ScandiDos

Delta^4

DICOM Conformance Statement

1 Introduction

1.1 Purpose

This conformance statement specifies how the Delta^4 application conforms to the DICOM v3.0 standard. Delta4 uses DICOM to receive objects that are used in the radiation therapy process.

1.2 Scope

The scope and format of this document are defined by part 2 of the DICOM v3.0 standard. Some sections defined in the standard, but not applicable to the Delta^4 application, are left out.

1.3 Intended Audience

The intended audience is:

- Customers
- Marketing and Sales persons
- Support and Service personnel
- Other vendors offering interfacing via DICOM

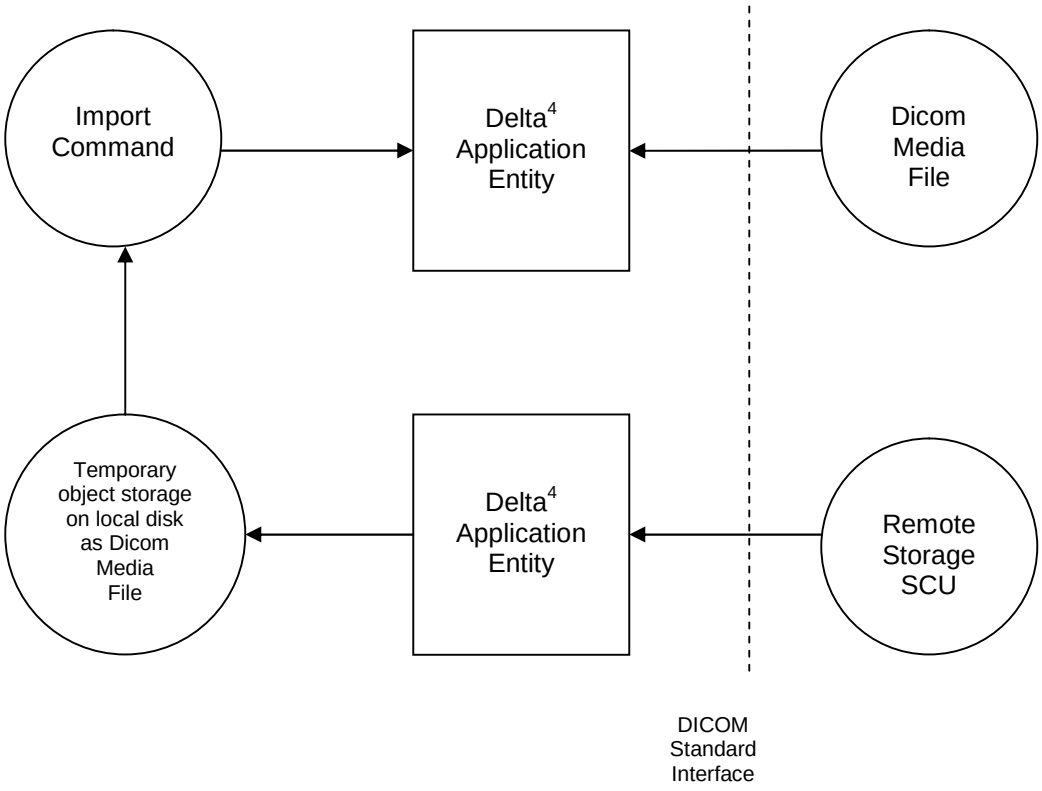
It is assumed that the reader is familiar with the DICOM standard.

1.4 References

The Digital Imaging and Communications in Medicine (DICOM) Standard: NEMA PS 3.1-3.16 (2003).
National Electrical Manufacturers Association
1300 N. 17th Street
Rosslyn, Virginia 22209, USA

2 Implementation Model

2.1 Application Data Flow Diagram



2.2 Functional Definitions of AE's

The Delta^4 AE primarily handles DICOM file import. The function is activated by the user in the Delta^4 application.
Optionally, the Delta^4 AE accepts storage requests through an always running background process. The objects are stored in separate intermediate files, from which they can be imported by the Delta^4 application.

2.3 Sequencing of Real-World Activities

Not applicable.

3 AE Specifications

3.1 SCP

The AE provides Standard Conformance to the following SOP Classes in the role as SCP:

SOP Classes Name	SOP Class UID
RT Plan Storage	1.2.840.10008.5.1.4.1.1.481.5
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3

3.2 Association Establishment Policies

The AE accepts but never initiates associations.
Maximum PDU size is 16384 bit.

3.3 Number of Associations

The maximum number of simultaneous associations as a SCP is unlimited.

3.4 Asynchronous Nature

Asynchronous operation is not supported.

3.5 Association Initiation Policy

The AE does not initiate associations.

3.6 Association Acceptance Policy

The AE accepts an association storage request only if the Called AE Title matches the configured AE Title.

3.7 Presentation Context Table

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
See table in section 3.1		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None

3.8 Extended Negotiation

No extended negotiation is performed.

3.9 SOP Specific Conformance

3.9.1 RT Plan Storage SOP Class

The Delta[4] AE will only utilize attributes of the plan that can be converted to meaningful local information.

Attribute Name	Tag	Comments
Modality	(0008,0060)	“RTPLAN”
Patient ID	(0010,0020)	
Patient's Name	(0010,0010)	
RT Plan Name	(300A,0003)	Optional
RT Plan Label	(300A,0002)	Used if RT Plan Name not defined
SOP Instance UID	(0008,0018)	
Referenced Structure Set Sequence	(300C,0060)	
>Referenced SOP Instance UID	(0008,1155)	Used when importing an RT Structure Set
RT Plan Date	(300A,0006)	
RT Plan Time	(300A,0007)	
Manufacturer	(0008,0070)	Optional
Manufacturer's Model Name	(0008,1090)	Optional
Fraction Group Sequence	(300A,0070)	
>Fraction Group Number	(300A,0071)	
>Number of Fractions Planned	(300A,0078)	Required if number of fractions > 1
>Referenced Beam Sequence	(300C,0004)	
>>Referenced Beam Number	(300C,0006)	
>>Beam Meterset	(300A,0086)	Optional
>>Beam Dose	(300A,0084)	Optional
>>Beam Dose Specification Point	(300A,0082)	Optional
Beam Sequence	(300A,00B0)	
>Beam Number	(300A,00C0)	
>Beam Name	(300A,00C2)	
>Beam Description	(300A,00C3)	Used when importing RTOG dose
>Beam Type	(300A,00C4)	
>Treatment Machine Name	(300A,00B2)	
>Source-Axis Distance	(300A,00B4)	
>Final Cumulative Meterset Weight	(300A,010E)	
>Beam Limiting Device Sequence	(300A,00B6)	
>>RT Beam Limiting Device Type	(300A,00B8)	
>>Number of Leaf/Jaw Pairs	(300A,00BC)	
>>Leaf Position Boundaries	(300A,00BE)	
>Control Point Sequence	(300A,0111)	
>>Control Point Index	(300A,0112)	
>>Cumulative Meterset Weight	(300A,0134)	
>>Nominal Beam Energy	(300A,0114)	
>>Gantry Angle	(300A,011E)	
>>Beam Limiting Device Angle	(300A,0120)	
>>Isocenter Position	(300A,012C)	Used when importing an RT Dose object or an RT Structure Set object
>>Patient Support Angle	(300A,0122)	
>>Dose Rate Set	(300A,0115)	Optional
>>Beam Limiting Device Position Sequence	(300A,011A)	
>>>RT Beam Limiting Device Type	(300A,00B8)	
>>>Leaf/Jaw Positions	(300A,011C)	

3.9.2 RT Dose Storage SOP Class

The Delta[4] AE will only utilize attributes of the dose object that can be converted to meaningful local information.

Attribute Name	Tag	Comments
Modality	(0008,0060)	“RTDOSE”
Patient ID	(0010,0020)	
Patient's Name	(0010,0010)	
Dose Grid Scaling	(3004,000E)	
Dose Summation Type	(3004,000A)	
Rows	(0028,0010)	
Columns	(0028,0011)	
Number of Frames	(0028,0008)	
Image Position (Patient)	(0020,0032)	
Image Orientation (Patient)	(0020,0037)	
Pixel Spacing	(0028,0030)	
Grid Frame Offset Vector	(3004,000C)	
Bits Allocated	(0028,0100)	
Referenced RT Plan Sequence	(300C,0002)	
>Referenced SOP Instance UID	(0008,1155)	Identifies the RT Plan object
>Referenced Fraction Group Sequence	(300C,0020)	
>>Referenced Fraction Group Number	(300C,0022)	
>>Referenced Beam Sequence	(300C,0004)	
>>>Referenced Beam Number	(300C,0006)	
Pixel Data	(7FE0,0010)	

Note that during import both the RT Dose object and the corresponding RT Plan object must be available.

3.9.3 RT Structure Set Storage SOP Class

The Delta[4] AE will only utilize attributes of the structure set that can be converted to meaningful local information.

Attribute Name	Tag	Comments
Modality	(0008,0060)	“RTSTRUCT”
Patient ID	(0010,0020)	
Patient's Name	(0010,0010)	
SOP Instance UID	(0008,0018)	
Structure Set ROI Sequence	(3006,0020)	
>ROI Number	(3006,0022)	
>ROI Name	(3006,0026)	
ROI Contour Sequence	(3006,0039)	
>Referenced ROI Number	(3006,0084)	
>Contour Sequence	(3006,0040)	
>>Contour Geometric Type	(3006,0042)	
>>Number of Contour Points	(3006,0046)	
>>Contour Data	(3006,0050)	

Note that during import both the RT Structure Set object and the corresponding RT Plan object must be available.

4 Configuration

The following settings are configurable:

- AE title, default: “Delta4 Receiver”
- TCP port, default: 104
- Destination path for local storage

5 Support of Extended Character Sets

Extended character sets are not supported.