DICOM Correction Proposal

STATUS	Assigned
Date of Last Update	2025/12/10
Person Assigned	Christof Schadt
Submitter Name	Christof Schadt christof.schadt@brainlab.com
Submission Date	2024/06/14

Correction Number	CP-2591
Log Summary: Additional RT Assertions	
Name of Standard PS3.3, PS3.6, PS3.16	

Rationale for Correction:
 	
In an RT planning workflow, different assertions may take place at different points in time. In order to reflect this, the RT Assertions Sequence, introduced by CP 2427 "RT Specific Plan Approvals", is added to the RT Structure Set for the following two major use cases:
 	
   -   Allow for assertions on contents such as images or registrations that are used as an input for the contouring workflow. E.g. an assertion which Image Series are used for the process and which have been rejected. This also allows for assertions on e.g. the outcome of an automated Segmentation process.
 	
   - Allow for assertions on specific ROIs within the RT Structure Set Instance.	

Correction Wording:	

In PS 3.3, section C.8.8.5 Structure Set Module, perform the following modifications.

Table C.8-41. Structure Set Module Attributes

Attribute Name	Tag	Type	Attribute Description
Structure Set Label	(3006,0002)	1	User-defined label for Structure Set.
...			
Structure Set ROI Sequence	(3006,0020)	3	ROIs for current Structure Set. One or more Items shall be included in this Sequence.
>ROI Number	(3006,0022)	1	Identification number of the ROI. The value of ROI Number (3006,0022) shall be unique within the Structure Set in which it is created.
…			
>ROI Creator Sequence	(3006,004D)	3	The person or device that last modified this ROI. Only a single Item is permitted in this Sequence.

Attribute Name	Tag	Type	Attribute Description
>>*Include Table C.17-3b "Identified Person or Device Macro Attributes"*			Organizational Role Code Sequence (0044,010A) DCID 9555 "Radiotherapy Treatment Planning Person Role".
>RT Assertions Sequence	**(0044,0110)**	**3**	**Assertions made for this ROIs.** **One or more Items are permitted in this Sequence.** **See C.8.8.5.n1.**
>>*Include Table 10.30-1 "Assertion Macro Attributes"*			**BCID for Assertion Code Sequence (0044,0101) is CID NNN3 "ROI Assertion".** **The Baseline CID 7452 "Organizational Role" in the Asserter Identification Sequence (0044,0103) is extended by CID NNN7 "RT Asserter Roles".**
...			
RT Assertions Sequence	**(0044,0110)**	**3**	**Assertions made for referenced Series or Instances.** **One or more Items are permitted in this Sequence.** **See C.8.8.5.n1.**
>*Include Table 10.30-1 "Assertion Macro Attributes"*			**BCID for Assertion Code Sequence (0044,0101) is CID NNN2 "Referenced Instances Assertion".** **The Baseline CID 7452 "Organizational Role" in the Asserter Identification Sequence (0044,0103) is extended by CID NNN7 "RT Asserter Roles".**
>Referenced Series Sequence	**(0008,1115)**	**1C**	**Referenced Series contributing to the creation of ROIs in this Instance.** **Required if the Assertion is valid for not just this SOP Instance, but also if other Series are taken into account.** **One or more Items shall be included in this Sequence.**
>>Series Instance UID	**(0020,000E)**	**1**	**Unique identifier of the Series.**
>>Referenced Instance Sequence	**(0008,114A)**	**1C**	**Referenced Instances contributing to the creation of ROIs in this Instance.** **Required if specific Instances and not the entire Series in general are associated with the Assertion.** **One or more Items shall be included in this Sequence.**
>>>*Include Table 10-11. SOP Instance Reference Macro Attributes*			
Referenced Frame of Reference Sequence	(3006,0010)	3	Sequence describing Frames of Reference in which the ROIs are defined. One or more Items are permitted in this Sequence. See Section C.8.8.5.1.
…			

C.8.8.5.n1 Referenced Series Sequence and Referenced Instance Sequence

Assertions defined in this RT Structure Set Instance are only valid in the context of this RT Structure Set, as other RT Structure Set Instances may define different Assertions on the same

referenced content. Referenced contents may be specific Image Series or Registration Instances referenced by the Referenced Series Sequence (0008,1115).

The Referenced Series Sequence (0008,1115) and the Referenced Instance Sequence (0008,114A) may include Series and SOP Instances that contributed to the creation of this RT Structure Set Instance and Assertions are created for it in the course of generating the ROIs.

This may be e.g. additional Image Series (as referenced in the Source Series Information Sequence (3006,004C)), Registration Instances between Image Series (referenced in the Referenced Instance Sequence (0008,114A) of the General Reference Module), or Segmentation Instances (referenced from the Referenced Image Sequence (0008,1140) of the General Reference Module).

In PS 3.6, PS3.6 Annex A

ANNEX A   REGISTRY OF DICOM UNIQUE IDENTIFIERS (UID) (NORMATIVE)

Table A-3 Context Group UID Values

Context UID	Context Identifier	Context Group Name
1.2.840.10008.6.1.NNN.2	**NNN2**	**Referenced Instances Assertions**
1.2.840.10008.6.1.NNN.3	**NNN3**	**ROI Assertions**
1.2.840.10008.6.1.NNN.7	**NNN7**	**RT Asserter Roles**
1.2.840.10008.6.1.NNN.9	**NNN9**	**Automated Assertion Devices**

In PS 3.16 Add to section B.1

CID NNN2 REFERENCED INSTANCES ASSERTIONS

Resources: **HTML | FHIR JSON | FHIR XML | IHE SVS XML**
Keyword: **ReferencedInstancesAssertions**
FHIR Keyword: **dicom-cid-NNN2-ReferencedInstancesAssertions**
Type: **Extensible**
Version: **YYYYMMDD**
UID: **1.2.840.10008.6.1.NNN.2**

Table CID NNN2 Referenced Instances Assertions

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM	CCC1	Approved for Contouring
DCM	CCC2	Disapproved for Contouring

CID NNN3 ROI ASSERTIONS

Resources: **HTML | FHIR JSON | FHIR XML | IHE SVS XML**
Keyword: **ROIAssertions**
FHIR Keyword: **dicom-cid-NNN3-ROIAssertions**
Type: **Extensible**
Version: **YYYYMMDD**

UID: 1.2.840.10008.6.1.NNN.3

Table CID NNN3 ROI Assertions

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
DCM	CCC5	Created
DCM	CCC3	Approved for radiotherapy treatment planning
DCM	CCC4	Disapproved for radiotherapy treatment planning

CID NNN7 RT ASSERTER ROLES

Resources: HTML | FHIR JSON | FHIR XML | IHE SVS XML
Keyword: RTAsserterRoles
FHIR Keyword: dicom-cid-NNN7-RTAsserterRoles
Type: Extensible
Version: YYYYMMDD
UID: 1.2.840.10008.6.1.NNN.7

Table CID NNN7 RT Asserter Roles

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
Include CID 9555 "Radiotherapy Treatment Planning Person Roles"		
Include CID NNN9 "Automated Assertion Devices"		

CID NNN9 AUTOMATED ASSERTION DEVICES

Resources: HTML | FHIR JSON | FHIR XML | IHE SVS XML
Keyword: AutomatedAssertionDevices
FHIR Keyword: dicom-cid-NNN9-AutomatedAssertionDevices
Type: Extensible
Version: YYYYMMDD
UID: 1.2.840.10008.6.1.NNN.9

Table CID NNN9 Automated Assertion Devices

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
99SUP238	S238040	Automated Segmentation Device
99SUP238	S238041	Automated Registration Device
99SUP238	S238042	Automated Image Collection Device

Add the following to the table in PS3.16, Annex D:

Annex D Dicom controlled terminology definitions (normative)

Code Value	Code Meaning	Definition	Notes
S238040	Automated Segmentation Device	A device that creates segmentations without user interaction.	
S238041	Automated Registration Device	A device that creates registrations between Frame of References without user interaction.	
S238042	Automated Image Collection Device	A device that collects image data without user interaction.	
CCC1	Approved for Contouring	A Series or Instance is approved as input for contouring.	
CCC2	Disapproved for Contouring	A Series or Instance is disapproved as input for contouring.	
CCC3	Approved for radiotherapy treatment planning	The ROI is approved for use in radiotherapy treatment planning.	
CCC4	Disapproved for radiotherapy treatment planning	The ROI is disapproved for use in radiotherapy treatment planning.	
CCC5	Created	As Series or Instance was created and is used as input for contouring.	