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| **Reported by (Name):** | **Bruce Curran** |
| **Organization:**  | **DICOM Working Group 7 – RT Applications in DICOM** |
| **Position Title:** | **Member, WG-07** |
| **Activity:** | **Developing and maintaining DICOM structures related to Radiation Oncology** |
| **Meeting Dates:** | **SubGroups: 2/20, 5/26, 6/12/2020****WG-7: 3/9-13, 4/27-30, 5/7, 6/10,**  |
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| **Meeting Location:** | **(virtual)** |
| **Payment $:** | **$ 0 (all meetings virtual this year)** |
| **Reasons for Attending or not Attending** | **Attending (virtual meetings and TCons)** |
| **Issues from Previous Meetings or Year:** |  |
| **General Description of Activities of the Organization and/or Meeting:** | **See WG-07 reports from December, 2019 and April, 2020.****Sub-groups in brachytherapy, ion therapy, motion management, and implementation are also active.** |
| **Issues for AAPM:** | **WG-07** continues to be highly productive, with 3 supplements approved in the last year and 9 supplements in development. These supplements represent the complete overhaul of the DICOM Standard concerning radiation therapy-related objects. Implementation of these changes, which provide a wide range of new features supporting dynamic deliveries, non-C arm delivery devices (tomotherapy, robotic delivery, multi-source stereotactic delivery), adaptive planning and prescribing, new ion therapy machines, and improved brachytherapy support, will require numerous product changes and upgrades for clinical implementation. Bosch, Yang, and Curran have maintained strong participation to ensure that clinical viewpoints are strongly considered in these new developments. |
| **Budget Request ($):** | **$ 0** |

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***DICOM Working Group Activity Report Template***

 *DICOM Working Group Chairs are requested to submit periodic reports to the DSC which oversees their work.*

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## WG-07 – Radiotherapy

### Since Last Report:

**Meetings**:

* Monday-Friday, Nov. 18-22, 2019.
* Monthly TCons by WG-07 sub-groups Motion Management, Ion and Brachytherapy

**Participation:**

* Very good
* 2-3 AAPM representatives present each meeting, also on the sub-group calls
* Sub-groups are very active

**Topics for the DSC Discussion:**

* None

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**Secretariat** MITA

**Secretary** Luiza Kowalczyk

 dicom@dicomstandard.org

**Co-Chairs** Christof Schadt, Brainlab AG

 Jim Percy, Elekta

 wg07chairs@dicomstandard.org

### Scope:

WG-07 develops and maintains the radiotherapy objects and related functionality in the DICOM Standard, and supports and promotes its adoption by industry and community. Some of the responsibilities include:

* Developing objects for various treatment modalities (External Beam, Brachytherapy, Ion Therapy, Robotic Treatment Devices, Cobalt etc.)
* Taking care, that Imaging is well-integrated into the Radiotherapy Process
* Ensure, that geometric concepts (frame of reference and related constructs) are well-defined so that radio-therapeutic planning and delivery can rely on precise geometric definitions to ensure safe beam placement
* Considering and further developing DICOM Unified Worklist concepts and specifications and make use of those approaches in to the Radiotherapy workflow

### Current Supplements, Work and Objectives:

* Supplement 160 Patient Setup – Before Public Comment
* Supplement 176 2nd Generation Tomotherapeutic, Multiple Fixed Source and Robotic Treatment Modalities - Before Final Text
* Supplement 177 2nd Generation RT Dose Image –Draft
* Supplement 196 Segmentation Creation Template – Draft
* Supplement 199 Radiation Record – Before Public Comment
* Supplement 215 RT Ion Radiation Objects – Draft
* Supplement 216 RT Brachytherapy Objects - Draft

### Challenges and Opportunities (Environment):

* The adoption of upcoming 2nd Generation Radiotherapy objects in a productive environment will need a significant investment by manufacturers. WG-07 and especially IHE-RO is highly engaged in pushing for adoption, but synchronization of implementations across the industry represents a challenge even within the more compact environment of Radiotherapy. Yet the potential value is high: many modern technologies require the newly developed objects, and workflow implementation across the industry could lead to significant improvements of efficiency and electronic coverage.
* Radiotherapy has taken Unified Worklist into use since many years for treatment events. A more general coverage of the complete workflow is an established goal, but is competing with approaches using FHIR.
* Specification of FHIR extensions of some Radiotherapy content is envisioned in specific environments. The continued tendency to use FHIR also in Radiotherapy for some newer or evolving aspects of interoperability will require continued attention to constitute and preserve a reasonable alignment of the boundaries of use between the two Standards.

### Future Roadmap and Objectives (Committee Direction):

* Supplement 216-Brachytherapy Radiation Objects (2nd Gen.) [WI 2007-06-B]- WG-07 Brachytherapy
* SupNN6\_01\_MotionManagement- WG-07 Motion Management

### Past Work:

* Supplement 11 (RT Image, RT Structure Set, RT Dose, RT Plan)
* Supplement 29 (RT Treatment Record Objects and Media Support)
* Supplement 102 (Ion Therapy) is part of the DICOM 2006 standard.
* Supplements 74 (Utilization of Worklist in Radiotherapy Treatment Delivery) in connection with WG-06-sponsored
* Supplement 96 (Unified Worklist and Procedure Step)
* Supplement 184 (Brachytherapy Delivery Instruction)
* Supplement 185 (Object Evaluation)
* Supplement 147 2nd Gen. Prescriptions and Segment Annotation [WI 2007-06-B]
* Supplement 175 2nd Gen. C-arm RT Treatment Modalities

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## WG-07 – Radiotherapy March 3, 2020

### Since Last Report:

**Meetings**:

* Monday-Friday, Nov 18-Nov 22, 2020
* Monday-Friday, Mar 09-Mar13, 2020
* Monthly TCons by WG-07 sub-groups Motion Management, Ion and Brachytherapy

**Participation:**

* Good
* 2-3 AAPM representatives present each meeting, also on the sub-group calls
* Sub-groups are very active

**Topics for the DSC Discussion:**

* Base of 2nd Generation DICOM RT objects is now in Standard (by Supplements 147, 175 and 176).

Public Comment period for Supplement 199 over, starting reading for Letter Ballot.

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**Secretariat** MITA

**Secretary** Open

**Co-Chairs** Christof Schadt, Brainlab AG

 Jim Percy, Elekta

 wg07chairs@dicomstandard.org

### Scope:

WG-07 develops and maintains the radiotherapy objects and related functionality in the DICOM Standard, and supports and promotes its adoption by industry and community. Some of the responsibilities include:

* Developing objects for various treatment modalities (External Beam, Brachytherapy, Ion Therapy, Robotic Treatment Devices, Cobalt etc.)
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* Ensure that geometric concepts (frame of reference and related constructs) are well-defined so that radio-therapeutic planning and delivery can rely on precise geometric definitions to ensure safe beam placement
* Considering and further developing DICOM Unified Worklist concepts and specifications and make use of those approaches in to the Radiotherapy workflow

### Current Supplements, Work and Objectives:

* Supplement 160 Patient Setup – Before Public Comment
* Supplement 177 2nd Generation RT Dose Image –Draft
* Supplement 196 Segmentation Creation Template – Draft
* Supplement 199 Radiation Record – In WG6 reading review before Letter Ballot
* Supplement 215 RT Ion Radiation Objects - Draft

### Challenges and Opportunities (Environment):

* The adoption of upcoming 2nd Generation Radiotherapy objects in a productive environment will need a significant investment by manufacturers. WG-07 and especially IHE-RO is highly engaged in pushing for adoption, but synchronization of implementations across the industry represents a challenge even within the more compact environment of Radiotherapy. Yet the potential value is high: many modern technologies require the newly developed objects, and workflow implementation across the industry could lead to significant improvements of efficiency and electronic coverage.
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### Future Roadmap and Objectives (Committee Direction):

* SupNN6\_01\_MotionManagement- WG-07 Motion Management

### Past Work:

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* Supplement 175 2nd Gen. C-arm RT Treatment Modalities
* Supplement 176 2nd Gen. Tomotherapeutic and Robotic Arm Treatment Modalities