

Minutes

Discrete Positioning and Delivery Workflow (DPDW)

Conference Call

March 24, 2020

10:30am – 11:55am EST

DPDW Subgroup Chair:

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IHERO Task Force Co-Chairs

Bruce Curran, MEng, FAAPM, FACMP, FACR
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Mission Statement: *The American Society for Radiology Oncology (ASTRO) has formed a multi-society Task Force to undertake an initiative to promote the Integration of the Healthcare Enterprise (IHE) – Radiation Oncology (RO), fostering seamless connectivity and integration of radiotherapy equipment and the patient health information systems. The Task Force will include members from ASTRO, RSNA, American Association of Physicists in Medicine (AAPM), the American College of Radiology (ACR) and the Medical Imaging and Technology Alliance (MITA). In addition, members of the International community have also been invited to participate in IHE-RO. The IHE-RO Task Force, in close collaboration with radiotherapy product manufacturers, will develop appropriate integration profiles for radiation therapy and setup a demonstration of seamless communication among the full array of radiotherapy products.*

In Attendance:

Jill Moton (AAPM)
Thomas Schwere (Varian)
Bob Pekarek (Accuray)
David Wikler (IBA)
Gergely Parditka (Brainlab)
Harold Beunk (ICT)
Istvan Matyas (Siemens Healthineers)
Jon Treffert (RaySearch)
Rickard Holmberg (RaySearch)
Bruce Rakes (Mevion)

1 Call to Order

The meeting was started at 10:30am EST.

2 Reconciliation of Offline Delivery Artifacts

- Why is the Treatment Session UID needed? Can we use transaction UID instead?
 - Transaction UID is specific for a single UPS but not for a session
 - What is a session? Treatment Session UID could be used to group multiple UPS into a single session/appointment
 - Session container could go into TDW-III
- Different crash scenarios
 - OST
 - TDD
 - TMS
 - Intermittent network issues
 - ...
- Do we need the N-EVENT-REPORT (SCP restarted) as a trigger for the TDD to retry?
 - In case of network issues this may not be raised as the TMS did not crash.
 - TDD could periodically issue C-ECHO requests. This would cover all the cases.
- TDD Crash:
 - It may not recover the real treatment record but may create a simulated record
 - Record may be recovered later even after another session was performed or even the day after (escalation procedure, may require service personnel)
 - Manual recording from the log and send the record later
 - Two stage recording process: Manual recording in TMS and automatic replacement with the real record after it has been recovered
 - What about session closure in case of missing records?
 - Manual close in TMS/OIS
 - Is it the responsibility of the TMS to allow cleanup of a session that was never closed?
 - What about allowing a next fraction to be treated while the record for the current fraction is still missing (e.g. escalation from a site in Japan processed in US may easily take 2 days or more)?
 - We don't want to hold-off treatments
 - Up to TMS implementation if this requires a sign-off
 - Partial may not be resumable if the real record is missing. (Is this really an interoperability issue? This is very device specific and should be left out from the profile. This mainly depends on the capabilities of the TMS as well as on the modality like C-Arm or Proton in creating high-fidelity enough records that allow a continuation of the session.)

- What are the criteria to allow a continuation of a partial? Can this be defined in the profile? Where is the responsibility? Adding a note in the profile referring to the Conformance Statements of the involved devices.
 - TDD shall check the records provided in the Input Information Sequence if they actually allow a continuation (existing AI for David W to clarify storage level in TDW-II, Status?).
- In general, the problem is the following: A session, that was initially initiated along TDW, is interrupted during execution w/o closing the session and more data will be sent back after the recovery.
- Currently the modeling is fully sequential. Session A needs to be closed before opening session B. We may change that modeling to something like Session A is suspended and will be updated with recorded data at a later point in time allowing other sessions to be processed.
- Binding of the data recorded at a later point in time to the right session is a must.
- How to separate recovery transactions (e.g. from a previous session) from regular transactions for the ongoing session?
 - Should a TMS/OST be able to accept any store request for any patient for any session at any point in time while another session is ongoing?
 - Reject C-STORE RQ with a certain error code?
 - Recovery procedure initiated at TDD only allowed when no other session is active
- Is there a separate profile for the recovery procedures? Or is this a new version of TDD, i.e. TDW-III? A new option?
 - Should be discussed in the TC
 - Judges don't like options :-)
 - TDW-II should not be polluted with this
 - The group prefers to have a new profile instead of TDW-III
 - Do we have to introduce new actors? TMS-Recovery, TDD-Recovery. In a new profile, actors could be re-used
 - It's clearly a different use case than the normal TDW use case (like Treatment Delivery Recovery Workflow)
 - Optional transactions?
- Recovery transaction(s):
 - Individual C-STORE RQ for recovered records only?
 - KOS in addition as an aggregation of the recovered records (per recovered session)?
 - What about the UPS? The session was actually delivered as planned but the record is missing. Is this now completed or an error situation? Is it possible to complete the UPS together with adding an error code (stretch of the standard)? COMPLETED w/o Output Information Sequence would break compliance with TDW-II. Or {CANCELED, 100% } together with an appropriate Discontinuation Reason Code (like "Deferred Recording")? Rationale for {CANCELED, 100% } would be that treatment was delivered as planned but the recording could not be done (i.e. Output Information Sequence missing or incomplete).

- Does {CANCELED, 100% } add any new semantics in TDW-II? How are existing implementations impacted by such a change? {CANCELED, 100% } now means treatment fully delivered, i.e. progress needs to be interpreted as well.

- **Decisions:**

- In case treatment was fully delivered and some records are missing but will be provided later (e.g. because of a TDD crash), the UPS shall be set to {CANCELED, 100% } using a dedicated code in Discontinuation Reason Code (e.g. "Deferred Recording").
- Upon initiating the recovery procedure (potentially including service personnel) the TDD shall:
 - Create a KOS aggregating the recovered records and including the treatment session UID of the session being recovered.
 - Store the recovered records to the OST.
 - Store the KOS to the OST (or TMS?).
 - This shall happen when no session is in progress.
- KOS Document constraints:
 - Still pending with Christof Schadt/WG-06
- Total offline case:
 - Ideally above recovery transactions could be re-used.
 - This requires going with the Treatment Session UID instead of the transaction UID (see first item at the beginning)

3 General Topics

- Slack: How to get notifications if not logged-in? (Jill is following up)

4 New DPDW Use Cases from Imaging Vendor Workshop

Deferred to next call.

5 Adjournment

The meeting was adjourned at 11:55am EST.

Appendix A: Administration and Process Information

Documents are published at the following locations. If you have problems in accessing the document, please contact the Chair (thomas.schwere@varian.com).

Process of Authoring:

Steps:

1. Download a local copy of the document from locations below
2. Open this copy and remove all change bars
3. Ensure, that Changes Bars are switched on
- 4. Make your changes**
5. Provide the updated version to the Chair

Location of Documents:

DPDW Subgroup Minutes

http://wiki.ihe.net/index.php?title=RO_DPDW_WorkingGroup

DPDW Profile

The DPDW Profile is an IHE-RO document.

The current version is available in the IHE-RO Org Wiki:

<http://www.ihe-ro.org/>

Please find the current document under this page:

<http://www.ihe-ro.org/doku.php?id=doc:profiles>

Supp 160

DICOM Supplement 160 (Patient Positioning and Workflow) in s DICOM WG-07 document.

The current version is available at the DICOM ftp server:

<ftp://d9->

[workgrps:goimagego@medical.nema.org/MEDICAL/Private/Dicom/WORKGRPS/WG07/Sup/Sup160_PatientPositioningAndWorkflow](ftp://d9-workgrps:goimagego@medical.nema.org/MEDICAL/Private/Dicom/WORKGRPS/WG07/Sup/Sup160_PatientPositioningAndWorkflow)

Mailing List:

The mailing list for the DPDW subgroup is:

2020.iherodpdw@aapm.org