

Release VA60A / 2026-07 / Revision 13427

syngo.share print

DICOM Conformance Statement

Overview

syngo.share print is able to convert digital data into DICOM-encapsulated PDF and archive them to *syngo.share* core or third-party archives.

Content and transfer

Table 1: Supported Storage SOP Classes

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Y	N	N	N	N	N	S	N	N	N

Table 2: Supported Storage Transfer Syntaxes

Transfer Syntax name	Transfer Syntax UID
Implicit VR Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2

DIMSE services

Verification

Table 3: Supported Verification SOP Classes

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N

Workflow management

Table 4: Supported Storage Commitment SOP Classes

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N

Table 5: Supported Modality Performed Procedure Step SOP Classes

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N

Query/Retrieve

Table 6: Supported Query/Retrieve SOP Classes

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N

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1 Introduction

This document is a DICOM Conformance Statement that describes the DICOM capabilities of *syngo.share print*.

1.1 Remarks

This Conformance Statement is intended to aid in the validation of the integration of *syngo.share print* within a DICOM environment. This statement is not meant to replace the validation with other DICOM equipment to ensure the intended, proper exchange of information. Thus, it is still important to ensure the proper interoperability of the intended DICOM integration.

The user must be aware of the following issues:

- The comparison of different Conformance Statements should be the first step towards an assessment of the interoperability within a DICOM environment.
- Testing procedures should be defined to validate the desired level of connectivity.

1.2 Abbreviations

AE	Application Entity
AET	Application Entity Title
CAD	Computer Aided Detection
CDA	Clinical Document Architecture
CID	Context Identifier
DCS	DICOM Conformance Statement
DICOM	Digital Imaging and Communications in Medicine
FSC	File-Set Creator
FSR	File-Set Reader
IHE	Integrating the Healthcare Enterprise
IOD	Information Object Definition
ISO	International Organization for Standardization
MPPS	Modality Performed Procedure Step
OS	Origin Server
PDU	Protocol Data Unit
QIDO-RS	Query based on ID for DICOM Objects by RESTful Services
SCP	Service Class Provider
SCU	Service Class User
SOP	Service-Object Pair
SR	Structured Reporting
TCP/IP	Transmission Control Protocol/Internet Protocol
UA	User Agent
UID	Unique Identifier
VR	Value Representation
WADO-RS	Web Access to DICOM Objects by RESTful Services

2 Implementation model

2.1 Functional definition of AEs

The *syngo.share* print FSR AE is able to convert arbitrary documents retrieved by printing from an external application into DICOM-encapsulated PDF files. These files are subsequently archived into *syngo.share* core and third-party archives.

2.2 Sequencing of real-world activities

- The user can request the services of the *syngo.share* print AE at any time through the print interface of various external applications.

3 Application Entity specifications

The *syngo.share print* FSR solely provides functionalities for handling DICOM media. The DICOM Storage SOP Classes listed in Table 1 are supported for storage.

3.1 Supported SOP Classes and Transfer Syntaxes

The supported DICOM SOP Classes are described in Table 1. Table 2 lists the supported C-STORE Transfer Syntaxes.

3.2 Association establishment policies

3.2.1 General

The *syngo.share print* AE supports TCP/IP. When a user requests a C-STORE operation, it attempts to establish an association with a remote AE. The host, port and remote AE title are defined within the client configuration.

3.2.2 Number of associations

The *syngo.share print* AE establishes one associations per storage task.

3.2.3 Asynchronous nature

The *syngo.share print* AE only allows a single outstanding operation on each association, meaning that it does not perform asynchronous negotiation.

3.2.4 Implementation identifying information

- **Implementation Class UID**
1.2.276.0.7230010.3.0.3.6.1
- **Implementation Version Name**
OFFIS_DCMTK_361

3.2.5 Association initiation policy by real-world activity

The *syngo.share print* AE initiates an association with a remote AE for C-STORE requests. The proposed Transfer Syntaxes for association establishment for C-STORE are defined in Table 2.

4 Configuration

syngo.share print provides user interfaces in order to facilitate configuration.

5 Support of extended character sets

5.1 Usage of Specific Character Set in C-FIND and C-STORE requests

syngo.share print AE as C-FIND and C-STORE SCU uses Specific Character Set (0008,0005) with a value of ISO_IR 192 for requests.

A DICOM element list for Query/Retrieve Service Classes

The following table lists the DICOM keys used for matching or query on the according level in C-FIND requests.

A.1 Supported C-FIND element requests on the patient level

Table 7: Supported C-FIND elements on the patient level

Keyword	Tag	Used for matching
PatientName	(0010,0010)	Y
PatientID	(0010,0020)	Y
IssuerOfPatientIDQualifiersSequence	(0010,0024)	Y
PatientBirthDate	(0010,0030)	Y
PatientBirthTime	(0010,0032)	Y
PatientSex	(0010,0040)	Y
OtherPatientIDs	(0010,1000)	Y
PatientBirthName	(0010,1005)	Y

B List of elements for modality worklist C-FIND requests

Table 8: Supported C-FIND modality worklist keywords

Key	Tag	Used for matching
AccessionNumber	(0008,0050)	N
IssuerOfAccessionNumberSequence/ LocalNameSpaceEntityID	(0008,0051)/ (0040,0031)	N
IssuerOfAccessionNumberSequence/ UniversalEntityID	(0008,0051)/ (0040,0032)	N
IssuerOfAccessionNumberSequence/ UniversalEntityIDType	(0008,0051)/ (0040,0033)	N
ReferringPhysicianName	(0008,0090)	N
ReferencedStudySequence/ ReferencedSOPClassUID	(0008,1110)/ (0008,1150)	N
ReferencedStudySequence/ ReferencedSOPInstanceUID	(0008,1110)/ (0008,1155)	N
PatientName	(0010,0010)	N
PatientID	(0010,0020)	N
IssuerOfPatientID	(0010,0021)	N
IssuerOfPatientIDQualifiersSequence/ UniversalEntityID	(0010,0024)/ (0040,0032)	N
IssuerOfPatientIDQualifiersSequence/ UniversalEntityIDType	(0010,0024)/ (0040,0033)	N
PatientBirthDate	(0010,0030)	N
PatientBirthTime	(0010,0032)	N
PatientSex	(0010,0040)	N
OtherPatientIDSequence/ PatientID	(0010,1002)/ (0010,0020)	N
OtherPatientIDSequence/ IssuerOfPatientID	(0010,1002)/ (0010,0021)	N
OtherPatientIDSequence/ TypeOfPatientID	(0010,1002)/ (0010,0022)	N
OtherPatientIDSequence/ IssuerOfPatientIDQualifiersSequence/ UniversalEntityID	(0010,1002)/ (0010,0024)/ (0040,0032)	N
OtherPatientIDSequence/ IssuerOfPatientIDQualifiersSequence/ UniversalEntityIDType	(0010,1002)/ (0010,0024)/ (0040,0033)	N
PatientBirthName	(0010,1005)	N
PatientMotherBirthName	(0010,1060)	N

Table 8: Supported C-FIND modality worklist keywords

▲ Table 8: Supported C-FIND modality worklist keywords

Key	Tag	Used for matching
StudyInstanceUID	(0020,000D)	N
RequestedProcedureDescription	(0032,1060)	N
AdmissionID	(0038,0010)	N
IssuerOfAdmissionIDSequence/ LocalNameSpaceEntityID	(0038,0014)/ (0040,0031)	N
IssuerOfAdmissionIDSequence/ UniversalEntityID	(0038,0014)/ (0040,0032)	N
IssuerOfAdmissionIDSequence/ UniversalEntityIDType	(0038,0014)/ (0040,0033)	N
ScheduledProcedureStepSequence/ ScheduledStationAETitle	(0040,0100)/ (0040,0001)	Y
ScheduledProcedureStepSequence/ ScheduledProcedureStepStartDate	(0040,0100)/ (0040,0002)	Y
ScheduledProcedureStepSequence/ ScheduledProcedureStepStartTime	(0040,0100)/ (0040,0003)	Y
ScheduledProcedureStepSequence/ ScheduledProcedureStepDescription	(0040,0100)/ (0040,0007)	N
ScheduledProcedureStepSequence/ ScheduledProcedureStepID	(0040,0100)/ (0040,0009)	N
ScheduledProcedureStepSequence/ ScheduledProtocolCodeSequence/ CodeValue	(0040,0100)/ (0040,0008)/ (0008,0100)	N
ScheduledProcedureStepSequence/ ScheduledProtocolCodeSequence/ CodeMeaning	(0040,0100)/ (0040,0008)/ (0008,0104)	N
ScheduledProcedureStepSequence/ Modality	(0040,0100)/ (0008,0060)	N
RequestedProcedureID	(0040,1001)	N

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