

Sidexis 4 with Sidicom RM

(RM = Removable Media)

DICOM Conformance Statement



Version 2.0

Released 08/10/2017

for product versions from 4.0 onwards

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History

Release	Date	Author	Review	Comment
1.0	08/22/2013	Gerd Marmitt	Bernhard Schmitt	Based on version 3.6 Conformance Statement Sidicom RM
2.0	08/14/2017	Hanna Busse	Bernhard Schmitt	Added chapter 7: Support of extended character sets

0 Introduction

0.1 Purpose

This document refers to the DICOM functionality of Sidexis 4 with “DICOM Removable Media”, Sidicom RM.

This document is written according to part PS 3.2 of [1].

Sidexis 4 is capable of importing and storing DICOM media in accordance with the DICOM standard. DICOM directories on file systems as described in Part 10 of the DICOM standard can be imported with Sidexis 4, while export functionality relies on the DICOM Removable Media PlugIn. The support of the physical media as described in Part 12 depends on the underlying operation system or on additional software and hardware support of the special media.

0.2 Scope

This Conformance Statement refers to the Sirona X-Ray products using Sidexis 4 with Sidicom RM PlugIn version 3.6 or higher.

0.3 Definitions, Abbreviations

0.3.1 Definitions

CT	Computer Tomography; specific DICOM Information Object
DX	Digital X-Ray; specific DICOM Information Object
IO	Intra Oral; specific DICOM Information Object
SC	Secondary Capture; specific DICOM Information Object
DD	Direct Dental; an open interface of the Sidexis 4 software that opens the possibility for PlugIns to integrate their functionality into Sidexis 4

0.3.2 Abbreviations

ACR	American College of Radiology
AE	DICOM Application Entity
CT	Computer Tomography
DICOM	Digital Imaging and Communication in Medicine
DX	Digital X-ray
IO	Digital intraoral X-ray
IOD	DICOM Information Object Definition
IS	Information System (HIS, RIS, PACS within hospital)
NEMA	National Electrical Manufacturers Association
SC	Secondary Capture
FSC	File Set Creator
FSR	File Set Reader
FSU	File Set Updater
Sidexis 4	Sirona Dental X-ray and Imaging System
SOP	DICOM Service-Object Pair
UID	Unique Identifier, string unique in the whole network

0.4 References

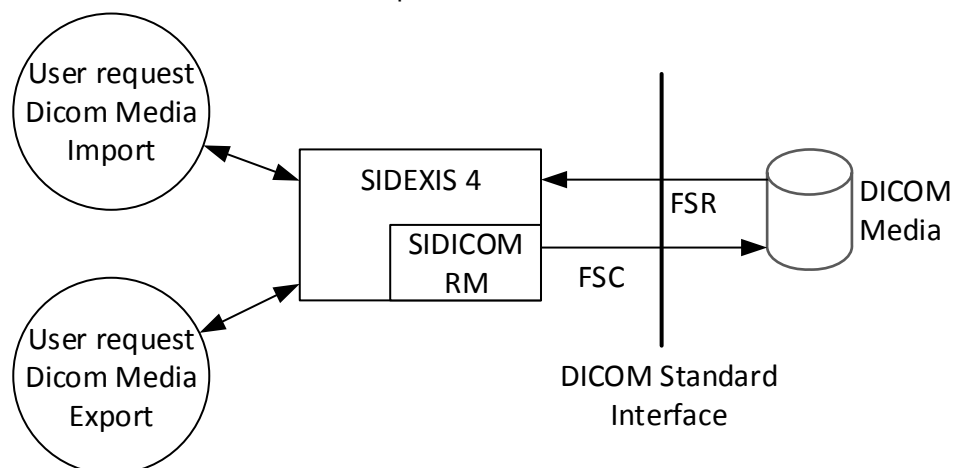
- [1] Digital Imaging and Communication in Medicine (DICOM) 3.0, NEMA PS 3.1-3.20, 2011
- [2] Sidicom RM User Manual

1 Implementation Model

1.1 Media Exchange

1.1.1 Application Data Flow Diagram

Sidexis 4 is capable of importing single DICOM files or DICOM directories respectively and exporting DICOM directories. The DICOM Removable Media plugin acts as a FSC (File Set Creator) and seamlessly integrates into Sidexis 4 offering a specialist user interface to deal with details of the conversion and image selection. Sidexis 4 acts as a FSR (File Set Reader) when importing DICOM data. The internal media data base as part of Sidexis 4 makes also use of the DICOM standard.



1.1.2 Functional Definitions of AE's

The following functions are supported:

- **Import / FSR**
 - Browsing for a DICOMDIR file and showing the DICOMDIR recognised series elements, e.g. images. These elements can be selected for import.
 - Import single files in DICOM format
- **Export / FSC**
 - Exporting a Sidexis 4 examination of a patient in on go to a DICOM study, including 2D Images. Optional 3D volumes, detail volumes and raw image data. (A DICOMDIR file is written.)
 - Exporting single images to the corresponding DICOM SOP .dcm file. (Without a DICOMDIR)
 - Export of adapted 3rd party volumes.
(Because of the needs of some none DICOM conform 3rd party application, we offer an option for specialized flat exports without DICOMDIR and but with slice-number filename and .dcm file suffix. Otherwise we write a DICOMDIR file.)

1.1.3 Implementation Class, Version and Data Identification

Name	Value
File Meta Information Version	00\01
Implementation Class UID	2.16.840.1.113669.632.12.0.1.200.1

Name	Value
Implementation Version Name	SIRONA_DIR_1
Sirona Company Root UID (Default only used for 2D IODs)	1.3.6.1.4.1.25790

2 AE Specifications

2.1 Interface Specification

2.1.1 Activities, and Roles

Activity	Roles	SC Option
DICOM Media Import	FSR	Interchange
DICOM Media Export	FSC	Interchange

2.1.2 File Meta Information for the Application Entity

Source Application Entity Title	not set
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2.1.3 Import

Sidexis 4 can read/import following IODs:

SOP Class Name	SOP Class UID
Basic Directory Storage	1.2.840.10008.1.3.10
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1
Digital Intra-oral X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4

Transfer Syntax	Transfer Syntax UID
Explicit VR Little Endian	1.2.840.10008.1.2.1

2.1.4 Export

Depending on the export options additional 3D administrative data and the corrected raw images can be stored in Sirona-specific DICOM raw data objects and in private tags of the image IODs.

There is no overlay information of the images or examinations exported.

DICOM Removable Media can export the following IODs:

SOP Class Name	SOP Class UID
Basic Directory Storage	1.2.840.10008.1.3.10
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1
Digital Intra-oral X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4
CT Image Storage	1.2.840.10008.5.1.4.1.1.2

Transfer Syntax	Transfer Syntax UID
Explicit VR Little Endian	1.2.840.10008.1.2.1

3 Augmented and Private Profiles

There are no profiles as described in Part 11 of the standard; SOP information is described in chapter 2.x.

4 Extensions, Specializations, and Privatizations of SOP Classes and Transfer Syntaxes

In addition to the standard SC IOD Sidicom RM can supply the following tag as defined in PS3.3, C.7.6.2 of [1].

Attribute Name	Tag
Pixel Spacing	(0028,0030)

This tag is not transmitted by default (Factory setting). In order to activate the transmission of this tag please refer to the Sidicom RM user manual [2].

Sidicom RM includes special private data in the image IODs.

All private tag groups are marked as "Sirona - <group description>" in the private tag Creator ID.

The generated DICOM objects can include one or more of the following private data groups.

Private data group	Description
8001,10xx	Private exam data
8003,10xx	Private image data
8005,10xx	Private composites data
8101,10xx	Private objectmodel data
8101,11xx	Private objectmodel data
8201,10xx	Private raw image data
8201,12xx	Private raw image data
8301,10xx	Private Overlay Image Data
8301,12xx	Private Overlay Image Data
8401,10xx	Private Patient Data
8301,13xx	Private Patient Data

In the DICOMDIR Sidicom RM adds entries for special raw series that consists out of private RAW Data storage objects (1.2.840.10008.5.1.4.1.1.66) that are created during the DICOM export process. All these objects are marked as "Raw Data Records" (31).

It is recommended not to show these records or the corresponding series in viewers neither to try to interpret the linked "Raw data objects".

Sidicom RM can set links to the Raw Data series in normal image IODs in extended sequence "Referenced Raw Data Sequence (0008,9121)".

Image-related referenced series can be set in sequence "Referenced Series Sequence (0007,1115)".

5 Sidexis 4 Database

2D and 3D images will be stored internally in the database.

6 Configuration

No different configurations. The basic installation of the DICOM PlugIn is described in the manual.

7 Support of Extended Character Sets

Sidicom RM supports extended character sets under the condition that the underlying Windows operation system supports the code page used by the chosen char set.

By default use of extended char set is switched off.

It can be switched on for exports by setting entry
[IDDTODICOM]

CharSet=<Character set used>

in DipPlugin.ini

8 Codes and Controlled Terminology

Not supported.

9 Security Profiles

Sidicom RM does not support any specific security measures. It is assumed that Sidicom RM is used within a secured environment.

All users of the application need to have write access to the installation directory of the application and its sub-directories.