1.2.5	SCP	None
See note	See Note	JPEG 2000 Lossy (Baseline)	1.2.840.10008.1.2.4.91	SCP	None
See note	See Note	JPEG 2000 Lossless	1.2.840.10008.1.2.4.90	SCP	None

NOTE: These presentation contexts are accepted for all service SOP classes listed in Table 3.1.

### 3.1.3.2.2.1 SOP Specific Conformance – Verification

This AE provides standard conformance to the Verification SOP Class as an SCP.

### 3.1.3.2.2.2 SOP Specific Conformance - Query/Retrieve

The AE provides standard conformance to this SOP Class as an SCP. Optional keys are not supported. Relational queries are not supported. It shall support C-STORE sub-operations for the Storage SOP Classes listed in Table 3.1.

### 3.1.3.2.3 Presentation Context Acceptance Criterion

This AE will accept the Presentation Contexts given in Table 3.5.

### 3.1.3.2.4 Transfer Syntax Selection Policies

Gateway Router prefers to receive images encoded using an explicit transfer syntax. Duplicate Presentation Contexts will not be accepted. If it is offered three identical Presentation Contexts, each of which offers any of the three acceptable Transfer Syntaxes, it will accept all Presentation Contexts, but with different Transfer Syntaxes in each. Other transfer syntax policies may be configured in the Station List.

## 4 Communication Profiles

### 4.1 Supported Communications Stacks

All RamSoft AE's provide DICOM V3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

### 4.2 TCP/IP Stack

All RamSoft AE's inherit their TCP/IP stack from the Windows system upon which they execute. Gateway Router has been tested with Winsock 2.2 on Windows XP, Vista, and 2003 Server.

#### 4.2.1 Physical Media Support

All RamSoft AE's are indifferent to the physical medium over which TCP/IP executes; they inherit this from the Windows system upon which they execute.

## 5 Extensions/Specializations/Privatizations

### 5.1 Image IOD Description

DICOM received images are stored AS IS by Gateway Router. Images that do not contain the mandatory fields for Gateway Router are rejected. Other For each peer station, field mapping may be enabled on Gateway Router to: copy any DICOM tag to another DICOM tag, move any DICOM tag to another DICOM tag, and delete any DICOM tag. This feature is intended to compensate for variances in the interpretation of DICOM by different vendors to allow seamless connectivity with Gateway Router.

#### **Table 5.1 Image IOD Specifications**

Entity Name	Tag	Type	Module Name	Details
Patient's Name	(0010,0010)	2	Patient	This field is mandatory for Gateway Router. At a minimum, the last name must be present.
Patient ID	(0010,0020)	2	Patient	This field is mandatory for Gateway Router.
Study Instance UID	0020,000D)	1	Study	This field is mandatory for Gateway Router.
Accession Number	(0008,0050)	2	Study	This field is essential for RIS connectivity, but not mandatory for Gateway Router.
Series Instance UID	(0020,000E)	1	General Series	This field is mandatory for Gateway Router.
Series Number	(0020,0011)	2	General Series	The first series of a study is assigned the number 1 for acquired and imported images. This acquisition number is incremented for each successive image.
Derivation Description	(0008,2111)	3	General Image	If JPEG lossy compression is used to save the image, this is set to "JPEG Lossy N:1" to indicate the lossy compression ratio used. This field is displayed as an overlay on the image to indicate the lossy compression ratio of images.
Lossy Image Compression	(0028,2110)	3	General Image	Set to "01" if the image has been subjected to lossy image compression.
Lossy Image Compression Ratio	(0028,2112)	3	General Image	Set to the approximate lossy compression ratio that has been applied to the image e.g. 30 for 30:1 compression.

## 6 Configuration

### 6.1 AE Title/Presentation Address Mapping

The mapping from AE Title to TCP/IP addresses and ports is configurable through the Station List. Refer to the User Manual.

### 6.2 Configurable Parameters

- For SCP, AE Title, TCP/IP address, port, TLS port, a list of external DICOM hosts which act as SCUs, field mapping to apply to DICOM objects from each SCU
- For SCU, a list of external DICOM hosts which act as SCPs, ports and AE titles for the SCPs, whether or not to use TLS
- The minimum amount of disk space required to accept DICOM images
- The number of concurrent associations
- The network timeout interval
- The communication retry interval

- Enabling and disabling compressed transfer syntaxes and selecting their priority

## 7 Support of Extended Character Sets

Gateway Router supports the ISO\_IR 100 extended character set.

## 8 Security Profiles

Gateway Router supports the Basic TLS Secure Transport Connection Profile utilizing the framework and negotiation mechanism specified by the Transport Layer Security Version 1.0 protocol. This feature is enabled using the Station List. A private key and certificate must be generated and peer certificates must be installed for all connected SCUs. Care must be taken while creating and exchanging certificates ensuring the privacy and authenticity of them.

<b>Supported TLS Feature</b>	<b>Mechanism</b>
Entity Authentication	RSA based certificates
Exchange of Master Secrets	RSA
Data Integrity	SHA
Privacy	Triple DES EDE, CBC

Gateway Router will accept TLS connections on the port selected in the Station List. The default port is 2762, the registered port for the DICOM Upper Layer Protocol on TLS.

When an integrity check fails, the association will be aborted.