Z45N2200004

FUJIFILM

SYNAPSE 3D

V4.0

Conformance Statement

Revision 1.0.0

Revision History

Revision	Date	Description	Z45N2200004
1.0	2013/11/08	Initial revision.	

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1 Introduction

This document is the DICOM Conformance Statement for SYNAPSE 3D (hereafter referred to as "this product").
This document covers V4.0, and future releases of V4. But the validity of future releases is not guaranteed. Please inquire the details for supported versions if you would like to know.

2 Networking

2.1 Implementation Model

2.1.1 Application Data Flow Diagram
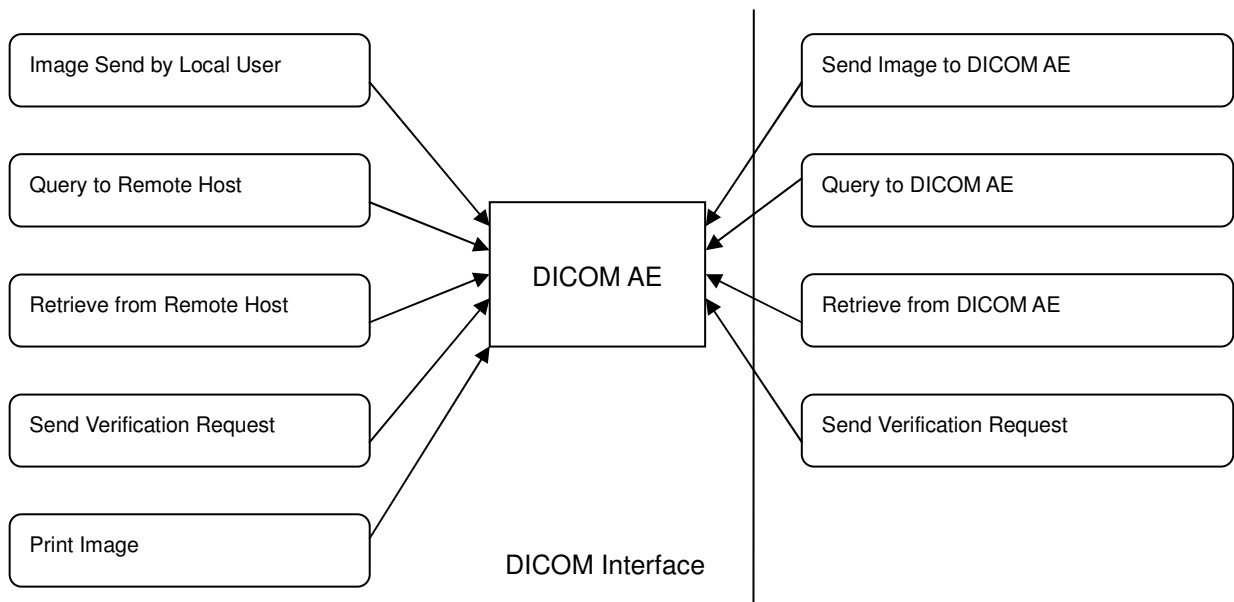
2.1.2 Sequencing of Real World Activities

All connections are asynchronous.

2.2 AE Specification (DICOM AE)

This product can establish multiple associations. When the request for a connection is received from another AE, a process is generated for each request and an association is established.

2.2.1 General

The following Application Context Name is acceptable.

Table 1 Application Context Name

Application Context Name	1.2.840.10008.3.1.1.1

The maximum PDU size for receiving depends on the setting. The default value is 65536.

2.2.2 Number of Associations

The DICOM AE simultaneously accepts and establishes up to 10 associations on the default setting.

2.2.3 Asynchronous Nature

Asynchronous operations are not supported.

2.2.4 Implementation Identifying Information

The Implementation Class UID is: 1.2.392.200036.9125.25185055246156.64531164481.0

The format of the Implementation Version Name is: NAXIS_X_YY (X and YY are the version numbers.)

2.2.5 Activity - Send Verification Request

2.2.5.1 Associated Real World Activity

A user selects a remote AE and pushes the verification send button.

2.2.5.2 Presentation Context

This product can accept the Presentation Context shown in the following table. Extended negotiation is not supported. The Transfer Syntax UID is described in Table 3.

Table 2   Presentation Contexts

SOP Class Name	Abstract Syntax UID	Transfer Syntax
Verification SOP Class	1.2.840.10008.1.1	Implicit VR Little Endian

Table 3   Transfer Syntaxes

Transfer Syntax	Transfer Syntax UID
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70

2.2.5.3 SOP Specific Conformance

This product provides standard conformance for Verification Service Class.

2.2.6 Activity – Query to DICOM AE

2.2.6.1 Associated Real World Activity

The Associated Real World Activity involves creating and storing data files on the disk in response to a data storage request (C-STORE-RQ) from a remote host.

2.2.6.2 Presentation Contexts

This product can accept the Presentation Contexts shown in the following table. Extended negotiation is not supported. The acceptable Transfer Syntaxes are described in Table 3.

Table 4   Presentation Contexts

SOP Class Name	Abstract Syntax UID	Transfer Syntax
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	All of Table 3
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	All of Table 3

Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	All of Table 3
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	All of Table 3
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	All of Table 3
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	All of Table 3
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	All of Table 3
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	All of Table 3
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	All of Table 3
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	All of Table 3
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	All of Table 3

2.2.6.3 Transfer Syntax Selection Policy

It depends on the settings which transfer syntax is accepted. The setting can be changed using the user interface.

2.2.7 Activity – Returning Query Result

2.2.7.1 Associated Real World Activity

The Associated Real-World Activity involves searching the image database and returning results in response to a retrieve request (C-FIND-RQ) from a remote host.

2.2.7.2 Presentation Contexts

This product can accept the Presentation Contexts shown in the following table. Extended negotiation is not supported. The acceptable Transfer Syntaxes are described in Table 3.

Table 5   Presentation Contexts

SOP Class Name	Abstract Syntax UID	Transfer Syntax
Study Root Query / Retrieve Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	All of Table 3

2.2.8 Activity – Retrieve from DICOM AE

2.2.8.1 Associated Real World Activity

The Associated Real-World Activity involves searching the image database and returning images to the AE specified in the request in response to a retrieving request (C-MOVE-RQ) from a remote host.

2.2.8.2 Presentation Contexts

This product can accept the Presentation Contexts shown in the following table. Extended negotiation is not supported. The acceptable Transfer Syntaxes are described in Table 3.

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Table 6   Presentation Contexts

SOP Class Name	Abstract Syntax UID	Transfer Syntax
Study Root Query / Retrieve Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	All of Table 3

2.2.8.3 SOP Specific Conformance

This product implements the Study Root Query/Retrieve of the Query/Retrieve Service Class.

2.2.9 Activity – Send Verification

2.2.9.1 Associated Real World Activity

An associated Real-World Activity involves sending the C-ECHO-RQ to a remote host.

2.2.9.2 Presentation Contexts

This product presents the Presentation Contexts shown in the following table to a remote host.   Extended negotiation is not supported.

Table 7   Presentation Context

SOP Class Name	Abstract Syntax UID	Transfer Syntax
Verification SOP Class	1.2.840.10008.1.1	Implicit VR Little Endian

2.2.10 Activity – Send Image

2.2.10.1 Associated Real-World Activity

The Associated Real World Activity involves sending the data storage request (C-STORE-RQ) to a remote host.

2.2.10.2 Proposed Presentation Contexts

This product presents the Presentation Contexts shown in the following table to a remote host.

Table 8   Presentation Contexts

SOP Class Name	Abstract Syntax UID	Transfer Syntax
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	All of Table 3
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	All of Table 3
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	All of Table 3
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	All of Table 3
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	All of Table 3
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	All of Table 3
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	All of Table 3

Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	All of Table 3
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	All of Table 3
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	All of Table 3
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	All of Table 3

2.2.10.3 Activity – Query to Remote Host

2.2.10.4 Associated Real World Activity

The Associated Real World Activity involves sending the querying request (C-FIND-RQ) to a remote host.

2.2.10.5 Proposed Presentation Contexts

This product presents the Presentation Contexts shown in the following table to a remote host.

Table 9   Presentation Contexts

SOP Class Name	Abstract Syntax UID	Transfer Syntax
Study Root Query / Retrieve Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian

2.2.10.6 Matching Attributes

The following attributes are matched and queried by the SCU according to the query level.

Table 10   Study level query attributes

Name	Tag	Type
Study Date	0008,0020	Matching
Patient's Name	0010,0010	Matching
Patient ID	0010,0020	Matching
Study Instance UID	0020,000D	Retrieve
Study Time	0008,0030	Retrieve
Accession Number	0008,0050	Retrieve
Modalities in Study	0008,0061	Retrieve
Study Description	0008,1030	Retrieve
Patient's Sex	0010,0040	Retrieve
Patient's Age	0010,1010	Retrieve
Private Study Comment	0777,dd10	Retrieve

Table 11   Series level query attributes

Name	Tag	Type

Study Instance UID	0020,000D	Matching
Modality	0008,0060	Retrieve
Series Description	0008,103E	Retrieve
Slice Thickness	0018,0050	Retrieve
Series Instance UID	0020,000E	Retrieve
Series Number	0020,0011	Retrieve
Number of Series Related Instances	0020,1209	Retrieve
Rows	0028,0010	Retrieve
Columns	0028,0011	Retrieve
Pixel Spacing	0028,0030	Retrieve

Table 12   SOP Instance level query attributes

Name	Tag	Type
Study Instance UID	0020,000D	Matching
Series Instance UID	0020,000E	Matching
SOP Instance UID	0008,0018	Retrieve
Instance Number	0020,0013	Retrieve
Image Position (Patient)	0020,0032	Retrieve
Slice Location	0020,1041	Retrieve

2.2.11 Activity – Retrieve Image

2.2.11.1 Associated Real World Activity

The Associated Real World Activity involves sending the retrieving request (C-MOVE-RQ) to a remote host and performing data acquisition.

2.2.11.2 Proposed Presentation Context

This product presents the Presentation Contexts shown in the following table to a remote host.

Table 13   Presentation Contexts

SOP Class Name	Abstract Syntax UID	Transfer Syntax
Study Root Query / Retrieve Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian

2.2.12 Activity – Print Image

2.2.12.1 Associated Real World Activity

The associated Real World Activity is to print images with a network printer using DIMSE-N.

2.2.12.2 Presentation Contexts

This product sends the Presentation Contexts shown in the following table. Extended negotiation is not supported.

Table 14   Presentation Contexts

SOP Class Name	Abstract Syntax UID	Transfer Syntax
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Implicit VR Little Endian
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Implicit VR Little Endian

2.2.12.3 SOP Specific Conformance

This product provides standard conformance for the Print Management Service Class.

2.3 Communication Profiles

2.3.1 Supported Communication Stacks

The DICOM TCP/IP Network Communication Support specified in PS 3.8 of the DICOM Standard is provided.

3 Media Interchange

3.1 Implementation Model

3.1.1 Application Data Flow

3.1.2 Functional Definition of AEs

The Import AE imports DICOM data from an external medium such as CD or DVD. It is associated with the local real

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world activity 'Import' in the Study List screen.

The Export AE exports data which is stored in the local database to an external medium such as CD or DVD. It is associated with the local world activity 'Export' in the Study List screen.

3.1.3 File Meta Information Options

The Implementation Class UID and Implementation Version Name can be either of the following pairs.

Table 15   Implementation Identification 1

Implementation Class UID	1.2.392.200036.9125.25185055246156.64531164481.0
Implementation Version Name	NAXIS_X_YY (X and YY are the version numbers.)

Table 16   Implementation Identification 2

Implementation Class UID	1.2.392.200036.9125.25185055246156.64531164435.0
Implementation Version Name	NAXIS_WS_X_YY (X and YY are the version numbers.)

3.2 AE Specifications

3.2.1 Import AE Specification

The Import AE supports standard conformance to the Media Storage Service Class. The application classes supported are shown in the following table.

Table 17   Supported Application Profiles for Export AE

Application Profile	Role
STD-GEN-CD	FSR
STD-GEN-DVD	FSR

3.2.1.1 Options

The Import AE supports the following pairs of SOP Class and Transfer Syntax for the STD-GEN-CD and STD-GEN-DVD application profiles.

Table 18 Supported Pairs of SOP Class and Transfer Syntax

SOP Class Name	SOP Class UID	Transfer Syntax
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Explicit VR Little Endian, Implicit VR Little Endian, Lossless JPEG (1.2.840.10008.1.2.4.70)
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Explicit VR Little Endian, Implicit VR Little Endian, Lossless JPEG

		(1.2.840.10008.1.2.4.70)
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Explicit VR Little Endian, Implicit VR Little Endian, Lossless JPEG (1.2.840.10008.1.2.4.70)
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Explicit VR Little Endian, Implicit VR Little Endian, Lossless JPEG (1.2.840.10008.1.2.4.70)
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Explicit VR Little Endian, Implicit VR Little Endian, Lossless JPEG (1.2.840.10008.1.2.4.70)
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Explicit VR Little Endian, Implicit VR Little Endian, Lossless JPEG (1.2.840.10008.1.2.4.70)
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Explicit VR Little Endian, Implicit VR Little Endian, Lossless JPEG (1.2.840.10008.1.2.4.70)
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Explicit VR Little Endian, Implicit VR Little Endian, Lossless JPEG (1.2.840.10008.1.2.4.70)
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Explicit VR Little Endian, Implicit VR Little Endian, Lossless JPEG (1.2.840.10008.1.2.4.70)
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Explicit VR Little Endian, Implicit VR Little Endian, Lossless JPEG (1.2.840.10008.1.2.4.70)
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Explicit VR Little Endian, Implicit VR Little Endian, Lossless JPEG (1.2.840.10008.1.2.4.70)

Note:

The Import AE can't read all the transfer syntaxes specified in STD-GEN-DVD, so the Workstation doesn't strictly

conform to STD-GEN-DVD FSR.

3.2.2 Export AE Specification

The Export AE supports standard conformance to the Media Storage Service Class. The application classes supported are shown in the following table.

Table 19   Supported Application Profiles for Export AE

Application Profile	Role
STD-GEN-CD	FSC, FSU
STD-GEN-DVD	FSC, FSU

3.2.2.1 Options

The Export AE supports the following pairs of SOP Class and Transfer Syntax for the STD-GEN-CD and STD-GEN-DVD application profiles.

Table 20 Supported Pairs of SOP Class and Transfer Syntax

SOP Class Name	SOP Class UID	Transfer Syntax
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Explicit VR Little Endian
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Explicit VR Little Endian
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Explicit VR Little Endian
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Explicit VR Little Endian
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Explicit VR Little Endian
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Explicit VR Little Endian
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Explicit VR Little Endian
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Explicit VR Little Endian
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Explicit VR Little Endian
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Explicit VR Little Endian
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Explicit VR Little Endian

4   Support of Character Sets

This product supports the following character set encodings.
ISO 2022 IR 13: JIS X 0201 (Half-width Japanese Kana)
ISO 2022 IR 87: JIS-X 0208 (Full-width Japanese Kanji)

5 Security

5.1 Security Profiles
None Supported.

5.2 Association Level Security
None Supported.

5.3 Application Level Security
None Supported.

6 Annexes

6.1 Created SOP Instances
This product creates SOP instances and some of them have the implementation-specific attributes shown in the following table.

Table 21   Implementation Specific Attributes

Name	Tag	Description
Image Type	0008,0008	The Reformat tool sets the fourth value to 'MIP', 'MIN IP', 'AVERAGE' or 'VOLREN' according to the rendering type. Dental Analysis sets the fourth value to 'NAXIS_DENTAL' and the fifth value to 'BASEPLANE', 'PANORAMA', 'CROSS_SECTION', 'AP' or 'LR'.