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## Meeting Minutes

### DICOM WORKING GROUP SEVEN (RADIOTHERAPY)

<b>Meeting Location</b>	Brainlab Inc. Offices The Wrigley Building Lakeview Conference Room 400–410 N. Michigan Ave Chicago, IL	
<b>Dates and Times</b>	Monday, June 13, 2022	09:00 – 17:30 CDT
	Tuesday, June 14, 2022	08:30 – 17:30 CDT
	Wednesday, June 15, 2022	08:30 – 17:30 CDT
	Thursday, June 16, 2022	08:30 – 17:30 CDT
	Friday, June 17, 2022	08:30 – 12:30 CDT
<b>Presiding Officers</b>	Christof Schadt, Co-Chair Jim Percy, Co-Chair	
<b>Secretary</b>	Shayna Knazik, MITA	

# Participants

Company/Organization	Represented by	Mon	Tue	Wed	Thu	Fri
AAPM	Walter Bosch	I	I	I	I	I
AAPM	Bruce Curran	V	V	V	V	
Accuray	Bob Pekarek	I	I	I	I	I
Advanced Oncotherapy	Ondrej Sevela	V				
Brainlab	Christof Schadt	I	I	I	I	I
C-Rad	Mattias Nilsing				V	
Elekta	Jim Percy	I	I	I	I	I
IBA	David Wikler	I	I	I	I	
Leeds Teaching Hospital	Steve Weston			V		
Mevion	Bruce Rakes	I	I	I	I	I
MITA/DICOM	Shayna Knazik	I	I	I	I	I
RaySearch	Marcus Bergman	V		V		V
RaySearch	Stefan Páll Boman	V				
RaySearch	Andreas Lindström	V				
RaySearch	Jon Treffert	I	I	I	I	I
Reflexion	Michael Owens			V		
Self	Ulrich Busch	V		V	V	V
Shanghai Proton and Heavy Ion Center	Michael Moyers				V	
Varian	Kari Jyrkkälä	I	I	I	I	I
<b>Regrets:</b>						
AAPM	Yulong Yan					

I = In-person participant, V = Virtual participant

# Actual Week Schedule

**Meeting Focus:** Hybrid 1<sup>st</sup>/2<sup>nd</sup> Gen DICOM RT

	Monday	Tuesday	Wednesday	Thursday	Friday
Session 1 09:00- 09:55	Setup, Administrative Opening Group Status	Hybrid RT Dose	Hybrid RT Plan M. Owens Dial-In	Motion Management Sub-group Dial-in	Remaining Items
Session 2 10:00- 10:50	General Discussions	Hybrid RT Dose	Hybrid RT Plan	Zap Surgical Dial-In	Next Meetings Wrap-up Adjournment
Session 3 11:10- 12:00	CPs	Hybrid RT Dose	Hybrid RT Plan	ROI Identification	
Session 4 12:05- 13:00	CPs	Hybrid RT Dose	Hybrid RT Plan	ROI Identification	

# Topics

## Administrative

- The meeting was called to order 6/13/22 at 9:20am CDT.
- Introductions, identified participants.
- Shayna reminded the group of DICOM anti-trust rules and Patent Disclosure Policy.
- Reviewed the agenda and revised as needed. Swapped Tuesday morning agenda for Wednesday.
- Meeting minutes from the March 2022 meeting were reviewed and approved without objection or abstention. All actions were reviewed and closed.

## Subgroups and related Group Status

Updated reports were presented as needed/available:

- WG-07 Brachytherapy Subgroup
  - The Brachy subgroup is still working on the IHE-RO TPPC-Brachy Profile. It is not yet clear when applications will be ready for testing.
- WG-07 Ion Subgroup
  - The Ion subgroup is working on the IHE-RO TDRC Profile. Recent DICOM CPs are being reviewed for inclusion in the Profile.
  - TPPC-Ion does not address setup beams. Further work on this Profile is in progress based on what was learned from TDRC.
- WG-07 Motion Management Subgroup
  - A proposal for representing gating information is being discussed.
- IHE-RO
  - Informal workshops on DRRO and XRTS.
  - Implementations of Hi-definition Structure Set are in development.
  - CPs relevant to IHE-RO Profiles to be reviewed.
  - Searching for other Use Cases that are not already in the pipeline.
  - Radiation Oncology Treatment History (ROTH) - treatment planning and delivery export for continuity of care, patient data archiving, and clinical trials/registry export.
- IEC
  - IEC 62083 is in committee draft.
  - A record and verify task group meeting is in July. The main meeting is at the end of October.
- WG-28
  - WG-02/WG-28 are holding a meeting in Trento on September 14-16 (before WG-06 in Trento, Sep 19-23) to work on their RDSR Informative Annex Supplement.
  - WG-02/WG-28 reviewed CP-1319 and added angio use cases as requested by Uli.
- Other Subgroup reports as needed.
  - WG-06 September meeting has been rescheduled to September 19-23, 2022 due to a conflict with the IHE Connectathon in Montreux (Sep 12-16).

## **Organizational**

- Teams appears to be working as an online platform.
- The group discussed of the anticipated frequency of F2F meetings moving forward.
  - The value of F2F meetings is very clear. One or two meetings would be ideal, but more than one may be difficult to sustain.
  - European members noted that it is quite difficult to justify a meeting in the US.
  - Moving forward, we will try to hold 1 or 2 in-person meetings in Europe.

## General Discussions

### CT Discussion

The identification of 4D CT images was discussed. The current practice is to represent the respiratory phase in the Series Description. However, this is non-standard and not interoperable. The Enhanced CT IOD has a very complex method for encoding respiratory phase, but it is not supported in radiotherapy.

Kari proposed a CP to introduce a Temporal Imaging Series Module to be included at the Series level of CT, MR, PET Image IODs. The proposed Module represents respiratory phase using 6-7 Attributes. There was more discussion and preparation of the CP for presentation to WG-06 later in this meeting (see CPs section of minutes).

### ROI Identification

At the last meeting, Walter [presented use cases for ROI Identification](#) that are currently addressed by AAPM TG-263 by adding information to existing string attributes. WG-07 identified that, on one hand, this requires implementation changes in available products. However, it also may be required to extend the Standard with additional meta information attributes, such as the source image data set in the event the ROI was moved.

Current [collection of set information](#).

### CV Segmentation Model

- ROIs segmenting a CV may differ in Assessor, Image modality, Patient State, and/or Time point.
- Review of RT Structure Set attributes at the Structure Set and ROI levels.

**Action:** Christof will draft a proposal for incorporating ROI-level information in a hybrid RT Structure Set.

### Discussion of using multiple RT Structure Set references in an RT Plan

#### Possible Use Cases:

- Structures from different imaging modalities
- Structures from different points in time (also for CBCT, adaptive)
- Structures from each phase of a 4D CT
- Anatomical vs technical (table, optimization, ...) structures

#### Multi-structure-set Plans:

- RT Plan Geometry value (MULTI\_MODEL (?)) could be used as a mode switch
- The single Structure Set plan must not be eliminated.
- Referenced ROI Number (Type 1C)

- Change condition to add "... and RT Plan Geometry equals PATIENT".
- Alternate ROI Number Type 1C, required if RT Plan Geometry equals MULTI\_MODEL
- Add Referenced RT Structure Set Sequence containing Referenced ROI Number and SOP Instance Reference Macro
- Referencing multiple RT Structure Sets appears to be feasible. However, no existing systems would be able to consume (i.e., deliver) such a plan.

[Adjourned for the day at 5:30pm CT 6/16/22]

### **Zap Surgical**

Zap Surgical is looking for a place to store additional angles to the CT SOP Class. David Clunie pointed to WG-07 to address this issue, as it is in the domain of RT.

"During our KV scan workflow, some attributes such as the auto-alignment angle sets: axials and obliques, need to be saved into DICOM CT Image Model. Since there are NO such tags available in DICOM Standard, currently we have them saved as Zap private tags (0019, 0010), (0019,0020)."

Zap Surgical was not available to present to WG-07 at the scheduled time on Thursday 6/16/22. Shayna will reach out to Christof and Jim if she hears back from them.

## Correction Proposals (CPs) See also: [WG-07 CP Status List](#)

### CPs new to WG-07

#### **cp RT209 Correct Radiotherapy Common Instance Specification**

New CP by Uli Busch. It corrects the requirements for the Context Group to be used for the Identified Person or Device Macro. This is to be defined in the IOD that includes the Radiotherapy Common Instance Module. **Decision:** Accepted for reading with WG-06.

#### **cp RT210 Add Long Label to Ion Beam**

New CP by Bruce Rakes. Add Entity Long Label (3010,0038) to Beam in RT Ion Plan Module, RT Beams Session Record Module, and RT Ion Beams Session Record Module. **Decision:** Accepted as amended for WG-06.

#### **cp RT211 Correct Use of Treatment Session, Treatment Fraction**

New CP by Jim Percy. This CP corrects the discussion of incomplete RT Treatment fraction (changes reference from “incomplete RT Session” to “incomplete RT Fraction”. **Decision:** Accepted for reading with WG-06.

#### **cp RT212 Clarifications of Scan Spot Maps**

New CP by Staffan Beck. This CP clarifies the interpretation of Scan Spot Map entries for beams in which the Modulated Scan Mode Type (300A,0309) is LINEAR or LEAPING. TODO: (a) create a third example for LINEAR mode with a stationary spot and (b) remove proposed note. A new revision CP\_RT212-01 was created. David will clean up. **Decision:** Updated CP was reviewed and revised by WG-07. Accepted as amended for WG-06.

#### **cp RT213 Update De-identification profiles for Source Frame of Reference UID**

New CP by Marcus Bergman. Source Frame of Reference UID (0064,0003) attribute in the Deformable Spatial Registration IOD is added to the Application Level Confidentiality Profile in Part 15 Section E.1. **Decision:** Accepted for reading with WG-06.

#### **cp RT-4D Imaging Support**

Series-level information about image phase was discussed in detail. The group began work on introductory text and Module attributes for the CP. Kari will continue development of the draft CP.

### CPs in Progress

#### **cp RT202 Clarification for Number of RT Beam Limiting Device Openings**

Bob Pekarek presented an updated figure to serve as an example in the Standard. Draft CP was reviewed and revised with the group. Bob will correct the figure to be consistent with the example.

**Decision:** Accepted as amended for WG-06.

#### **cp RT203 Retire Robotic Base Location Indicator**

Bob Pekarek presented the updated CP. It changes the Robotic Base Location Indicator (3010,090) Attribute to Type 3. Bob will revise the CP to retire this Attribute. **Decision:** Accepted as amended for WG-06. Revised CP was reviewed by the group.

### **CP-1319 Frame of Reference Reliability**

Uli asked WG-02 to add some angio use cases and the group reviewed the items WG-02 sent prior to the meeting. This CP adds a Frame of Reference Evidence Sequence to the Frame of Reference Module to contain a Frame of Reference Evidence Macro. The latter contains a Related Information Entities Base Macro invocation.

- I. This approach creates an assertion that image Series are reliably related to each other. However, it requires re-instantiation of DICOM instances after they are created.
- II. The Spatial Registration IOD using both Frame of Reference and Image Instance references can be used for the same purpose.
- III. A safe alternative for some use cases is to require that each Image Series has its own Frame of Reference. This is not applicable for some applications, e.g., PET/CT.
- IV. Equivalence of image coordinates, i.e., tolerance for alignment, depends on the use case for the images.

### **CP-2229 Support Of New MLC Types**

Uli Busch presented an update of this CP (version 2).

- Enhanced RT Beam Limiting Device Definition Flag = YES switches on new MLC Type specification. Enhanced RT Beam Limiting Device Opening Sequence includes zero or more items. (One or more in plan, zero or more in image.). Use new macro in Sup213 “RT Beam Limiting Device Opening Definition Macro Attributes” in place of C.36.2.2.9-1 “RT Beam Limiting Device Opening Macro Attributes”.
- Use of RT Beam Limiting Device Offset in 1<sup>st</sup> Gen RT: discussion of repetition requirements for attributes in items of the Enhanced RT Beam Limiting Opening Sequence.

This issue to be revisited later in this meeting.

[adjourned for the day 6/13/22 at 5:30pm CT; discussion resumed 6/15/22 at 10:15am CT]

### **Enhanced RT Beam Limiting Opening Sequence Discussion**

A general requirement for the presence of Items within Sequences within the Control Point Sequence (in Section C.8.8.14.n4) was drafted. It applies to the Enhanced RT Beam Limiting Opening Sequence, as well as any other Sequences within the Control Point Sequence.

Items within Sequences in the Control Point Sequence shall be present in the first Control Point or if the value of any Attribute in an Item changes during the Beam.

If an Item is present, all Attributes of that Item shall be present if the Attribute requirements apply, even if the value of the Attribute does not change during the Beam.

The approach discussed is also applicable to enhancements of the RT Ion Plan IOD.

RT Beam Limiting Devices Definition Macro was discussed. The macro was renamed as “RT Beam Limiting Device Macro.” MLC position. Clarified presence requirements for Enhanced Beam Limiting Device Sequence: a value of YES in Enhanced RT Beam Limiting Device Definition Flag (gggg,9003).

**Decision:** CP-2229 was accepted for reading with WG-06.

Parallel RT Beam Delimiter Positions (300A,064A) should not be present for Binary MLCs at the Control Point level. Only timing attributes are used for binary MLCs in Control Points.

The opening extents of binary leaf opening needs to be added. Add Parallel RT Beam Delimiter Opening Extents (2N values) Attribute if the value of Parallel RT Beam Delimiter Opening Mode (300A,064E) is BINARY. May be present otherwise. Order of values is the same as leaf positions.

## **CPs with WG-06**

### **CP-2220 Differentiate Geometric Types of CT Imaging Sources**

WG-06 was asked to contact WG-21 and also to add the attribute to the Enhanced CT.

Contacting WG-21 already happened last year and WG-07 rejected adding it to Enhanced CT (for known reasons).

### **CP-2151 Add Baseline CIDs to RT Structure Set**

At the WG-06 Review of CPack-115 for Final Text, the following Comment from JIRA came up: "In ANNEX D, DICOM CONTROLLED TERMINOLOGY DEFINITIONS (NORMATIVE), there are 3 new items in it. It is hard to distinguish CP2151N3 and CP2151N4. It seems that N3 would covers N4."

CP2151N4 denotes a category, while CP2151N3 denotes a concrete segment identification. This was accepted by WG-06 as sufficient to move CP-2151 to Final Text.

However, it was requested that WG-07 review the definition of CP2151N4 again and eventually improve the text in a subsequent CP. The issue is, that it is not obvious, what a "Region defined by the spatial extent of a radiation dose." It could be other than an isodose surface.

After discussion, it was determined that no change was needed to the CP.

### **CP-2185 Extend use of Treatment Session UID**

WG-06 has now decided to add the UID to the General Study Module, and it should also be added to the Modality Worklist.

David Wikler discussed options for where to add Treatment Session UID. This depends on the definition of Scheduled Procedure Step. There are multiple UPSs in a Treatment Session. All should carry the same Treatment Session UID. (This is an IHE-RO issue rather than a DICOM conformance requirement.)

Proposal: add the Treatment Session UID within the Scheduled Procedure Step Sequence. Treatment Session UID will also be added to the Study Module.

**Decision:** Christof to review updated CP with WG-06 for letter ballot.

### **CP-2186 Cleanup of Planning Risk Volume code**

When searching for PRV, this is typically referred to as the "Planning Organ at Risk Volume" (introduced in ICRU 62, 83 and 91) and not the "Planning Risk Volume".

**Decision:** Walter Bosch to remove current changes in the CP, add "**(PRV)**", and correct reference from [ICRU-Report 50] to [ICRU-Report 62].

## Hybrid Discussions Overview

The group continued review on the RT Plan proposal by Uli Busch, see [here](#).

Michael Owens from Reflexion called in to talk about his experiences using a hybrid approach

Reviewed the [hybrid RT Dose](#) draft.

The group decided how to proceed with both proposals:

- A. Which parts should be taken over?
- B. Are CPs sufficient for these changes or should they rather be a Supplement?

Decisions were recorded in the WG-07 Teams channel, on the 1<sup>st</sup> Gen Hybrid Extension Wiki page, [see here](#).

## Hybrid RT Dose Discussion

Supp 177 defines RT Dose Map Annotation (annotates Parametric Map), RT Dose Metrics, RT Dose Samples. The use of Parametric Map to represent dose is problematic (requires two instances for each dose). An alternative, hybrid approach (“Gen 1.5”) was discussed.

- Move RT Dose Parameters and RT Dose Map Annotation (renamed as Enhanced RT Dose) from RT Dose Map Annotation IOD to the new Modules in RT Dose.
  - Activate by a “switch” (new Dose Summation Type). Working title: CONTEXT\_DEFINED (defined by Dose Context Macro in Enhanced RT Dose Module)
  - This is not ideal. The Dose Summation Type is already overloaded.
  - Prior art: Multi-energy CT; CP2152 Plan Overview Parameters, new Dose Summation Type
- 2nd Gen Content
  - Enhanced RT Dose Module content
    - Entity Labeling
    - RT Dose Context Macro
    - Related CVs
    - Related Instances
  - RT Dose Parameters
    - Some content may be valuable
- RT Dose Context Macro (replacement for Dose Summation Type)
- Discussion of whether the hybrid dose is to support both 1st and 2nd Gen RT Plans/Radiations.
  - If RT Plan is extended to support dual-layer and binary MLCs, and robotic-arm delivery, references to 2nd Gen Radiations would not be needed in RT Dose.
  - Consensus that a pragmatic approach is needed going forward. Retain concepts from 2nd Gen, but interoperate with 1st Gen RT infrastructure.
- Feature wish list for “New” RT Dose
  - Dose Calibration information
    - By reference or by value?
  - Radiation Device Configuration and Commissioning Key
  - Radiobiological modeling
  - LET/RBE maps

- Dose Calculation Algorithm
  - Dose Calculation Log
- Partial/scaled dose (e.g., dose calculated for the first 10 fractions)
- Dose Context UID
- Dose Rate
- DVH: clean-up the “DVH Data” VR issue
- Discussion of dose scope (referenced plans, fraction groups, beams, and meterset ranges) for PLAN\_PARTIAL Dose Summation Type. Suggestion to add PARTIAL\_PLANS
- Review of Supp 177 Contributing RT Plan Sequence content to assess what is really needed for “New” RT Dose
- Re-worked RT Dose Context Macro (part of Enhanced RT Dose Module) to reduce complexity for hybrid dose by removing references to 2nd Gen Radiations and Dose
  - Dose Context UID
  - Dose Representative Valuememe – may move to RT Dose Module

**Action:** review the document 1st Gen Hybrid Extension / 01\_RT Dose / sup177\_RT Dose Objects\_2.docx

## Reflexion Presentation / Discussion

Michael Owens described the operation of the Reflexion X1 system and his experiences using a hybrid approach. This system was designed for biologically-guided RT. The couch moves during treatment, but is stationary when the beam is on. Dual-layer MLC. Control points are specified by firing position (gantry angle), MLC/Jaw config, isocenter position. DICOM import/export limited to 1st Gen DICOM CT, RTSS, RTDOSE.

Priorities for connectivity:

- Treatment plan recording in OIS
- Treatment plan evaluation in 3rd party tools
- Treatment plan secondary dose calc
- Treatment delivery scheduling in OIS
- Treatment delivery recording in OIS
- Treatment image review in 3rd party tools
- RT Patient Archive

WG-07 asked if it was possible to share a dataset with the group. Michael said he will let the group know as soon as they make decisions about which private tags they will pick. He will circulate the PowerPoint presentation to the group and put together a more structured list of what are the major issues. The group also expressed interest in seeing a PET example if possible. Michael will check for proprietary concerns then circle back with WG-07. It was determined that a follow-up detailed session is needed to continue this discussion.

**Action:** Shayna will circulate a doodle poll to Michael and WG-07 to determine a date for a 2-hour teleconference in August.

## Hybrid RT Plan Discussion

Uli Busch discussed the “Hybrid RTPlan 1.2.docx” document describing a hybrid adaptation of 2nd Gen RT mechanisms in 1st Gen RT compatible IODs.

Possible new Prescription Overview Module to contain minimal prescription elements. Envisioned as a replacement to the existing Prescription Module.

Retire the existing RT Prescription Module and replace it with a Dose Tracking Module that contains the Dose Reference Sequence from RT Prescription Module. Keep Fraction Group Sequence.

Renamed Module: Dose Tracking

Dose Reference Sequence

- Dose Tracking on Control Points would be supported as well by the indexing here, so that we don't have to change this Control Point content)
- CV UID or Index (link to ROI References above)
- Keep Type 1s and some other Attributes like the following:
  - Dose Reference Description
  - Target Prescription Dose
  - Target Maximum Dose

New Module: Prescription Overview

Content items:

- (Ref to RT Physician Intent) (opt)
- Prescription Description (free text)
- Treatment Site (IEC) (Type 3)
- Number of Fractions (IEC) (Type 1)
- Nominal Dose per Fraction (IEC) (Type 2, alternative to ROI Dose)
- Sequence of ROI References (Type 3)
  - CV UID
  - (Ref to corresponding subparts of RT Physicians Intent) (opt)
  - (Dose Tracking on Control Points would be supported as a well. By the indexing here, so that we don't have to change this Control Point content)
  - Reference to ROI
  - Therapeutic Role
  - Nominal Dose to ROI (as label) (IEC) (Type 2, alternative to Plan Dose)
  - Maximum Dose (maybe as safety dose limit, scope needs to be defined ???)

Coded Treatment Technique could be included at the Beam level.

Examine other Attributes at the root level of RT Plan that could be moved to the new Prescription Overview Module:

1. Referenced Physician Intent Sequence (currently in the General Plan Module) Only a single Physician Intent Instance needs to be referenced.
2. Treatment Site
3. Plan Intent
4. Treatment Protocols
5. (Treatment Protocol Code Sequence)

Retire Attributes in RT Plan:

- Referenced Dose Sequence

Other Attributes

- Frame of Reference to Displayed Coordinate System Transformation Matrix
- Referenced RT Treatment Preparation Sequence
  - current RT Treatment Preparation IOD cannot be used with 1st Gen RT Plan
  - content may be added to an RT Plan Module later
  - Conclusion: remove this Attribute.
- RT Prescription Module
  - Rename Module and retire unneeded content.
  - Keep Dose Reference UID. Add Equivalent Dose Reference UID
  - Annotate purpose of Dose Reference (Dose Value Purpose) as TRACKING or QA.

[Adjourned for the day at 5:08pm CT]

## **WG-07 Motion Management Subgroup Discussion**

Members of the Motion Management Subgroup joined the call to discuss the recording of motion management devices and techniques.

- Michael Moyers reviewed discussion topics from the last two meetings of the subgroup.
- Bob Pekarek showed a draft CP (CPxxx1-MotionReportingGating.docx)
- Patient Treatment Preparation Procedures currently in the Standard include (one or more) Patient Treatment Preparation Devices. This concept could be applied to motion management, as well.
- A device may be used for multiple purposes. The device would then be referenced by more than one procedure.

The group should consider implications for the RT Beams Delivery Instruction.

The Assertion Collection IOD (draft Supplement) should also be considered in this context

- Draft supplement: <https://nemaorg137.sharepoint.com/:f:/r/sites/DICOMWG-07Radiotherapy/Shared%20Documents/Sup%20NNN%20Assertion%20Collection?csf=1&web=1&e=ZhJ2ok>
- Discussion of Assertion management, including Normalized vs. Composite objects and alternative approaches, e.g., FHIR.

## Supp 213 Enhanced RT Image and Patient Position Acquisition Instruction

Uli presented Sup213\_DFT1\_EnhancedRTImage.docx. WG-07 discussed LB comments in preparation for reading with WG-06. It is expected that reading for FT can be completed at the June WG-06 meeting.

WG-07 reviewed/revised the DFT1 document.

- The Multi-frame Dimension Module (M) allows flexible organization of dimensions. It was argued that this capability is of questionable value for the conventional (non-continuous) RT Image IOD. WG-06 has argued that this module should remain Type M for consistency with other Enhanced IODs. Okay to keep as Type M.
- Enhanced Contrast/Bolus Module (C) - revised condition: "Required if contrast media was used." Okay as revised.
- Frame Type and Image Type. Requirements for 1<sup>st</sup> Value are in C.36.m2.1.1. 2<sup>nd</sup> Value is always PRIMARY. Okay as revised.
- MLC boundaries and opening mode: Parallel RT Beam Delimiter Positions is Type 1C with condition: "Required ... if the Parallel RT Beam Delimiter Opening Mode does not have the value BINARY if present". **Decision:** Okay for review with WG-06.

## Hybrid Discussions Summary

(See also "1st Gen Hybrid Extension" on Teams Wiki.)

### Hybrid RT Structure Set

CP to:

- create new meta information
- retire unused attributes

Goal is represent the ROI entity definition in the RT Structure Set and the role definition in the RT Plan. Consider retiring Contour Image Sequence.

**Decision:** Prepare for August/September meeting for further discussion.

### Hybrid RT Plan

CP on referencing 1<sup>st</sup> <--> 2<sup>nd</sup> Gen (2203)

CP on introducing the new BLD macro in 1<sup>st</sup> Gen (2229)

Hybrid Plan document

- Renaming RT Prescription to RT Dose Reference/Tracking
- New Module called RT Prescription Overview containing all "prescription items" and to address IEC requirements and adding a reference to an RT Physician Intent Instance.

### **Actions in preparation for the next meeting:**

- Discuss introducing Tomo in 1<sup>st</sup> Gen RT Plan – have a solution
- Discuss how to handle Robotic and lay out a path
- Discuss how to handle Multi-Source plans and lay out a path
- Discuss use of CV UID in RT Plan

- Discuss use of the RT Treatment Preparation IOD (I.e., enable linking to the 1<sup>st</sup> Gen) - Uli
- Prepare CP to discuss referencing multiple RTSS from Plan – Christof

### **Hybrid RT Dose**

Clean up current state of RT Dose in existing Supplement **for review at the next meeting:**

- Add 2<sup>nd</sup> Gen Dose Context using a breaking Dose Summation Type value
- Reference to dose by Plan, FG, Beam, Meterset weight (rather than control points)
- No linkage to 2<sup>nd</sup> Gen Radiations
- Clean up DVH VR issues
- Resolve ROI references in DVH for multiple RT Structure Sets

### **Next meeting:**

- Discuss introducing Enhanced DVH Module based on 2<sup>nd</sup> Gen RT Dose Metrics

### **Priorities**

Plan update

- A. Hybrid Plan
  1. BLD macro in 1<sup>st</sup> Gen
  2. Tomo attributes
  3. Robotic plan
  4. Multi-source plan
  5. Rename RT Prescription & introduce new Prescription Overview
- B. RT Structure Set to be handled as CP(s)
- C. Continue discussion on Dose, CPs

## **Future Meeting Dates, Agenda for the Next Meeting and other Administrative Topics**

### **Schedule**

The list should be reviewed again, whether any adaptations are required since the last meeting.

### **[Teams Meeting List](#)**

WG-07 Online Meetings

- Aug 30-31, 2022, 9:00am – 1:00pm ET
- Sep 6-7, 2022, 9:00am – 1:00pm ET
- Oct 24 & 26, 2022, 9:00am – 1:00pm ET
- Nov 9-10, 2022, 9:00am – 1:00pm ET

- Dec 7-8, 2022, 9:00am – 1:00pm ET
- Mar 6-7, 2023, 9:00am – 1:00pm ET
- Mar 13-14, 2023, 9:00am – 1:00pm ET

Proposal for F2F meeting in June 2023 in Europe.

- Proposed dates: June 5-9, 2023
- Possible venues: Munich, Helsinki, or Stockholm.
- Other meetings:
  - WG-06: June 19-23, 2023 (location TBD)
  - PTCOG: June 11-17, 2023 (Madrid)

Meeting was adjourned 6/17/22 at 11:45am CT.

## **Appendix: General Information**

### **- Project List**

The list of major projects pursued by WG-07 can be found [here](#).

### **- Presentation Material for 2nd Generation RT Objects**

A folder is maintained containing material of presentations on 2<sup>nd</sup> Generation topics.

Everyone is invited to use any material out of that folder for presentations.

In turn everyone should to add his presentations to this folder, if they could be of general use. As needed, take care to remove any company- or institution-confidential parts before posting.

<ftp://medical.nema.org/MEDICAL/Private/Dicom/WORKGRPS/Wg07/2ndGeneration/Presentations>

The June WG-07 meeting was adjourned on Friday, June 17, 2022 at 11:45am Central Time.

Minutes prepared by Walter Bosch

Submitted by Shayna Knazik

Reviewed by Counsel 6/30/22