

DICOM Conformance Statement

EnvoyAI Liaison 1.0

Rev. 01 2020-03-03

1 Conformance Statement Overview

The EnvoyAI platform is a software device that serves as a marketplace and compute environment for 3rd party image processing algorithms. It provides healthcare practitioners access to 3rd party developed or TeraRecon developed (future state) Artificial Intelligence (AI) and deterministic algorithms and uses cloud-based or off-the-shelf hardware for its functionalities. The platform consists of two subsystems – an edge server called EnvoyAI Liaison and the inference compute environment called EnvoyAI Inference.

The intended use of EnvoyAI is to act as an interoperability platform to deploy AI algorithms. It deploys but does not create or generate AI-based algorithms to make inference. An AI algorithm is defined as a medical imaging software algorithm in a Docker™¹ container with inputs and outputs. Inputs and outputs are determined by the algorithm developer. The EnvoyAI platform securely runs the AI algorithms against input data and transmits the generated result and the original data to the Northstar AI Results Explorer™ (Northstar) or iNtuition for review, or to other 3rd party hospital systems such as RIS, PACS, and EMR for archiving.

EnvoyAI Liaison is locally sited software that typically resides inside the hospital system such as the PACS server that accepts the input, DICOM and non-DICOM data, and it performs patient confidentiality tasks like patient de-identification and re-identification. EnvoyAI Liaison handles the invocation of algorithms from the EnvoyAI Inference subsystems, and communication to systems that might be interested in the output from the algorithms.

EnvoyAI Liaison obtains the input data from a hospital system such as PACS and ‘triggers’ algorithms. The triggered task creates a job queue which is sent to the EnvoyAI Inference. A job is considered complete when the AI algorithm returns the output, such as a result or list of findings, back to the EnvoyAI Liaison. The Liaison is responsible for anonymization of the patient health information (PHI) when uploading it to the EnvoyAI Inference Cloud as well as the re-association of the PHI when the AI result is sent back to the Liaison. The Liaison is typically connected to Northstar for review of the AI result along with the original data.

EnvoyAI Liaison communicates with other 3rd party hospital systems such as PACS on the network using DICOM 3.1. The purpose of this document is to describe the conformance of these servers to the DICOM 3.1 Standard as described by the NEMA in the edition 2019b. Thus, this DICOM conformance statement is applicable to EnvoyAI Liaison server.

The EnvoyAI Liaison server supports following listed SOP class:

SOP Class Name	SOP Class UID	SCU	SCP
Network			
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	Yes
Digital X-Ray Image Storage for Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	Yes
Digital X-Ray Image Storage for Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	Yes
Digital Mammography X-Ray Image Storage for Presentation	1.2.840.10008.5.1.4.1.1.1.2	Yes	Yes
Digital Mammography X-Ray Image Storage for Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	Yes
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Yes	Yes

US Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	Yes
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Yes	Yes
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	Yes
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Yes	Yes
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Yes	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Yes	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	Yes
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	Yes	Yes
X-Ray Radioflourosopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes
Enhanced XRF Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	Yes	Yes
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	Yes	Yes
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Yes	Yes
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	Yes	Yes
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Yes	Yes
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	Yes	Yes
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Yes	Yes
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	Yes	Yes
Key Object Selection	1.2.840.10008.5.1.4.1.1.88.59	Yes	Yes
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	Yes	Yes
Colon CAD SR	1.2.840.10008.5.1.4.1.1.88.59	Yes	Yes
Encapsulated PDF	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes

Encapsulated CDA Storage	1.2.840.10008.5.1.4.1.1.104.2	Yes	Yes
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	Yes
Enhanced PET Image Storage	1.2.840.10008.5.1.4.1.1.130	Yes	Yes
Radiation Therapy Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Yes	Yes

Note:

The above list of supported SOP Class is the system default.

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3 Introduction

The EnvoyAI platform is a software device that serves as a marketplace and compute environment for 3rd party image processing algorithms. It provides healthcare practitioners access to 3rd party developed or TeraRecon developed (future state) Artificial Intelligence (AI) and deterministic algorithms and uses cloud-based or off-the- shelf hardware for its functionalities. The platform consists of two subsystems – an edge server called EnvoyAI Liaison and the inference compute environment called EnvoyAI Inference.

The intended use of EnvoyAI is to act as an interoperability platform to deploy AI algorithms. It deploys but does not create or generate AI-based algorithms to make inference. An AI algorithm is defined as a medical imaging software algorithm in a Docker™¹ container with inputs and outputs. Inputs and outputs are determined by the algorithm developer. The EnvoyAI platform securely runs the AI algorithms against input data and transmits the generated result and the original data to the Northstar AI Results Explorer™ (Northstar) or iNtuition for review, or to other 3rd party hospital systems such as RIS, PACS, and EMR for archiving.

EnvoyAI Liaison is locally sited software that typically resides inside the hospital system such as the PACS server that accepts the input, DICOM and non-DICOM data, and it performs patient confidentiality tasks like patient de- identification and re-identification. EnvoyAI Liaison handles the invocation of algorithms from the EnvoyAI Inference subsystems, and communication to systems that might be interested in the output from the algorithms.

EnvoyAI Liaison obtains the input data from a hospital system such as PACS and ‘triggers’ algorithms. The triggered task creates a job queue which is sent to the EnvoyAI Inference. A job is considered complete when the AI algorithm returns the output, such as a result or list of findings, back to the EnvoyAI Liaison. The Liaison is responsible for anonymization of the patient health information (PHI) when uploading it to the EnvoyAI Inference Cloud as well as the re-association of the PHI when the AI result is sent back to the Liaison. The Liaison is typically connected to Northstar for review of the AI result along with the original data.

As such, all these servers communicate with other machines on the network using DICOM 3.1. The purpose of this document is to describe the conformance of EnvoyAI Liaison (EAIL) to the DICOM Standard as described by the NEMA.

3.1 Revision History

Following table provides revision history of this DICOM conformance statement.

Revision #	Description	Date of Release
1	Initial draft for EnvoyAI Liaison server	2020-03-03

3.2 Audience

This DICOM conformance statement is intended for following audiences:

- Hospital staff or Customer
- System integrator of medical equipment
- DICOM Software engineer or designer
- Marketing or Sales personal with DICOM knowledge

3.3 Remarks

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

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

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

The user should be aware of the following important issues:

- Test procedures should be defined to validate the desired level of connectivity.
- The DICOM standard will evolve to meet the users' future requirements

3.4 Definition, Terms and Abbreviation

Definitions, terms and abbreviations used in this document are defined within the different parts of the DICOM standard.

Abbreviations and terms are as follows:

AE	DICOM Application Entity
AET	Application Entity Title
EAIL	EnvoyAI Liaison
ASCE	Association Control Service Element
FSC	File-Set Creator
IOD	Information Object Definition
ISO	International Standard Organization
PDU	Protocol Data Unit
SCU	Service Class User (DICOM client)
SCP	Service Class Provider (DICOM server)
SOP	Service-Object Pair
U	Unique Key Attribute

3.5 References

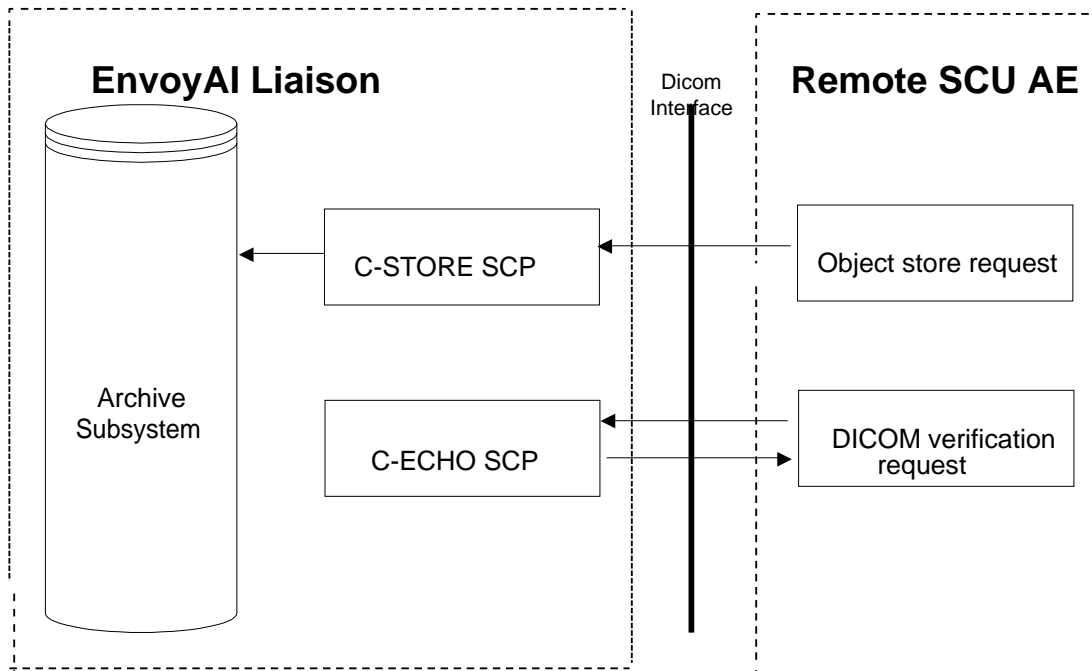
[DICOM] Digital Imaging and Communications in Medicine (DICOM), NEMA PS 3.1, 2019b

4 Networking

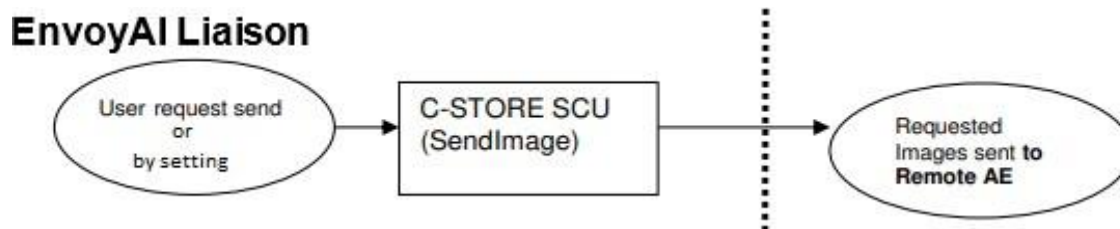
4.1 Implementation Model

4.1.1 Application Data Flow

EAIL implements an Application Entity (AE) which acts as C-STORE / C-ECHO SCP. The diagram below depicts communications as they might occur between an SCU AE and an EAIL AE.



Following diagram provide information about EAIL SCU communication with remote server.



4.1.2 Functional Definitions of AE's

4.1.2.1 *EAIL Network related functions*

EAIL network related functions:

1. Storage of received SOP instances sent to EAIL by a remote SCU AE.
2. EAIL responds to queries about stored instances from a remote SCU AE.
3. EAIL responds to verification requests for the purpose of troubleshooting connectivity problems.

4.1.3 Sequencing Real World Activity

No assumptions are made about the sequencing of real-world activities.

4.2 *AE Specification*

4.2.1 AE Specifications

4.2.1.1 *Storage SOP Classes*

EAIL support standard conformance to the following storage SOP classes as SCU and SCP.

SOP Class Name	SOP Class UID	SCU	SCP
Network			
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	Yes
Digital X-Ray Image Storage for Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	Yes
Digital X-Ray Image Storage for Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	Yes
Digital Mammography X-Ray Image Storage for Presentation	1.2.840.10008.5.1.4.1.1.1.2	Yes	Yes
Digital Mammography X-Ray Image Storage for Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	Yes
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Yes	Yes
US Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	Yes
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Yes	Yes
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	Yes

Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Yes	Yes
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Yes	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Yes	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	Yes
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	Yes	Yes
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes
Enhanced XRF Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	Yes	Yes
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	Yes	Yes
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Yes	Yes
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	Yes	Yes
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Yes	Yes
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	Yes	Yes
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Yes	Yes
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	Yes	Yes
Key Object Selection	1.2.840.10008.5.1.4.1.1.88.59	Yes	Yes
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	Yes	Yes
Colon CAD SR	1.2.840.10008.5.1.4.1.1.88.59	Yes	Yes
Encapsulated PDF	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes
Encapsulated CDA Storage	1.2.840.10008.5.1.4.1.1.104.2	Yes	Yes
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	Yes
Enhanced PET Image Storage	1.2.840.10008.5.1.4.1.1.130	Yes	Yes
Radiation Therapy Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Yes	Yes

4.2.1.3 *Transfer Syntaxes*

EAIL support the transfer syntaxes listed below. For a given SOP, the supported syntax list name (which refers to one of the names listed in the table below) can be found in one of the presentation context tables found later in this document. When EAIL is acting as SCP, the syntax selection policy is from top down as listed below.

Transfer Syntax Table		
Syntax List Name	Transfer Syntax	
Uncompressed Syntax List	Implicit VR Little Endian	1.2.840.10008.1.2
	Explicit VR Little Endian	1.2.840.10008.1.2.1

4.2.2 Association Establishment Policies

4.2.2.1 *General*

EAIL propose the DICOM Application Context Name listed in the table below during the establishment of all associations.

Name	UID
DICOM 3.1 Application Context	1.2.840.10008.3.1.1.1

4.2.2.3 *Asynchronous Nature*

EAIL only support a single outstanding transaction over an existing association. As such, it does not support asynchronous communication.

4.2.2.4 *Implementation Identifying Information*

EAIL will respond with the following implementation identifying parameters:

Implementation Version Name	Implementation Class UID	Platform
TeraRecon.Antare	2.16.840.1.113669.632.21.777	64 Bit Server

4.2.3 Association Initiation by real-world activity

EAIL will initiate C-STORE associations when sending storage requests due either to a triggered auto-routing rule, or at a user's request.

4.2.3.1 *Real-world activity: EAIL AE as C-STORE SCU*

4.2.3.1.1 Associated Real-world activity: Store

EAIL will initiate a C-Store association as SCU when attempting to send SOP Instances to remote AE's. The transfer syntaxes that can be proposed are normally determined using table 4.2.3.1.2. However, they may also propose the transfer syntax that was used to store an instance on disk; i.e. any of the transfer syntaxes for that storage class as listed in table 4.2.4.2.2. If this transfer syntax is accepted by

the SCP, EAIL may send using it if: (1) the SOP instance has a value not equal to 1 for (0028, 0002) Samples Per Pixel, (2) the SOP instance has number of frames > 1, (3) there is a problem sending using the first choice of transfer syntax. Otherwise, it will choose one of the syntaxes negotiated based on the compression settings in the routing configuration.

4.2.3.1.2 Proposed Presentation Contexts: Store

Presentation Context Table				
Abstract Syntax		Transfer Syntax List Name	Role	Extended Negotiation
Name	UID			
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Uncompressed Syntax List	SCU	None
Digital X-Ray Image Storage for Presentation	1.2.840.10008.5.1.4.1.1.1.1	Uncompressed Syntax List	SCU	None
Digital X-Ray Image Storage for Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Uncompressed Syntax List Syntax List	SCU	None
Digital Mammography X-Ray Image Storage for Presentation	1.2.840.10008.5.1.4.1.1.1.2	Uncompressed Syntax List Syntax List	SCU	None
Digital Mammography X-Ray Image Storage for Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Uncompressed Syntax List	SCU	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Uncompressed Syntax List	SCU	None
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Uncompressed Syntax List	SCU	None
US Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Uncompressed Syntax List	SCU	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Uncompressed Syntax List	SCU	None
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Uncompressed Syntax List	SCU	None
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Uncompressed Syntax List	SCU	None

Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Uncompressed Syntax List	SCU	None
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Uncompressed Syntax List	SCU	None
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Uncompressed Syntax List	SCU	None
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Uncompressed Syntax List	SCU	None
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Uncompressed Syntax List	SCU	None
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Uncompressed Syntax List	SCU	None
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	Uncompressed Syntax List	SCU	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Uncompressed Syntax List	SCU	None
Enhanced XRF Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Uncompressed Syntax List	SCU	None
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	Uncompressed Syntax List	SCU	None
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	Uncompressed Syntax List	SCU	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Uncompressed Syntax List	SCU	None
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	Uncompressed Syntax List	SCU	None
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Uncompressed Syntax List	SCU	None

Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	Uncompressed Syntax List	SCU	None
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Uncompressed Syntax List	SCU	None
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	Uncompressed Syntax List	SCU	None
Key Object Selection	1.2.840.10008.5.1.4.1.1.88.59	Uncompressed Syntax List	SCU	None
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	Uncompressed Syntax List	SCU	None
Colon CAD SR	1.2.840.10008.5.1.4.1.1.88.59	Uncompressed Syntax List	SCU	None
Encapsulated PDF	1.2.840.10008.5.1.4.1.1.104.1	Uncompressed Syntax List	SCU	None
Encapsulated CDA Storage	1.2.840.10008.5.1.4.1.1.104.2	Uncompressed Syntax List	SCU	None
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Uncompressed Syntax List	SCU	None
Enhanced PET Image Storage	1.2.840.10008.5.1.4.1.1.130	Uncompressed Syntax List	SCU	None
Radiation Therapy Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Uncompressed Syntax List	SCU	None

4.2.3.1.3 SOP Specific Conformance for all Storage Service Classes

No extended negotiation is supported.

4.2.4 Association Acceptance by real-world activity

EAIL will accept associations for Verification, Storage, and Query / Retrieve requests. AIS will accept C-Store association requests as C-STORE SCP as sub-operations during a C-Move.

4.2.4.1 Real-world activity: EAIL as C-ECHO SCP

EAIL will accept associations for requests using the Verification Service. The association will be closed either by the initiator or aborted by EAIL if certain error conditions arise.

4.2.4.1.1 Associated Real-world activity: Echo

EAIL will respond to an echo request with an echo response.

4.2.4.1.2 Acceptable Presentation Contexts: Echo

Presentation Context Table				
Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID	List Name		
Verification	1.2.840.10008.1.1	Uncompressed Syntax List	SCP	None

4.2.4.1.3 SOP Specific Conformance to Verification Service Class

EAIL supports standard conformance to the Verification Service Class.

4.2.4.1.4 Presentation Context acceptance criterion for Verification

EAIL will accept any of the presentation contexts listed in the table above.

4.2.4.2 Real-world activity: EAIL as C-STORE SCP

EAIL will accept associations for Storage Service requests. The association will be closed either by the initiator or aborted by EAIL if certain error conditions arise.

4.2.4.2.1 Associated Real-world activity: Store

EAIL will accept C-Store association requests as SCP. Received instances are stored to disk. Some attributes of the stored instances will be kept in a database.

4.2.4.2.2 Acceptable Presentation Contexts: Store

Abstract Syntax		Transfer Syntax List Name	Role	Extended Negotiation
Name	UID			
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Uncompressed Syntax List	SCP	None
Digital X-Ray Image Storage for Presentation	1.2.840.10008.5.1.4.1.1.1.1	Uncompressed Syntax List	SCP	None
Digital X-Ray Image Storage for Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Uncompressed Syntax List	SCP	None
Digital Mammography X-Ray Image Storage for Presentation	1.2.840.10008.5.1.4.1.1.1.2	Uncompressed Syntax List	SCP	None

Digital Mammography X-Ray Image Storage for Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Uncompressed Syntax List	SCP	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Uncompressed Syntax List	SCP	None
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Uncompressed Syntax List	SCP	None
US Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Uncompressed Syntax List	SCP	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Uncompressed Syntax List	SCP	None
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Uncompressed Syntax List	SCP	None
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Uncompressed Syntax List	SCP	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Uncompressed Syntax List	SCP	None
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Uncompressed Syntax List	SCP	None
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Uncompressed Syntax List	SCP	None
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Uncompressed Syntax List	SCP	None
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Uncompressed Syntax List	SCP	None
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Uncompressed Syntax List	SCP	None
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	Uncompressed Syntax List	SCP	None

X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Uncompressed Syntax List	SCP	None
Enhanced XRF Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Uncompressed Syntax List	SCP	None
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	Uncompressed Syntax List	SCP	None
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	Uncompressed Syntax List	SCP	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Uncompressed Syntax List	SCP	None
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	Uncompressed Syntax List	SCP	None
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Uncompressed Syntax List	SCP	None
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	Uncompressed Syntax List	SCP	None
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Uncompressed Syntax List	SCP	None
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	Uncompressed Syntax List	SCP	None
Key Object Selection	1.2.840.10008.5.1.4.1.1.88.59	Uncompressed Syntax List	SCP	None
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	Uncompressed Syntax List	SCP	None
Colon CAD SR	1.2.840.10008.5.1.4.1.1.88.59	Uncompressed Syntax List	SCP	None
Encapsulated PDF	1.2.840.10008.5.1.4.1.1.104.1	Uncompressed Syntax List	SCP	None
Encapsulated CDA Storage	1.2.840.10008.5.1.4.1.1.104.2	Uncompressed Syntax List	SCP	None
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Uncompressed Syntax List	SCP	None
Enhanced PET Image Storage	1.2.840.10008.5.1.4.1.1.130	Uncompressed Syntax List	SCP	None

Radiation Therapy Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Uncompressed Syntax List	SCP	None
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4.2.4.2.3 SOP Specific Conformance for all Storage SOP Classes

EAIL supports level 2 (full) conformance to the Storage SOP Classes listed above. EAIL stores all attributes, including those that are private or unknown. A runtime configurable option determines if duplicate instances will be rejected or stored with coercion of (0008,0018) SOP Instance UID.

EAIL sends a response message with one of the following status codes:

Service Status	Status Description	Status Code (0000,0900)	Related Fields
Refused	Out of Resources – There were insufficient resources to process the request. The request was not processed.	A700	None
Error	Data Set does not match SOP Class – A required attribute is not present in the message. The request was not processed.	A900	None
	Cannot understand – The message was not properly encoded. The request was not processed.	C000	None
	Duplicate SOP Instance – An instance with this SOP Instance UID has been stored previously. The request was not processed.	0111	
	Processing failure – A condition arose which prevented the request from being processed.	0110	
Success		0000	None

4.2.4.2.4 Presentation Context acceptance criterion for Storage

EAIL will accept any of the presentation contexts listed above

4.2.4.2.5 Transfer Syntax selection policies for Storage

EAIL selects from available transfer syntaxes from the top down as listed in 4.2.1.3.

4.3 Network Interfaces

EAIL uses FO DICOM Toolkit to communicate over the TCP/IP protocol stack on any physical interconnection media supporting the TCP/IP stack. The Toolkit inherits the TCP/IP stack from the host operating system upon which it executes.

4.4 Configuration

EnvoyAI Liaison using configuration files which are intended to be used by EnvoyAI Liaison service engineers or authorized and trained customers.

5 Support of Character Sets

All EnvoyAI Liaison DICOM applications support following character sets:

Character Set Description	Defined Term
Latin alphabet No. 1	ISO_IR 100
Japanese	ISO 2022 IR 13
Japanese	ISO 2022 IR 87

6 Security

EnvoyAI Liaison servers do not support any specific security measures. It is assumed that EnvoyAI Liaison servers are used within a secured environment. It is assumed that a secured environment includes at a minimum:

- a. Firewall or router protections to ensure that only approved external hosts have network access to EnvoyAI Liaison servers.
- b. Firewall or router protections to ensure that EnvoyAI Liaison only has network access to approved external hosts and services.
- c. Any communication with external hosts and services outside the locally secured environment use appropriate secure network channels (for example, such as a Virtual Private Network, also called VPN)

Other network security procedures such as automated intrusion detection may be appropriate in some environments. Additional security features may be established by the local security policy and are beyond the scope of this conformance statement.