

Technical Publication

DICOM Conformance Statement
ConvertingDICOMService
1.2

Document Revision 1

March 20, 2008

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1 Conformance Statement Overview

This is a conformance statement for the BrainLAB software ConvertingDICOMService. The main purpose of this software is to receive DICOM data over the network, save it on the file system and to convert it – if desired – to the BrainLAB file format.

As special feature the ConvertingDICOMService may be controlled by an application. On the one hand the registered application gets information about the start, progress and end of a transfer or conversion. On the other hand it may reject any request and interrupt any ongoing process.

The DICOM part of the application is

- Receive DICOM data from other DICOM nodes (e.g. archives or workstations) via the network and write it to the file system.

Not all of the supported DICOM Storage Classes are convertible to the BrainLAB file format. If the conversion is possible these classes are marked in the column “Convertible”.

SOP Classes	User Of Service (SCU)	Provider Of Service (SCP)	Convertible
Verification			
Verification	–	<input checked="" type="checkbox"/>	–
Transfer			
12-lead ECG Waveform Storage	–	<input checked="" type="checkbox"/>	–
Ambulatory ECG Waveform Storage	–	<input checked="" type="checkbox"/>	–
Basic Text Structured Reporting SOP Class	–	<input checked="" type="checkbox"/>	–
Basic Voice Audio Waveform Storage	–	<input checked="" type="checkbox"/>	–
Cardiac Electrophysiology Waveform Storage	–	<input checked="" type="checkbox"/>	–
Chest CAD SR Storage	–	<input checked="" type="checkbox"/>	–
Comprehensive Structured Reporting SOP Class	–	<input checked="" type="checkbox"/>	–
Computed Radiography Image Storage	–	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
CT Image Storage	–	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Digital Intra-oral X-Ray Image Storage - For Presentation	–	<input checked="" type="checkbox"/>	–
Digital Intra-oral X-Ray Image Storage - For Processing	–	<input checked="" type="checkbox"/>	–
Digital Mammography Image Storage - For Presentation	–	<input checked="" type="checkbox"/>	–
Digital Mammography Image Storage - For Processing	–	<input checked="" type="checkbox"/>	–
Digital X-Ray Image Storage - For Presentation	–	<input checked="" type="checkbox"/>	–
Digital X-Ray Image Storage - For Processing	–	<input checked="" type="checkbox"/>	–
Enhance MR Image Storage	–	<input checked="" type="checkbox"/>	–
Enhanced CT Image Storage	–	<input checked="" type="checkbox"/>	–
Enhanced Structured Reporting SOP Class	–	<input checked="" type="checkbox"/>	–
General ECG Waveform Storage	–	<input checked="" type="checkbox"/>	–
Grayscale Softcopy Presentation State Storage SOP Class	–	<input checked="" type="checkbox"/>	–
Hardcopy Color Image Storage	–	<input checked="" type="checkbox"/>	–
Hardcopy Grayscale Image Storage	–	<input checked="" type="checkbox"/>	–
Hemodynamic Waveform Storage	–	<input checked="" type="checkbox"/>	–

SOP Classes	User Of Service (SCU)	Provider Of Service (SCP)	Convertible
Key Object Selection Document	–	<input checked="" type="checkbox"/>	–
Mammography CAD SR SOP Class	–	<input checked="" type="checkbox"/>	–
MR Image Storage	–	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
MR Spectroscopy Storage	–	<input checked="" type="checkbox"/>	–
Mulfi-frame True Color Secondary Capture Image Storage	–	<input checked="" type="checkbox"/>	–
Multi-frame Grayscale Byte Secondary Capture Image Storage	–	<input checked="" type="checkbox"/>	–
Multi-frame Grayscale Word Secondary Capture Image Storage	–	<input checked="" type="checkbox"/>	–
Multi-frame Single Bit Secondary Capture Image Storage	–	<input checked="" type="checkbox"/>	–
Nuclear Medicine Image Storage	–	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Nuclear Medicine Image Storage (Retired)	–	<input checked="" type="checkbox"/>	–
Ophthalmic 16 bit Photography Image Storage	–	<input checked="" type="checkbox"/>	–
Ophthalmic 8 bit Photography Image Storage	–	<input checked="" type="checkbox"/>	–
Positron Emission Tomography Image Storage	–	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Procedure Log Storage	–	<input checked="" type="checkbox"/>	–
Raw Data Storage	–	<input checked="" type="checkbox"/>	–
RT Beams Treatment Record Storage	–	<input checked="" type="checkbox"/>	–
RT Brachy Treatment Record Storage	–	<input checked="" type="checkbox"/>	–
RT Dose Storage	–	<input checked="" type="checkbox"/>	–
RT Image Storage	–	<input checked="" type="checkbox"/>	–
RT Plan Storage	–	<input checked="" type="checkbox"/>	–
RT Structure Set Storage	–	<input checked="" type="checkbox"/>	–
RT Treatment Summary Record Storage	–	<input checked="" type="checkbox"/>	–
Secondary Capture Image Storage	–	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Spatial Fiducials Storage	–	<input checked="" type="checkbox"/>	–
Spatial Registration Storage	–	<input checked="" type="checkbox"/>	–
Stand-alone Curve Storage	–	<input checked="" type="checkbox"/>	–
Stand-alone Modality LUT Storage	–	<input checked="" type="checkbox"/>	–
Stand-alone Overlay Storage	–	<input checked="" type="checkbox"/>	–
Standalone PET Curve Storage	–	<input checked="" type="checkbox"/>	–
Stand-alone VOI LUT Storage	–	<input checked="" type="checkbox"/>	–
Stereometric Relationship Storage	–	<input checked="" type="checkbox"/>	–
Stored Print Storage	–	<input checked="" type="checkbox"/>	–
Ultrasound Image Storage	–	<input checked="" type="checkbox"/>	–
Ultrasound Image Storage (Retired)	–	<input checked="" type="checkbox"/>	–
Ultrasound Multi-Frame Image Storage	–	<input checked="" type="checkbox"/>	–
Ultrasound Multi-Frame Image Storage (Retired)	–	<input checked="" type="checkbox"/>	–
Video Endoscopic Image Storage	–	<input checked="" type="checkbox"/>	–
Video Microscopic Image Storage	–	<input checked="" type="checkbox"/>	–
Video Photographic Image Storage	–	<input checked="" type="checkbox"/>	–
VL Endoscopic Image Storage	–	<input checked="" type="checkbox"/>	–
VL Microscopic Image Storage	–	<input checked="" type="checkbox"/>	–
VL Photographic Image Storage	–	<input checked="" type="checkbox"/>	–

SOP Classes	User Of Service (SCU)	Provider Of Service (SCP)	Convertible
VL Slide-Coordinates Microscopic Image Storage	–	<input checked="" type="checkbox"/>	–
X-Ray Angiographic Bi-Plane Image Storage (Retired)	–	<input checked="" type="checkbox"/>	–
X-Ray Angiographic Image Storage	–	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
X-Ray Radiofluoroscopic Image Storage	–	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Table 1-1: Network services supported by the ConvertingDICOMService

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3 Introduction

3.1 Revision History

Document Version	Date of Issue	Author	Description
1	March 20, 2008		ConvertingDICOMService 1.2 - initial

3.2 Audience

This document is intended for hospital staff, health system integrators, software designers or implementers. It is assumed that the reader has a working understanding of DICOM.

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. The Conformance Statement should be read and understood in conjunction with the DICOM Standard [1]. 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:

- The comparison of different conformance statements is the first step towards assessing interconnectivity between BrainLAB and non–BrainLAB equipment.
- This Conformance Statement is not intended to replace validation with other DICOM equipment to ensure proper exchange of information. Test procedures should be defined to validate the desired level of connectivity.
- The DICOM standard will evolve to meet the users' future requirements. BrainLAB reserves the right to make changes to its products or to discontinue its delivery.

3.4 Abbreviations

There are a variety of terms and abbreviations used in the document that are defined in the DICOM Standard. Abbreviations and terms are as follows:

AE	DICOM Application Entity
AET	Application Entity Title
IOD	(DICOM) Information Object Definition
ISO	International Standard Organization
PDU	DICOM Protocol Data Unit
SCU	DICOM Service Class User (DICOM client)
SCP	DICOM Service Class Provider (DICOM server)
SOP	DICOM Service-Object Pair

3.5 References

- [1] Digital Imaging and Communications in Medicine (DICOM) 3.0, NEMA PS 3.1-3.18 – 2004



BrainLAB uses DICOM by Merge.

4 Networking

4.1 Implementation Model

The BrainLAB ConvertingDICOMService application is an implementation of:

- A Storage SCP that received DICOM data from other DICOM archives or workstations.
- A module to convert DICOM data into the BrainLAB file format.

4.1.1 Application Data Flow Diagram

The Storage SCP:

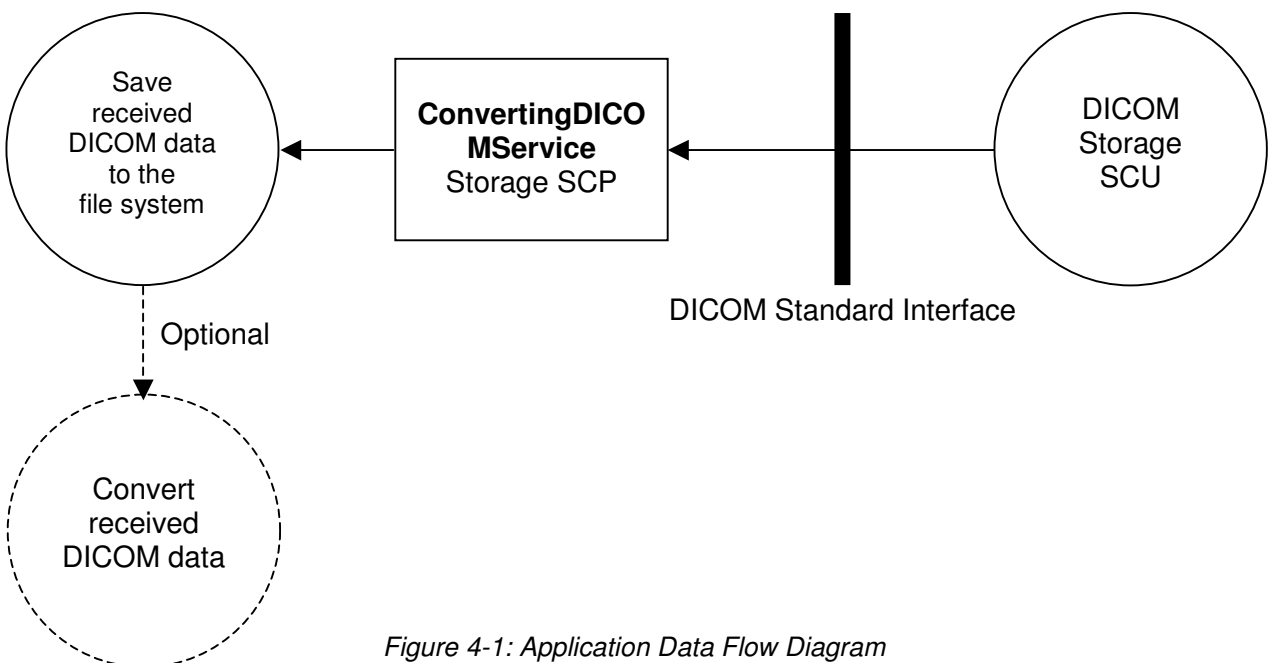


Figure 4-1: Application Data Flow Diagram

4.1.2 Functional Definition of Application Entity (AE)

Some communications and data transfer with remote AE's are accomplished utilizing the DICOM protocol over a network using the TCP/IP protocol stack.

- Storage SCP:
With the start of the ConvertingDICOMService a DICOM Storage SCP is invoked. It accepts any association with a Storage SCU negotiating any of the SOP Classes listed in Table 4-2. Optional the received data is converted to the BrainLAB file format.

4.1.3 Sequencing Of Real World Activities

No sequencing of real world activities is necessary.

4.2 Application Entity Specifications

4.2.1 ConvertingDICOMService Specification

4.2.1.1 SOP Classes and Transfer Syntaxes

The ConvertingDICOMService receives C-ECHO requests in order to test the connection to a remote AE. It provides standard conformance to the following DICOM V3.0 SOP Classes:

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	–	<input checked="" type="checkbox"/>

Table 4-1: Supported Verification SOP Classes

The ConvertingDICOMService is able to receive DICOM storage objects. It provides Standard Conformance to the following DICOM V3.0 SOP Classes:

SOP Class Name	SOP Class UID	SCU	SCP
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	–	<input checked="" type="checkbox"/>
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	–	<input checked="" type="checkbox"/>
Basic Text Structured Reporting SOP Class	1.2.840.10008.5.1.4.1.1.88.11	–	<input checked="" type="checkbox"/>
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	–	<input checked="" type="checkbox"/>
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	–	<input checked="" type="checkbox"/>
Chest CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.65	–	<input checked="" type="checkbox"/>
Comprehensive Structured Reporting SOP Class	1.2.840.10008.5.1.4.1.1.88.33	–	<input checked="" type="checkbox"/>
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	–	<input checked="" type="checkbox"/>
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	–	<input checked="" type="checkbox"/>
Digital Intra-oral X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.3	–	<input checked="" type="checkbox"/>
Digital Intra-oral X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	–	<input checked="" type="checkbox"/>
Digital Mammography Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	–	<input checked="" type="checkbox"/>
Digital Mammography Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	–	<input checked="" type="checkbox"/>
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	–	<input checked="" type="checkbox"/>
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	–	<input checked="" type="checkbox"/>
Enhance MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	–	<input checked="" type="checkbox"/>
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	–	<input checked="" type="checkbox"/>
Enhanced Structured Reporting SOP Class	1.2.840.10008.5.1.4.1.1.88.22	–	<input checked="" type="checkbox"/>
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	–	<input checked="" type="checkbox"/>
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	–	<input checked="" type="checkbox"/>
Hardcopy Color Image Storage	1.2.840.10008.5.1.1.30	–	<input checked="" type="checkbox"/>
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29	–	<input checked="" type="checkbox"/>
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	–	<input checked="" type="checkbox"/>
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	–	<input checked="" type="checkbox"/>

SOP Class Name	SOP Class UID	SCU	SCP
Mammography CAD SR SOP Class	1.2.840.10008.5.1.4.1.1.88.50	–	<input checked="" type="checkbox"/>
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	–	<input checked="" type="checkbox"/>
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	–	<input checked="" type="checkbox"/>
Mulfi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	–	<input checked="" type="checkbox"/>
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	–	<input checked="" type="checkbox"/>
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	–	<input checked="" type="checkbox"/>
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	–	<input checked="" type="checkbox"/>
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	–	<input checked="" type="checkbox"/>
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	–	<input checked="" type="checkbox"/>
Ophthalmic 16 bit Photography Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	–	<input checked="" type="checkbox"/>
Ophthalmic 8 bit Photography Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	–	<input checked="" type="checkbox"/>
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	–	<input checked="" type="checkbox"/>
Procedure Log Storage	1.2.840.10008.5.1.4.1.1.88.40	–	<input checked="" type="checkbox"/>
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	–	<input checked="" type="checkbox"/>
RT Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4	–	<input checked="" type="checkbox"/>
RT Brachy Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.6	–	<input checked="" type="checkbox"/>
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	–	<input checked="" type="checkbox"/>
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	–	<input checked="" type="checkbox"/>
RT Plan Storage	1.2.840.10008.5.1.4.1.1.481.5	–	<input checked="" type="checkbox"/>
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	–	<input checked="" type="checkbox"/>
RT Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7	–	<input checked="" type="checkbox"/>
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	–	<input checked="" type="checkbox"/>
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	–	<input checked="" type="checkbox"/>
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	–	<input checked="" type="checkbox"/>
Stand-alone Curve Storage	1.2.840.10008.5.1.4.1.1.9	–	<input checked="" type="checkbox"/>
Stand-alone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10	–	<input checked="" type="checkbox"/>
Stand-alone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	–	<input checked="" type="checkbox"/>
Standalone PET Curve Storage	1.2.840.10008.5.1.4.1.1.129	–	<input checked="" type="checkbox"/>
Stand-alone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11	–	<input checked="" type="checkbox"/>
Stereometric Relationship Storage	1.2.840.10008.5.1.4.1.1.77.1.5.3	–	<input checked="" type="checkbox"/>
Stored Print Storage	1.2.840.10008.5.1.1.27	–	<input checked="" type="checkbox"/>
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	–	<input checked="" type="checkbox"/>
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	–	<input checked="" type="checkbox"/>
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	–	<input checked="" type="checkbox"/>
Ultrasound Multi-Frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	–	<input checked="" type="checkbox"/>
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	–	<input checked="" type="checkbox"/>
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	–	<input checked="" type="checkbox"/>

SOP Class Name	SOP Class UID	SCU	SCP
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	–	<input checked="" type="checkbox"/>
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	–	<input checked="" type="checkbox"/>
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	–	<input checked="" type="checkbox"/>
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	–	<input checked="" type="checkbox"/>
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	–	<input checked="" type="checkbox"/>
X-Ray Angiographic Bi-Plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	–	<input checked="" type="checkbox"/>
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	–	<input checked="" type="checkbox"/>
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	–	<input checked="" type="checkbox"/>
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	–	<input checked="" type="checkbox"/>
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	–	<input checked="" type="checkbox"/>
Basic Text Structured Reporting SOP Class	1.2.840.10008.5.1.4.1.1.88.11	–	<input checked="" type="checkbox"/>
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	–	<input checked="" type="checkbox"/>
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	–	<input checked="" type="checkbox"/>
Chest CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.65	–	<input checked="" type="checkbox"/>
Comprehensive Structured Reporting SOP Class	1.2.840.10008.5.1.4.1.1.88.33	–	<input checked="" type="checkbox"/>
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	–	<input checked="" type="checkbox"/>

Table 4-2: Supported Storage SOP Classes

The ConvertingDICOMService supports the following transfer syntaxes. In an association negotiation the syntaxes are accepted in the order of appearance in the list.

Transfer Syntax Name	Transfer Syntax UID
DICOM Explicit VR Little Endian	1.2.840.10008.1.2.1
DICOM Implicit VR Little Endian	1.2.840.10008.1.2
DICOM Explicit VR Big Endian	1.2.840.10008.1.2.2
JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70

Table 4-3: Supported Transfer Syntaxes

4.2.1.2 Association Policies

4.2.1.2.1 General

The DICOM standard application context name for DICOM 3.0 is always proposed:

Application Context Name	1.2.840.10008.3.1.1.1
--------------------------	-----------------------

4.2.1.2.2 Number of Associations

For association acceptance:

Maximum number of simultaneous Associations	1 ¹ or n
---------------------------------------------	---------------------

¹ If conversion to BrainLAB file format is enabled only one open association is allowed.

4.2.1.2.3 Asynchronous Nature

The ConvertingDICOMService does not support asynchronous communication (multiple outstanding transactions over a single association).

Maximum number of outstanding asynchronous transactions	1
---------------------------------------------------------	---

4.2.1.2.4 Implementation Identifying Information

The implementation information for this Application Entity is:

Implementation Class UID	1.2.276.0.20.1.4.1.2.0
Implementation Version Name	CDS_1.2

4.2.1.3 Association Initiation Policy

The ConvertingDICOMService never initiates an association.

4.2.1.4 Association Acceptance Policy

The ConvertingDICOMService accepts an association in this case:

1. Receive: When the ConvertingDICOMService accepts an association, it will respond to storage requests.

Associations will be rejected,

- If the Called AE Title does not match the pre-configured AE Title
- If the conversion is enabled and the controlling application decides to reject it.

4.2.1.4.1 Activity – Receive

4.2.1.4.1.1 Associated Real-World Activity

As DICOM storage instances are received they are saved to the local file system. If the received instance is a duplicate of a previously received instance, the old file will be overwritten with the new one.

4.2.1.4.1.2 Proposed Presentation Contexts

Presentation Context Table			
Abstract Syntax	Transfer Syntax	Role	Ext. Neg
All SOP Classes as defined in Table 4-1 and Table 4-2	All Transfer Syntaxes as defined in Table 4-3	SCU	None
		SCU	None
		SCU	None

Table 4-4: Storage SCP Presentation Contexts.

4.2.1.4.1.3 SOP Specific Conformance

The ConvertingDICOMService provides standard conformance to the DICOM Verification Service Class and to the DICOM Storage SOP Classes. No extended negotiation is implemented.

If the conversion of DICOM instances is enabled the registered application, which controls the ConvertingDICOMService, may interrupt the transfer at any point. The ConvertingDICOMService then aborts the association immediately after it got the interrupt signal.

4.2.1.4.1.4 Presentation Context Acceptance Criterion

The ConvertingDICOMService accepts multiple presentation contexts containing the same abstract syntax.

4.2.1.4.1.5 Transfer Syntax Selection Policy

The first Transfer Syntax encountered in the configuration file, which matches a Transfer Syntax offered for a given Presentation Context, will be selected as the accepted Transfer Syntax for that Presentation Context.

4.3 Network Interfaces

4.3.1 Physical Network Interface

The ConvertingDICOMService supports the DICOM upper layer using TCP/IP. The ConvertingDICOMService is indifferent to the physical medium over which TCP/IP executes. It inherits this from the operating system upon which it executes.

4.3.2 Additional Protocols

The usage of DNS and DHCP is possible and is based on the network configuration of the operating system upon which the ConvertingDICOMService executes.

4.4 Configuration

All configuration parameters are read out from an application settings file that only may be modified by the BrainLAB support.

4.4.1 AE Title / Presentation Address Mapping

4.4.1.1 Local AE Titles

The local AET of the ConvertingDICOMService is configurable:

Application Entity	Default AE Title	Default TCP/IP Port
ConvertingDICOMService	BRAINLAB_SCP	104

Table 4-5: Local AE Titles.

4.4.1.2 Remote AE Title/Presentation Address Mapping

Since the ConvertingDICOMService accepts associations from any DICOM remote node there is no configuration for remote AETs available.

4.4.2 Parameters

Parameter	Configurable	Default Value
General		
Timeout	Yes	30
Maximum PDU Size	No	28672
SOP Class Support	No	All supported will always be accepted
Transfer Syntax Support	No	All supported will always be accepted
Automatic deletion of received files	Yes	Disabled
Verbose logging	Yes	Disabled
Conversion		
Configuration Enabled	Yes	Enabled
Controlling Application	Yes	No application registered
Automatic deletion of converted files	Yes	Disabled

Table 4-6: Configuration Parameters.

5 Media Interchange

The ConvertingDICOMService doesn't support Media Interchange.

6 Support Of Extended Character Sets

The ConvertingDICOMService supports the

- ISO_IR 100 (ISO 8859-1:1987 Latin Alphabet No. 1 supplementary set)

7 Security Profiles

No security profiles are supported.

8 Annexes

8.1 IOD Contents

8.1.1 Usage Of Attributes From Received IOD's

8.1.1.1 BrainLAB file format

This section describes the requirements on the DICOM data, which shall be converted into the BrainLAB file format. Conversion can be performed on all images of the Transfer SOP Classes in Table 1-1 marked as convertible, which meet the following requirements:

- Only grayscale images can get converted.
- Scout views won't be converted.
- Images with an attribute (0028,0030) Pixel Spacing containing different values for x and y distance² will be rejected.

8.1.1.2 3D X-Ray image treatment

If one of the following criteria is fulfilled the dataset is processed as 3D X-Ray modality:

- (0008,0060) Modality is "XA" and (0008,1090) Manufacturers Model Name is "XtraVision"
- (0029,xx04) for private creator code "Navigation" exists
- (0008,0008) Image Type contains "BrainlabVario3DNavigation"
- (0008,0008) Image Type contains "Vario3D"

8.2 Data Dictionary Of Private Attributes

None supported.

8.3 Coded Terminology And Templates

None supported.

8.4 Grayscale Image Consistency

Not supported.

8.5 Standard Extended/Specialized/Private SOP Classes

None supported.

8.6 Private Transfer Syntaxes

None supported.

² To be more precise: If the difference between both values is greater than 0.001 mm!

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