

Ambra Gateway
DICOM Conformance
Statement

Table of Contents

1 Definitions.....	3
2 Conformance Statement Overview.....	3
2.1 Query / Retrieve.....	3
2.2 Image, Waveform, Measurements and Reports Transfer/Storing.....	4
3 Introduction.....	6
3.1 Purpose.....	6
4 Networking.....	7
4.1 Implementation Model.....	7
4.1.1 Application Data Flow.....	7
4.1.2 Functional Definition of Application Entities.....	8
4.1.2.1 Store SCU.....	8
4.1.2.2 Store SCP.....	8
4.1.2.3 Find SCU.....	8
4.1.2.4 Move SCU.....	8
4.1.2.5 Find SCP, Get SCP, Move SCP.....	9
4.1.3 Sequencing of Real World Activities.....	9
4.2 AE Specifications.....	9
4.2.1 Store SCU.....	9
4.2.1.1 SOP Classes.....	9
4.2.1.2 Association Policies.....	11
4.2.1.3 Association Initiation Policy.....	12
4.2.2 Store SCP.....	14
4.2.2.1 SOP Classes.....	14
4.2.2.2 Association Policies.....	16
4.2.2.3 Association Acceptance Policy.....	17
4.2.3 Find SCU and Move SCU.....	18
4.2.3.1 SOP Classes.....	18
4.2.3.2 Association Policies.....	21
4.2.3.3 Association Initiation Policy.....	22
4.2.4 Find SCP, Get SCP and Move SCP.....	26
4.2.4.1 SOP Classes.....	26
4.2.4.2 Association Policies.....	28
4.2.4.3 Association Acceptance Policy.....	29
4.3 Network Interfaces.....	33
4.3.1 Physical Network Interfaces.....	33
4.4 Configuration.....	33
4.4.1 Gateway Settings.....	33

1 Definitions

Acronym/Terms	Definitions
AE	Application Entity
DICOM	Digital Imaging and Communications in Medicine
IOD	Information Object Definition
IP	Internet Protocol
PDU	Protocol Data Unit
RQ	Request
SCP	Service Class Provider
SCU	Service Class User
SOP	Service Object Pair
TCP/IP	Transmission Control Protocol/Internet Protocol
UID	Unique Identifier

2 Conformance Statement Overview

This section is an abbreviated DICOM conformance statement for the Ambra Gateway, a software application produced by Ambra for the transfer of medical imaging.

Tables of Supported Networking DICOM Service Object Pair (SOP) Classes are provided with roles (User /Provider), organized in 2 categories: Query / Retrieve and Transfer.

2.1 Query / Retrieve

SOP Class Information Model	UID	SCU	SCP
FIND Study Root Query/Retrieve Information Model	1.2.840.10008.5.1.4.1.2.2.1	YES	YES
MOVE Study Root Query/Retrieve Information Model	1.2.840.10008.5.1.4.1.2.2.2	YES	YES
GET Study Root Query/Retrieve Information Model	1.2.840.10008.5.1.4.1.2.2.3	NO	YES
FIND Patient Root Query/Retrieve Information Model	1.2.840.10008.5.1.4.1.2.1.1	YES	YES
MOVE Patient Root Query/Retrieve Information Model	1.2.840.10008.5.1.4.1.2.1.2	YES	YES
GET Patient Root Query/Retrieve Information Model	1.2.840.10008.5.1.4.1.2.1.3	NO	YES

2.2 Image, Waveform, Measurements and Reports Transfer/Storing

SOP Classes	UID	SCU	SCP
AmbulatoryECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.3	YES	YES
BasicTextSR	1.2.840.10008.5.1.4.1.1.88.11	YES	YES
BasicVoiceAudioWaveformStorage	1.2.840.10008.5.1.4.1.1.9.4.1	YES	YES
CTImageStorage	1.2.840.10008.5.1.4.1.1.2	YES	YES
CardiacElectrophysiologyWaveformStorage	1.2.840.10008.5.1.4.1.1.9.3.1	YES	YES
ChestCADSR	1.2.840.10008.5.1.4.1.1.88.65	YES	YES
ComprehensiveSR	1.2.840.10008.5.1.4.1.1.88.33	YES	YES
ComputedRadiographylImageStorage	1.2.840.10008.5.1.4.1.1.1	YES	YES
DigitalIntraOralXRayImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.3	YES	YES
DigitalIntraOralXRayImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.3.1	YES	YES
DigitalMammographyXRayImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.2	YES	YES
DigitalMammographyXRayImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.2.1	YES	YES
DigitalXRayImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.1	YES	YES
DigitalXRayImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.1.1	YES	YES
EncapsulatedPDFStorage	1.2.840.10008.5.1.4.1.1.104.1	YES	YES
EnhancedCTImageStorage	1.2.840.10008.5.1.4.1.1.2.1	YES	YES
EnhancedMRIImageStorage	1.2.840.10008.5.1.4.1.1.4.1	YES	YES
EnhancedSR	1.2.840.10008.5.1.4.1.1.88.22	YES	YES
GeneralECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.2	YES	YES
GrayscaleSoftcopyPresentationStateStorage	1.2.840.10008.5.1.4.1.1.11.1	YES	YES
Hardcopy Color Image Storage	1.2.840.10008.5.1.1.30	YES	YES
Hardcopy Grayscale Image	1.2.840.10008.5.1.1.29	YES	YES
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	YES	YES
KeyObjectSelectionDocument	1.2.840.10008.5.1.4.1.1.88.59	YES	YES
MRIImageStorage	1.2.840.10008.5.1.4.1.1.4	YES	YES
MRSpectroscopyStorage	1.2.840.10008.5.1.4.1.1.4.2	YES	YES
MammographyCADSR	1.2.840.10008.5.1.4.1.1.88.50	YES	YES
MultiframeGrayscaleByteSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.2	YES	YES
MultiframeGrayscaleWordSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.3	YES	YES
MultiframeSingleBitSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.1	YES	YES
MultiframeTrueColorSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.4	YES	YES

SOP Classes	UID	SCU	SCP
NuclearMedicineImageStorage	1.2.840.10008.5.1.4.1.1.20	YES	YES
NuclearMedicineImageStorage - Retired	1.2.840.10008.5.1.4.1.1.5	YES	YES
OphthalmicPhotography16BitImageStorage	1.2.840.10008.5.1.4.1.1.77.1.5.2	YES	YES
OphthalmicPhotography8BitImageStorage	1.2.840.10008.5.1.4.1.1.77.1.5.1	YES	YES
PETCurveStorage	1.2.840.10008.5.1.4.1.1.129	YES	YES
PETImageStorage	1.2.840.10008.5.1.4.1.1.130	YES	YES
PETImageStorage - Retired	1.2.840.10008.5.1.4.1.1.128	YES	YES
ProcedureLogStorage	1.2.840.10008.5.1.4.1.1.88.40	YES	YES
RTBeamsTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.4	YES	YES
RTBrachyTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.6	YES	YES
RTDoseStorage	1.2.840.10008.5.1.4.1.1.481.2	YES	YES
RTImageStorage	1.2.840.10008.5.1.4.1.1.481.1	YES	YES
RTPlanStorage	1.2.840.10008.5.1.4.1.1.481.5	YES	YES
RTStructureSetStorage	1.2.840.10008.5.1.4.1.1.481.3	YES	YES
RTTreatmentSummaryRecordStorage	1.2.840.10008.5.1.4.1.1.481.7	YES	YES
RawDataStorage	1.2.840.10008.5.1.4.1.1.66	YES	YES
SecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7	YES	YES
SpatialFiducialsStorage	1.2.840.10008.5.1.4.1.1.66.2	YES	YES
SpatialRegistrationStorage	1.2.840.10008.5.1.4.1.1.66.1	YES	YES
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9	YES	YES
Standalone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10	YES	YES
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	YES	YES
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11	YES	YES
StereometricRelationshipStorage	1.2.840.10008.5.1.4.1.1.77.1.5.3	YES	YES
Storage Stored Print Storage	1.2.840.10008.5.1.1.27	YES	YES
TwelveLeadECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.1	YES	YES
UltrasoundImageStorage	1.2.840.10008.5.1.4.1.1.6	YES	YES
UltrasoundImageStorage - Retired	1.2.840.10008.5.1.4.1.1.3	YES	YES
UltrasoundMultiframeImageStorage	1.2.840.10008.5.1.4.1.1.3.1	YES	YES
VLEndoscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.1	YES	YES
VL Image Storage Retired	1.2.840.10008.5.1.4.1.1.77.1	YES	YES
VLMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.2	YES	YES
VL Multi-frame Image Storage Retired	1.2.840.10008.5.1.4.1.1.77.2	YES	YES
VLPotographicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.4	YES	YES

SOP Classes	UID	SCU	SCP
VL Slide Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	YES	YES
VideoEndoscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.1.1	YES	YES
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	YES	YES
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	YES	YES
X-Ray Angiographic BiPlane Image Storage Retired	1.2.840.10008.5.1.4.1.1.12.3	YES	YES
XRayAngiographicImageStorage	1.2.840.10008.5.1.4.1.1.12.1	YES	YES
XRayFluoroscopyImageStorage	1.2.840.10008.5.1.4.1.1.12.2	YES	YES

3 Introduction

3.1 Purpose

This is the DICOM 3.0 Conformance Statement for Ambra Gateway software produced by Ambra. The solution is in direct compliance with the DICOM Standard.

The Ambra Gateway is a Microsoft® Windows® based DICOM solution that runs automatically as a Microsoft Windows service and is easily configured to support all DICOM reports and image types, using any compression type. The system supports most DICOM services including: Verification, Store, Query/ Retrieve, Modality Worklist and Storage Commitment. It is ideally suited as a plug-in to any server or workstation environment and integrates seamlessly with the Ambra Cloud environment.

4 Networking

4.1 Implementation Model

4.1.1 Application Data Flow

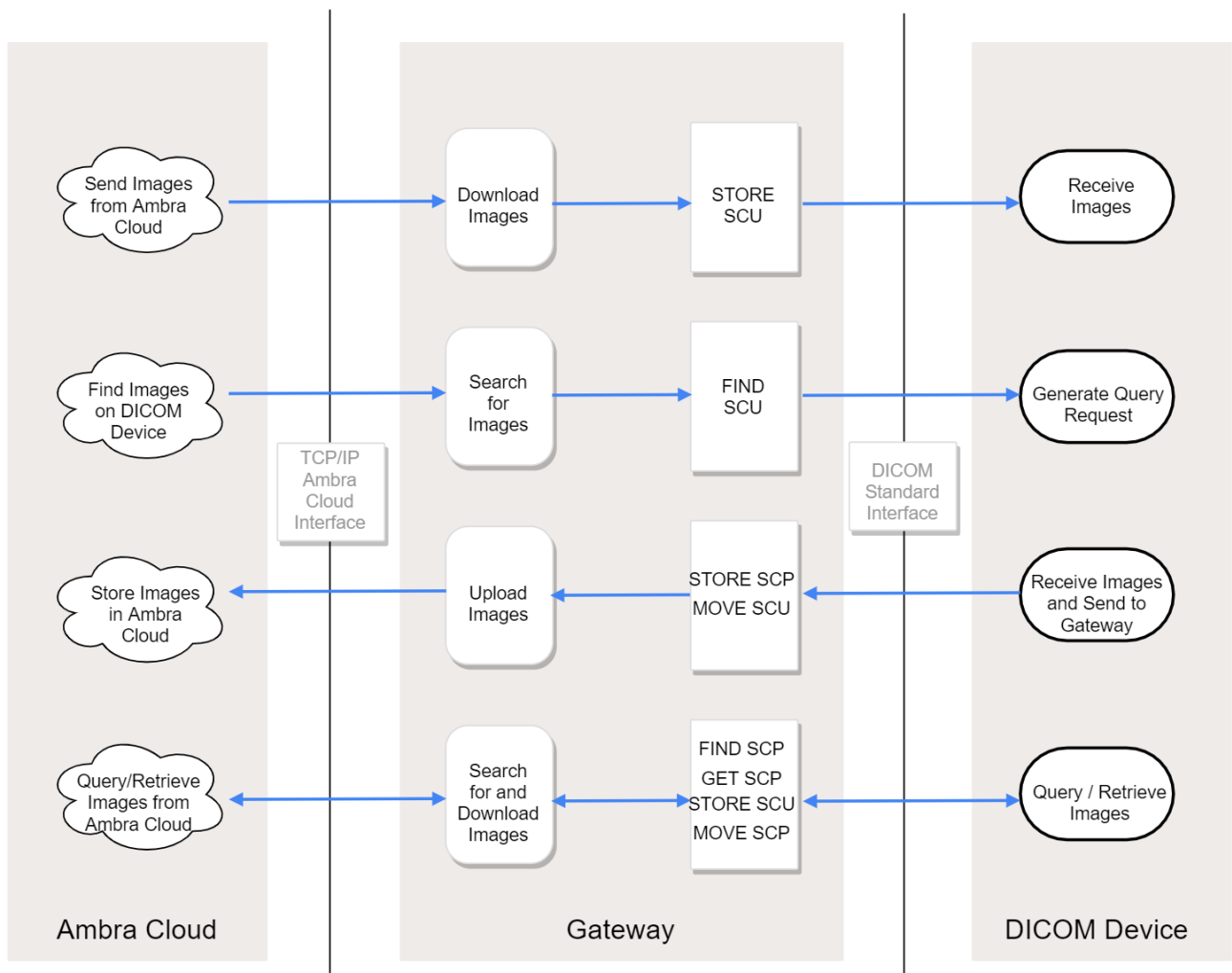


Figure 1: The Application Data Flow Diagram

4.1.2 Functional Definition of Application Entities

The Application Entities (AEs) SCP & SCU detailed in the application data flow diagram are all included in the Ambra Gateway application software for the transfer to and from Ambra's cloud archive.

They may be invoked multiple times and the instances may operate simultaneously and asynchronously.

4.1.2.1 Store SCU

The Ambra Gateway can send DICOM objects by initiating C-STORE associations. The user can select the destination AE via the Ambra website or via configured automated routing rules. The user can configure the application for transcoding, anonymization or filtering of the DICOM objects before they are sent.

4.1.2.2 Store SCP

The Ambra Gateway can accept C-STORE associations at any time, including multiple associations at the same time . Each object received through this association are written to the disk temporarily before being uploaded to the Ambra cloud archive. By default, the Ambra Gateway is promiscuous (all AETitles are accepted).

4.1.2.3 Find SCU

The Ambra Gateway can initiate C-FIND associations to browse and search studies on any DICOM device. The C-FIND can be at the PATIENT, STUDY, SERIES or IMAGE level.

4.1.2.4 Move SCU

Following a successful C-FIND query , the user can retrieve the selected studies by initiating a C-MOVE association. The images are received and uploaded to the Ambra cloud archive.

4.1.2.5 Find SCP, Get SCP, Move SCP

The Ambra Gateway acts as a DICOM server, responding to DICOM queries and retrieves from DICOM devices. It can respond to C-FIND requests at the PATIENT, STUDY , SERIES or IMAGE level. It can respond to C-GET requests and respond to C -MOVE requests at the PATIENT , STUDY , SERIES or IMAGE level by returning the requested images to the requesting DICOM device or other designated AE Title.

4.1.3 Sequencing of Real World Activities

All the application entities are asynchronous processes that can run at the same time. All DICOM objects are temporarily stored on the Ambra Gateway until they have been transferred to the Ambra cloud archive or to a DICOM device.

4.2 AE Specifications

4.2.1 Store SCU

4.2.1.1 SOP Classes

The Ambra Gateway C-STORE SCU provides standard conformance to the following DICOM 3.0 SOP Classes:

SOP Classes	UID	SCU
AmbulatoryECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.3	YES
BasicTextSR	1.2.840.10008.5.1.4.1.1.88.11	YES
BasicVoiceAudioWaveformStorage	1.2.840.10008.5.1.4.1.1.9.4.1	YES
CTImageStorage	1.2.840.10008.5.1.4.1.1.2	YES
CardiacElectrophysiologyWaveformStorage	1.2.840.10008.5.1.4.1.1.9.3.1	YES
ChestCADSR	1.2.840.10008.5.1.4.1.1.88.65	YES
ComprehensiveSR	1.2.840.10008.5.1.4.1.1.88.33	YES
ComputedRadiographylmageStorage	1.2.840.10008.5.1.4.1.1.1	YES
DigitalIntraOralXRyImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.3	YES
DigitalIntraOralXRyImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.3.1	YES
DigitalMammographyXRyImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.2	YES
DigitalMammographyXRyImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.2.1	YES

SOP Classes	UID	SCU
DigitalXRayImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.1	YES
DigitalXRayImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.1.1	YES
EncapsulatedPDFStorage	1.2.840.10008.5.1.4.1.1.104.1	YES
EnhancedCTImageStorage	1.2.840.10008.5.1.4.1.1.2.1	YES
EnhancedMRIImageStorage	1.2.840.10008.5.1.4.1.1.4.1	YES
EnhancedSR	1.2.840.10008.5.1.4.1.1.88.22	YES
GeneralECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.2	YES
GrayscaleSoftcopyPresentationStateStorage	1.2.840.10008.5.1.4.1.1.11.1	YES
Hardcopy Color Image Storage	1.2.840.10008.5.1.1.30	YES
Hardcopy Grayscale Image	1.2.840.10008.5.1.1.29	YES
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	YES
KeyObjectSelectionDocument	1.2.840.10008.5.1.4.1.1.88.59	YES
MRIImageStorage	1.2.840.10008.5.1.4.1.1.4	YES
MRSpectroscopyStorage	1.2.840.10008.5.1.4.1.1.4.2	YES
MammographyCADSR	1.2.840.10008.5.1.4.1.1.88.50	YES
MultiframeGrayscaleByteSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.2	YES
MultiframeGrayscaleWordSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.3	YES
MultiframeSingleBitSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.1	YES
MultiframeTrueColorSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.4	YES
NuclearMedicineImageStorage	1.2.840.10008.5.1.4.1.1.20	YES
NuclearMedicineImageStorage - Retired	1.2.840.10008.5.1.4.1.1.5	YES
OphthalmicPhotography16BitImageStorage	1.2.840.10008.5.1.4.1.1.77.1.5.2	YES
OphthalmicPhotography8BitImageStorage	1.2.840.10008.5.1.4.1.1.77.1.5.1	YES
PETCurveStorage	1.2.840.10008.5.1.4.1.1.129	YES
PETImageStorage	1.2.840.10008.5.1.4.1.1.130	YES
PETImageStorage - Retired	1.2.840.10008.5.1.4.1.1.128	YES
ProcedureLogStorage	1.2.840.10008.5.1.4.1.1.88.40	YES
RTBeamsTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.4	YES
RTBrachyTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.6	YES
RTDoseStorage	1.2.840.10008.5.1.4.1.1.481.2	YES
RTImageStorage	1.2.840.10008.5.1.4.1.1.481.1	YES
RTPlanStorage	1.2.840.10008.5.1.4.1.1.481.5	YES
RTStructureSetStorage	1.2.840.10008.5.1.4.1.1.481.3	YES
RTTreatmentSummaryRecordStorage	1.2.840.10008.5.1.4.1.1.481.7	YES
RawDataStorage	1.2.840.10008.5.1.4.1.1.66	YES

SOP Classes	UID	SCU
SecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7	YES
SpatialFiducialsStorage	1.2.840.10008.5.1.4.1.1.66.2	YES
SpatialRegistrationStorage	1.2.840.10008.5.1.4.1.1.66.1	YES
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9	YES
Standalone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10	YES
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	YES
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11	YES
StereometricRelationshipStorage	1.2.840.10008.5.1.4.1.1.77.1.5.3	YES
Storage Stored Print Storage	1.2.840.10008.5.1.1.27	YES
TwelveLeadECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.1	YES
UltrasoundImageStorage	1.2.840.10008.5.1.4.1.1.6	YES
UltrasoundImageStorage - Retired	1.2.840.10008.5.1.4.1.1.3	YES
UltrasoundMultiframeImageStorage	1.2.840.10008.5.1.4.1.1.3.1	YES
VLEndoscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.1	YES
VL Image Storage Retired	1.2.840.10008.5.1.4.1.1.77.1	YES
VLMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.2	YES
VL Multi-frame Image Storage Retired	1.2.840.10008.5.1.4.1.1.77.2	YES
VLPhotographicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.4	YES
VL Slide Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	YES
VideoEndoscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.1.1	YES
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	YES
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	YES
X-Ray Angiographic BiPlane Image Storage Retired	1.2.840.10008.5.1.4.1.1.12.3	YES
XRayAngiographicImageStorage	1.2.840.10008.5.1.4.1.1.12.1	YES
XRayFluoroscopyImageStorage	1.2.840.10008.5.1.4.1.1.12.2	YES

4.2.1.2 Association Policies

The Ambra Gateway can execute a C-STORE association according to the DICOM 3.0 standard to any configured DICOM destination AE Title.

Number of Associations

The default maximum number of simultaneous C-STORE SCU associations is five, but unlimited via configuration.

Synchronous Nature

Each individual association is handled synchronously.

Implementation Identifying Information

The Ambra Gateway Implementation Version Name is DGSTORESCPv3.

4.2.1.3 Association Initiation Policy

The Ambra Gateway C-STORE SCU will initiate a new association to transmit DICOM objects with a C-STORE command when the user requests the sending of data from the Ambra website or via automated routing rules. The proposed Presentation Contexts will match the DICOM objects that are to be exported over this association. Each event is stored in the local log file.

Proposed Presentation Contexts

Name	UID	Role	Ext. Negot.
Implicit VR - Little Endian	1.2.840.10008.1.2	SCU	None
Explicit VR - Little Endian	1.2.840.10008.1.2.1	SCU	None
Deflated Explicit VR - Little Endian	1.2.840.10008.1.2.1.99	SCU	None
Explicit VR - Big Endian	1.2.840.10008.1.2.2	SCU	None
RLE Lossless	1.2.840.10008.1.2.5	SCU	None
JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51	SCU	None
JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57	SCU	None
JPEG Lossless, Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
JPEG-LS Lossless Image Compression	1.2.840.10008.1.2.4.80	SCU	None
JPEG 2000 Image Compression, Lossless	1.2.840.10008.1.2.4.81	SCU	None
JPEG-LS Lossy (Near-Lossless) Image Compression	1.2.840.10008.1.2.4.90	SCU	None
JPEG 2000 Image Compression, Lossy	1.2.840.10008.1.2.4.91	SCU	None
MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	SCU	None

SOP Specific Conformance for SOP Classes

The behavior of the C-STORE SCU when encountering status codes in a C-STORE response is summarized in the table below:

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The remote SCP has successfully received the DICOM object.
Refused	Out of resources	A700-A7FF	The Association is aborted using A-ABORT and the job is marked as failed. The failure is logged and reported to the Ambra cloud.
Refused	Data Set does not match SOP Class	A900-A9FF	The Association is aborted using A-ABORT and the job is marked as failed. The failure is logged and reported to the Ambra cloud.
Error	Cannot Understand	C000-CFFF	The Association is aborted using A-ABORT and the job is marked as failed. The failure is logged and reported to the Ambra cloud.
Warning	Coercion of Data Elements	B000	Image transmission is considered successful but the status meaning is logged.
Warning	Data Set does not match SOP Class	B007	Image transmission is considered successful but the status meaning is logged.
Warning	Elements Discarded	B006	Image transmission is considered successful but the status meaning is logged.
*	*	Any other status code.	The Association is aborted using A-ABORT and the job is marked as failed. The failure is logged and reported to the Ambra cloud.

The behavior of C-STORE SCU during communication failure is summarized in the table below:

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the C-STORE request is marked as failed. The failure is logged and reported to the Ambra cloud.
Association aborted by the SCP or network layers	The C-STORE request is marked as failed. The failure is logged and reported to the Ambra cloud.

4.2.2 Store SCP

4.2.2.1 SOP Classes

The Ambra Gateway C-STORE SCP provides standard conformance to the following DICOM 3.0 SOP Classes:

SOP Classes	UID	SCP
AmbulatoryECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.3	YES
BasicTextSR	1.2.840.10008.5.1.4.1.1.88.11	YES
BasicVoiceAudioWaveformStorage	1.2.840.10008.5.1.4.1.1.9.4.1	YES
CTImageStorage	1.2.840.10008.5.1.4.1.1.2	YES
CardiacElectrophysiologyWaveformStorage	1.2.840.10008.5.1.4.1.1.9.3.1	YES
ChestCADSR	1.2.840.10008.5.1.4.1.1.88.65	YES
ComprehensiveSR	1.2.840.10008.5.1.4.1.1.88.33	YES
ComputedRadiographylmageStorage	1.2.840.10008.5.1.4.1.1.1	YES
DigitalIntraOralXRImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.3	YES
DigitalIntraOralXRImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.3.1	YES
DigitalMammographyXRImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.2	YES
DigitalMammographyXRImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.2.1	YES
DigitalXRImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.1	YES
DigitalXRImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.1.1	YES
EncapsulatedPDFStorage	1.2.840.10008.5.1.4.1.1.104.1	YES
EnhancedCTImageStorage	1.2.840.10008.5.1.4.1.1.2.1	YES
EnhancedMRIImageStorage	1.2.840.10008.5.1.4.1.1.4.1	YES
EnhancedSR	1.2.840.10008.5.1.4.1.1.88.22	YES
GeneralECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.2	YES
GrayscaleSoftcopyPresentationStateStorage	1.2.840.10008.5.1.4.1.1.11.1	YES
Hardcopy Color Image Storage	1.2.840.10008.5.1.1.30	YES
Hardcopy Grayscale Image	1.2.840.10008.5.1.1.29	YES
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	YES
KeyObjectSelectionDocument	1.2.840.10008.5.1.4.1.1.88.59	YES
MRIImageStorage	1.2.840.10008.5.1.4.1.1.4	YES
MRSpectroscopyStorage	1.2.840.10008.5.1.4.1.1.4.2	YES
MammographyCADSR	1.2.840.10008.5.1.4.1.1.88.50	YES
MultiframeGrayscaleByteSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.2	YES

SOP Classes	UID	SCP
MultiframeGrayscaleWordSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.3	YES
MultiframeSingleBitSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.1	YES
MultiframeTrueColorSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.4	YES
NuclearMedicineImageStorage	1.2.840.10008.5.1.4.1.1.20	YES
NuclearMedicineImageStorage - Retired	1.2.840.10008.5.1.4.1.1.5	YES
OphthalmicPhotography16BitImageStorage	1.2.840.10008.5.1.4.1.1.77.1.5.2	YES
OphthalmicPhotography8BitImageStorage	1.2.840.10008.5.1.4.1.1.77.1.5.1	YES
PETCurveStorage	1.2.840.10008.5.1.4.1.1.129	YES
PETImageStorage	1.2.840.10008.5.1.4.1.1.130	YES
PETImageStorage - Retired	1.2.840.10008.5.1.4.1.1.128	YES
ProcedureLogStorage	1.2.840.10008.5.1.4.1.1.88.40	YES
RTBeamsTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.4	YES
RTBrachyTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.6	YES
RTDoseStorage	1.2.840.10008.5.1.4.1.1.481.2	YES
RTImageStorage	1.2.840.10008.5.1.4.1.1.481.1	YES
RTPlanStorage	1.2.840.10008.5.1.4.1.1.481.5	YES
RTStructureSetStorage	1.2.840.10008.5.1.4.1.1.481.3	YES
RTTreatmentSummaryRecordStorage	1.2.840.10008.5.1.4.1.1.481.7	YES
RawDataStorage	1.2.840.10008.5.1.4.1.1.66	YES
SecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7	YES
SpatialFiducialsStorage	1.2.840.10008.5.1.4.1.1.66.2	YES
SpatialRegistrationStorage	1.2.840.10008.5.1.4.1.1.66.1	YES
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9	YES
Standalone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10	YES
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	YES
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11	YES
StereometricRelationshipStorage	1.2.840.10008.5.1.4.1.1.77.1.5.3	YES
Storage Stored Print Storage	1.2.840.10008.5.1.1.27	YES
TwelveLeadECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.1	YES
UltrasoundImageStorage	1.2.840.10008.5.1.4.1.1.6	YES
UltrasoundImageStorage - Retired	1.2.840.10008.5.1.4.1.1.3	YES
UltrasoundMultiframeImageStorage	1.2.840.10008.5.1.4.1.1.3.1	YES
VLEndoscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.1	YES
VL Image Storage Retired	1.2.840.10008.5.1.4.1.1.77.1	YES

SOP Classes	UID	SCP
VLMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.2	YES
VL Multi-frame Image Storage Retired	1.2.840.10008.5.1.4.1.1.77.2	YES
VLPhotographicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.4	YES
VL Slide Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	YES
VideoEndoscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.1.1	YES
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	YES
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	YES
X-Ray Angiographic BiPlane Image Storage Retired	1.2.840.10008.5.1.4.1.1.12.3	YES
XRayAngiographicImageStorage	1.2.840.10008.5.1.4.1.1.12.1	YES
XRayFluoroscopyImageStorage	1.2.840.10008.5.1.4.1.1.12.2	YES

4.2.2.2 Association Policies

The Ambra Gateway can accept C-STORE associations on the configured IP ports (104 and 4006 by default) according to the DICOM 3.0 standard from any DICOM destination AE Title.

Number of Associations

The number of simultaneous C-STORE SCP associations is unlimited.

Synchronous Nature

Each individual association is handled synchronously.

Implementation Identifying Information

The Ambra Gateway Implementation Version Name is DGSTORESCPv3.

4.2.2.3 Association Acceptance Policy

The Ambra Gateway C-STORE SCP will accept new associations to receive DICOM objects with a C-STORE from any DICOM device. By default, the Ambra Gateway is promiscuous (all AE Titles are accepted). AE Title verification is available via configuration.

The proposed Presentation Contexts will match the DICOM objects that are to be imported over this association. Each event is stored in the local log file.

Accepted Presentation Contexts

Name	UID	Role	Ext. Negot.
Implicit VR - Little Endian	1.2.840.10008.1.2	SCP	None
Explicit VR - Little Endian	1.2.840.10008.1.2.1	SCP	None
Deflated Explicit VR - Little Endian	1.2.840.10008.1.2.1.99	SCP	None
Explicit VR - Big Endian	1.2.840.10008.1.2.2	SCP	None
RLE Lossless	1.2.840.10008.1.2.5	SCP	None
JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCP	None
JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51	SCP	None
JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57	SCP	None
JPEG Lossless, Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
JPEG-LS Lossless Image Compression	1.2.840.10008.1.2.4.80	SCP	None
JPEG 2000 Image Compression, Lossless	1.2.840.10008.1.2.4.81	SCP	None
JPEG-LS Lossy (Near-Lossless) Image Compression	1.2.840.10008.1.2.4.90	SCP	None
JPEG 2000 Image Compression, Lossy	1.2.840.10008.1.2.4.91	SCP	None
MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	SCP	None

SOP Specific Conformance for SOP Classes

The status codes summarized in the table below may be returned in the C-STORE response by the C-STORE SCP.

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	Ambra Gateway has successfully received the DICOM object.
Refused	Out of resources	A700-A7FF	The Association is aborted using A-ABORT and the job is marked as failed and logged.
Refused	Data Set does not match SOP Class	A900-A9FF	The Association is aborted using A-ABORT and the job is marked as failed and logged.
Error	Cannot Understand	C000-CFFF	The Association is aborted using A-ABORT and the job is marked as failed and logged.
Warning	Coercion of Data Elements	B000	Image transmission is considered successful but the status meaning is logged.
Warning	Data Set does not match SOP Class	B007	Image transmission is considered successful but the status meaning is logged.
Warning	Elements Discarded	B006	Image transmission is considered successful but the status meaning is logged.
*	*	Any other status code.	The Association is aborted using A-ABORT and the job is marked as failed and logged.

The behavior of C-STORE SCP during communication failure is summarized in the table below:

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the job is marked as failed and logged.
Association aborted by the SCU or network layers	The job is marked as failed and logged.

4.2.3 Find SCU and Move SCU

4.2.3.1 SOP Classes

The Ambra Gateway C-FIND SCU and C-MOVE SCU provide standard conformance to the following DICOM 3.0 SOP Class Information Models:

SOP Class Information Model	UID	Role
FIND Study Root Query/Retrieve Information Model	1.2.840.10008.5.1.4.1.2.2.1	SCU
MOVE Study Root Query/Retrieve Information Model	1.2.840.10008.5.1.4.1.2.2.2	SCU
FIND Patient Root Query/Retrieve Information Model	1.2.840.10008.5.1.4.1.2.1.1	SCU
MOVE Patient Root Query/Retrieve Information Model	1.2.840.10008.5.1.4.1.2.1.2	SCU

The Ambra Gateway C-FIND SCU and C-MOVE SCU provide standard conformance to the following DICOM 3.0 SOP Classes:

SOP Classes	UID	SCU
AmbulatoryECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.3	YES
BasicTextSR	1.2.840.10008.5.1.4.1.1.88.11	YES
BasicVoiceAudioWaveformStorage	1.2.840.10008.5.1.4.1.1.9.4.1	YES
CTImageStorage	1.2.840.10008.5.1.4.1.1.2	YES
CardiacElectrophysiologyWaveformStorage	1.2.840.10008.5.1.4.1.1.9.3.1	YES
ChestCADSR	1.2.840.10008.5.1.4.1.1.88.65	YES
ComprehensiveSR	1.2.840.10008.5.1.4.1.1.88.33	YES
ComputedRadiographyImageStorage	1.2.840.10008.5.1.4.1.1.1	YES
DigitalIntraOralXRayImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.3	YES
DigitalIntraOralXRayImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.3.1	YES
DigitalMammographyXRayImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.2	YES
DigitalMammographyXRayImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.2.1	YES
DigitalXRayImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.1	YES
DigitalXRayImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.1.1	YES
EncapsulatedPDFStorage	1.2.840.10008.5.1.4.1.1.104.1	YES
EnhancedCTImageStorage	1.2.840.10008.5.1.4.1.1.2.1	YES
EnhancedMRIImageStorage	1.2.840.10008.5.1.4.1.1.4.1	YES
EnhancedSR	1.2.840.10008.5.1.4.1.1.88.22	YES
GeneralECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.2	YES
GrayscaleSoftcopyPresentationStateStorage	1.2.840.10008.5.1.4.1.1.11.1	YES
Hardcopy Color Image Storage	1.2.840.10008.5.1.1.30	YES
Hardcopy Grayscale Image	1.2.840.10008.5.1.1.29	YES
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	YES
KeyObjectSelectionDocument	1.2.840.10008.5.1.4.1.1.88.59	YES
MRIImageStorage	1.2.840.10008.5.1.4.1.1.4	YES
MRSpectroscopyStorage	1.2.840.10008.5.1.4.1.1.4.2	YES
MammographyCADSR	1.2.840.10008.5.1.4.1.1.88.50	YES
MultiframeGrayscaleByteSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.2	YES
MultiframeGrayscaleWordSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.3	YES
MultiframeSingleBitSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.1	YES
MultiframeTrueColorSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.4	YES
NuclearMedicineImageStorage	1.2.840.10008.5.1.4.1.1.20	YES

SOP Classes	UID	SCU
NuclearMedicineImageStorage - Retired	1.2.840.10008.5.1.4.1.1.5	YES
OphthalmicPhotography16BitImageStorage	1.2.840.10008.5.1.4.1.1.77.1.5.2	YES
OphthalmicPhotography8BitImageStorage	1.2.840.10008.5.1.4.1.1.77.1.5.1	YES
PETCurveStorage	1.2.840.10008.5.1.4.1.1.129	YES
PETImageStorage	1.2.840.10008.5.1.4.1.1.130	YES
PETImageStorage - Retired	1.2.840.10008.5.1.4.1.1.128	YES
ProcedureLogStorage	1.2.840.10008.5.1.4.1.1.88.40	YES
RTBeamsTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.4	YES
RTBrachyTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.6	YES
RTDoseStorage	1.2.840.10008.5.1.4.1.1.481.2	YES
RTImageStorage	1.2.840.10008.5.1.4.1.1.481.1	YES
RTPlanStorage	1.2.840.10008.5.1.4.1.1.481.5	YES
RTStructureSetStorage	1.2.840.10008.5.1.4.1.1.481.3	YES
RTTreatmentSummaryRecordStorage	1.2.840.10008.5.1.4.1.1.481.7	YES
RawDataStorage	1.2.840.10008.5.1.4.1.1.66	YES
SecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7	YES
SpatialFiducialsStorage	1.2.840.10008.5.1.4.1.1.66.2	YES
SpatialRegistrationStorage	1.2.840.10008.5.1.4.1.1.66.1	YES
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9	YES
Standalone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10	YES
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	YES
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11	YES
StereometricRelationshipStorage	1.2.840.10008.5.1.4.1.1.77.1.5.3	YES
Storage Stored Print Storage	1.2.840.10008.5.1.1.27	YES
TwelveLeadECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.1	YES
UltrasoundImageStorage	1.2.840.10008.5.1.4.1.1.6	YES
UltrasoundImageStorage - Retired	1.2.840.10008.5.1.4.1.1.3	YES
UltrasoundMultiframeImageStorage	1.2.840.10008.5.1.4.1.1.3.1	YES
VLEndoscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.1	YES
VL Image Storage Retired	1.2.840.10008.5.1.4.1.1.77.1	YES
VLMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.2	YES
VL Multi-frame Image Storage Retired	1.2.840.10008.5.1.4.1.1.77.2	YES
VLPhotographicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.4	YES
VL Slide Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	YES

SOP Classes	UID	SCU
VideoEndoscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.1.1	YES
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	YES
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	YES
X-Ray Angiographic BiPlane Image Storage Retired	1.2.840.10008.5.1.4.1.1.12.3	YES
XRayAngiographicImageStorage	1.2.840.10008.5.1.4.1.1.12.1	YES
XRayFluoroscopyImageStorage	1.2.840.10008.5.1.4.1.1.12.2	YES

4.2.3.2 Association Policies

The Ambra Gateway can execute C-FIND and C-MOVE associations according to the DICOM 3.0 standard to any configured DICOM destination AE Title.

Number of Associations

The default maximum number of simultaneous C-FIND SCU associations is five, but unlimited via configuration. The default maximum number of simultaneous C-MOVE SCU associations is also five, but unlimited via configuration.

Synchronous Nature

Each individual association is handled synchronously.

Implementation Identifying Information

The Ambra Gateway Implementation Version Name is DGSTORESCPV3.

4.2.3.3 Association Initiation Policy

The Ambra Gateway C-FIND SCU and C-MOVE SCU can execute PATIENT, STUDY, SERIES or IMAGE level queries and retrieves.

Via configuration, the Ambra Gateway can execute C-FIND requests on any DICOM field. By default, the Ambra Gateway executes C-FIND requests on the following DICOM fields:

Patient level:

- Patients Name
- Patient ID
- Patients Sex
- Patients Date of Birth

Study level:

- Patients Name
- Patient ID
- Patients Sex
- Patients Date of Birth
- Referring Physician Name
- Accession Number
- Study Description
- Study Date
- Study Time
- Study Instance UID
- ModalitiesInStudy
- Number of Study Related Instances

Series level:

- Study Instance UID
- Series Instance UID
- Modality

Image level:

- Study Instance UID
- Series Instance UID
- SOP Instance UID

Proposed Presentation Contexts

Name	UID	Role	Ext. Negot.
Implicit VR - Little Endian	1.2.840.10008.1.2	SCU	None
Explicit VR - Little Endian	1.2.840.10008.1.2.1	SCU	None
Deflated Explicit VR - Little Endian	1.2.840.10008.1.2.1.99	SCU	None
Explicit VR - Big Endian	1.2.840.10008.1.2.2	SCU	None
RLE Lossless	1.2.840.10008.1.2.5	SCU	None
JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51	SCU	None
JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57	SCU	None
JPEG Lossless, Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCU	None
JPEG-LS Lossless Image Compression	1.2.840.10008.1.2.4.80	SCU	None
JPEG 2000 Image Compression, Lossless	1.2.840.10008.1.2.4.81	SCU	None
JPEG-LS Lossy (Near-Lossless) Image Compression	1.2.840.10008.1.2.4.90	SCU	None
JPEG 2000 Image Compression, Lossy	1.2.840.10008.1.2.4.91	SCU	None
MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	SCU	None

SOP Specific Conformance for SOP Classes

The behavior of the C-FIND SCU when encountering status codes in a C-FIND response is summarized in the table below:

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	Ambra Gateway has successfully sent and received the response to the C-FIND request.
Refused	Out of resources	A700-A7FF	The Association is aborted using A-ABORT and the job is marked as failed and logged.
Refused	Data Set does not match SOP Class	A900-A9FF	The Association is aborted using A-ABORT and the job is marked as failed and logged.
Error	Cannot Understand	C000-CFFF	The Association is aborted using A-ABORT and the job is marked as failed and logged.
Warning	Coercion of Data Elements	B000	C-FIND request is considered successful but the status meaning is logged.
Warning	Data Set does not match SOP Class	B007	C-FIND request is considered successful but the status meaning is logged.
Warning	Elements Discarded	B006	C-FIND request is considered successful but the status meaning is logged.
*	*	Any other status code.	The Association is aborted using A-ABORT and the job is marked as failed and logged.

The behavior of C-FIND SCU during communication failure is summarized in the table below:

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the C-FIND request is marked as failed and logged.
Association aborted by the SCP or network layers	The C-FIND request is marked as failed and logged.

The behavior of the C-MOVE SCU when encountering status codes in a C-MOVE response is summarized in the table below:

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	Ambra Gateway has successfully sent and received the response to the C-MOVE request.
Refused	Out of resources	A700-A7FF	The Association is aborted using A-ABORT and the job is marked as failed and logged.
Refused	Data Set does not match SOP Class	A900-A9FF	The Association is aborted using A-ABORT and the job is marked as failed and logged.
Error	Cannot Understand	C000-CFFF	The Association is aborted using A-ABORT and the job is marked as failed and logged.
Warning	Coercion of Data Elements	B000	C-MOVE request is considered successful but the status meaning is logged.
Warning	Data Set does not match SOP Class	B007	C-MOVE request is considered successful but the status meaning is logged.
Warning	Elements Discarded	B006	C-MOVE request is considered successful but the status meaning is logged.
*	*	Any other status code.	The Association is aborted using A-ABORT and the job is marked as failed and logged.

The behavior of C-MOVE SCU during communication failure is summarized in the table below:

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the C-MOVE request is marked as failed and logged.
Association aborted by the SCP or network layers	The C-MOVE request is marked as failed and logged.

4.2.4 Find SCP, Get SCP and Move SCP

4.2.4.1 SOP Classes

The Ambra Gateway C-FIND SCP, C-GET SCP and C-MOVE SCP provide standard conformance to the following DICOM 3.0 SOP Class Information Models:

SOP Class Information Model	UID	Role
FIND Study Root Query/Retrieve Information Model	1.2.840.10008.5.1.4.1.2.2.1	SCP
MOVE Study Root Query/Retrieve Information Model	1.2.840.10008.5.1.4.1.2.2.2	SCP
GET Study Root Query/Retrieve Information Model	1.2.840.10008.5.1.4.1.2.2.3	SCP
FIND Patient Root Query/Retrieve Information Model	1.2.840.10008.5.1.4.1.2.1.1	SCP
MOVE Patient Root Query/Retrieve Information Model	1.2.840.10008.5.1.4.1.2.1.2	SCP
GET Patient Root Query/Retrieve Information Model	1.2.840.10008.5.1.4.1.2.1.3	SCP

The Ambra Gateway C-FIND SCP, C-GET SCP and C-MOVE SCP provide standard conformance to the following DICOM 3.0 SOP Classes:

SOP Classes	UID	SCP
AmbulatoryECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.3	YES
BasicTextSR	1.2.840.10008.5.1.4.1.1.88.11	YES
BasicVoiceAudioWaveformStorage	1.2.840.10008.5.1.4.1.1.9.4.1	YES
CTImageStorage	1.2.840.10008.5.1.4.1.1.2	YES
CardiacElectrophysiologyWaveformStorage	1.2.840.10008.5.1.4.1.1.9.3.1	YES
ChestCADSR	1.2.840.10008.5.1.4.1.1.88.65	YES
ComprehensiveSR	1.2.840.10008.5.1.4.1.1.88.33	YES
ComputedRadiographylmageStorage	1.2.840.10008.5.1.4.1.1.1	YES
DigitalIntraOralXRImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.3	YES
DigitalIntraOralXRImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.3.1	YES
DigitalMammographyXRImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.2	YES
DigitalMammographyXRImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.2.1	YES
DigitalXRImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.1	YES
DigitalXRImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.1.1	YES
EncapsulatedPDFStorage	1.2.840.10008.5.1.4.1.1.104.1	YES
EnhancedCTImageStorage	1.2.840.10008.5.1.4.1.1.2.1	YES
EnhancedMRIImageStorage	1.2.840.10008.5.1.4.1.1.4.1	YES
EnhancedSR	1.2.840.10008.5.1.4.1.1.88.22	YES
GeneralECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.2	YES
GrayscaleSoftcopyPresentationStateStorage	1.2.840.10008.5.1.4.1.1.11.1	YES

SOP Classes	UID	SCP
Hardcopy Color Image Storage	1.2.840.10008.5.1.1.30	YES
Hardcopy Grayscale Image	1.2.840.10008.5.1.1.29	YES
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	YES
KeyObjectSelectionDocument	1.2.840.10008.5.1.4.1.1.88.59	YES
MRImageStorage	1.2.840.10008.5.1.4.1.1.4	YES
MRSpectroscopyStorage	1.2.840.10008.5.1.4.1.1.4.2	YES
MammographyCADSR	1.2.840.10008.5.1.4.1.1.88.50	YES
MultiframeGrayscaleByteSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.2	YES
MultiframeGrayscaleWordSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.3	YES
MultiframeSingleBitSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.1	YES
MultiframeTrueColorSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.4	YES
NuclearMedicineImageStorage	1.2.840.10008.5.1.4.1.1.20	YES
NuclearMedicineImageStorage - Retired	1.2.840.10008.5.1.4.1.1.5	YES
OphthalmicPhotography16BitImageStorage	1.2.840.10008.5.1.4.1.1.77.1.5.2	YES
OphthalmicPhotography8BitImageStorage	1.2.840.10008.5.1.4.1.1.77.1.5.1	YES
PETCurveStorage	1.2.840.10008.5.1.4.1.1.129	YES
PETImageStorage	1.2.840.10008.5.1.4.1.1.130	YES
PETImageStorage - Retired	1.2.840.10008.5.1.4.1.1.128	YES
ProcedureLogStorage	1.2.840.10008.5.1.4.1.1.88.40	YES
RTBeamsTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.4	YES
RTBrachyTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.6	YES
RTDoseStorage	1.2.840.10008.5.1.4.1.1.481.2	YES
RTImageStorage	1.2.840.10008.5.1.4.1.1.481.1	YES
RTPlanStorage	1.2.840.10008.5.1.4.1.1.481.5	YES
RTStructureSetStorage	1.2.840.10008.5.1.4.1.1.481.3	YES
RTTreatmentSummaryRecordStorage	1.2.840.10008.5.1.4.1.1.481.7	YES
RawDataStorage	1.2.840.10008.5.1.4.1.1.66	YES
SecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7	YES
SpatialFiducialsStorage	1.2.840.10008.5.1.4.1.1.66.2	YES
SpatialRegistrationStorage	1.2.840.10008.5.1.4.1.1.66.1	YES
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9	YES
Standalone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10	YES
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	YES
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11	YES

SOP Classes	UID	SCP
StereometricRelationshipStorage	1.2.840.10008.5.1.4.1.1.77.1.5.3	YES
Storage Stored Print Storage	1.2.840.10008.5.1.1.27	YES
TwelveLeadECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.1	YES
UltrasoundImageStorage	1.2.840.10008.5.1.4.1.1.6	YES
UltrasoundImageStorage - Retired	1.2.840.10008.5.1.4.1.1.3	YES
UltrasoundMultiframeImageStorage	1.2.840.10008.5.1.4.1.1.3.1	YES
VLEndoscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.1	YES
VL Image Storage Retired	1.2.840.10008.5.1.4.1.1.77.1	YES
VLMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.2	YES
VL Multi-frame Image Storage Retired	1.2.840.10008.5.1.4.1.1.77.2	YES
VLPhotographicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.4	YES
VL Slide Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	YES
VideoEndoscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.1.1	YES
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	YES
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	YES
X-Ray Angiographic BiPlane Image Storage Retired	1.2.840.10008.5.1.4.1.1.12.3	YES
XRayAngiographicImageStorage	1.2.840.10008.5.1.4.1.1.12.1	YES
XRayFluoroscopyImageStorage	1.2.840.10008.5.1.4.1.1.12.2	YES

4.2.4.2 Association Policies

The Ambra Gateway can accept C-FIND, C-GET and C-MOVE associations on the configured IP ports (104 and 4006 by default) according to the DICOM 3.0 standard from any configured DICOM destination AE Title.

Number of Associations

The number of simultaneous associations is unlimited.

Synchronous Nature

Each individual association is handled synchronously.

Implementation Identifying Information

The Ambra Gateway Implementation Version Name is DGSTORESCPv3.

4.2.4.3 Association Acceptance Policy

The Ambra Gateway C-FIND SCP can accept PATIENT, STUDY, SERIES or IMAGE level queries.

Via configuration, the Ambra Gateway can accept C-FIND requests on any DICOM field. The Ambra Gateway also supports Relational Queries by configuration. By default, the Ambra Gateway accepts Hierarchical C-FIND requests on the following DICOM fields:

- Patients Name
- Patient ID
- Patients Sex
- Patients Date of Birth
- Referring Physician Name
- Accession Number
- Study Description
- Study Date
- Study Time
- Study Instance UID
- Series Instance UID
- SOP Instance UID
- Modality

The Study Instance UID is required for Hierarchical SERIES level queries. Study Instance UID and Series Instance UID are required for Hierarchical IMAGE level queries.

The Ambra Gateway C-MOVE SCP can accept PATIENT, STUDY, SERIES or IMAGE level retrieves. The Ambra Gateway accepts C-MOVE requests on the following DICOM fields:

PATIENT level:

- Patient ID (required)

STUDY level:

- Study Instance UID (required)

SERIES level:

- Study Instance UID (required)
- Series Instance UID

IMAGE level:

- Study Instance UID (required)
- Series Instance UID (required)
- SOP Instance UID

Accepted Presentation Contexts

Name	UID	Role	Ext. Negot.
Implicit VR - Little Endian	1.2.840.10008.1.2	SCP	None
Explicit VR - Little Endian	1.2.840.10008.1.2.1	SCP	None
Deflated Explicit VR - Little Endian	1.2.840.10008.1.2.1.99	SCP	None
Explicit VR - Big Endian	1.2.840.10008.1.2.2	SCP	None
RLE Lossless	1.2.840.10008.1.2.5	SCP	None
JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCP	None
JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51	SCP	None
JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57	SCP	None
JPEG Lossless, Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70	SCP	None
JPEG-LS Lossless Image Compression	1.2.840.10008.1.2.4.80	SCP	None
JPEG 2000 Image Compression, Lossless	1.2.840.10008.1.2.4.81	SCP	None
JPEG-LS Lossy (Near-Lossless) Image Compression	1.2.840.10008.1.2.4.90	SCP	None
JPEG 2000 Image Compression, Lossy	1.2.840.10008.1.2.4.91	SCP	None
MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	SCP	None

SOP Specific Conformance for SOP Classes

The C-FIND SCP status codes are summarized in the table below:

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	Ambra Gateway has successfully responded to the C-FIND request.
Refused	Out of resources	A700-A7FF	The Association is aborted using A-ABORT and the job is marked as failed and logged.
Refused	Data Set does not match SOP Class	A900-A9FF	The Association is aborted using A-ABORT and the job is marked as failed and logged.
Error	Cannot Understand	C000-CFFF	The Association is aborted using A-ABORT and the job is marked as failed and logged.
Warning	Coercion of Data Elements	B000	C-FIND request is considered successful but the status meaning is logged.
Warning	Data Set does not match SOP Class	B007	C-FIND request is considered successful but the status meaning is logged.
Warning	Elements Discarded	B006	C-FIND request is considered successful but the status meaning is logged.
*	*	Any other status code.	The Association is aborted using A-ABORT and the job is marked as failed and logged.

The C-FIND SCP failure behavior is summarized in the table below:

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the C-FIND request is marked as failed and logged.
Association aborted by the SCP or network layers	The C-FIND request is marked as failed and logged.

The C-MOVE SCP status codes are summarized in the table below:

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	Ambra Gateway has successfully responded to the C-MOVE request.
Refused	Out of resources	A700-A7FF	The Association is aborted using A-ABORT and the job is marked as failed and logged.
Refused	Data Set does not match SOP Class	A900-A9FF	The Association is aborted using A-ABORT and the job is marked as failed and logged.
Error	Cannot Understand	C000-CFFF	The Association is aborted using A-ABORT and the job is marked as failed and logged.
Warning	Coercion of Data Elements	B000	C-MOVE request is considered successful but the status meaning is logged.
Warning	Data Set does not match SOP Class	B007	C-MOVE request is considered successful but the status meaning is logged.
Warning	Elements Discarded	B006	C-MOVE request is considered successful but the status meaning is logged.
*	*	Any other status code.	The Association is aborted using A-ABORT and the job is marked as failed and logged.

The C-MOVE SCP failure behavior is summarized in the table below:

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the C-MOVE request is marked as failed and logged.
Association aborted by the SCP or network layers	The C-MOVE request is marked as failed and logged.

4.3 Network Interfaces

4.3.1 Physical Network Interfaces

The Ambra Gateway inherits its TCP/IP stack from the Microsoft Windows operating system on which it resides.

4.4 Configuration

4.4.1 Gateway Settings

A large number of settings for the Ambra Gateway can be configured on the 'Gateways' page of the Ambra website. All DICOM devices interacting with the Ambra Gateway can also be configured on the 'Destinations' page of the Ambra website. Detailed information on all Ambra Gateway settings is available on the "Gateway Settings" page.

Name and Place of Business

DICOM Grid (dba Ambra Health)
199 Water Street, 34th Floor
New York, NY 10038

Browser Requirements

Microsoft Internet Explorer 9 or later, Microsoft Edge,
Apple Safari, Google Chrome, Firefox.

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