IHE Change Proposal

Tracking information:

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| IHE Domain | Patient Care Device (PCD) |
| Change Proposal ID: | CP-PCD-##3 |
| Change Proposal Status: | Draft |
| Date of last update: | 2022-10-19 |
| Person assigned: | Eldon Metz |

Change Proposal Summary information:

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| PCIM Deterministic Snapshot and Real-Time Query Results | |
| Submitter’s Name(s) and e-mail address(es): | Eldon Metz, emetz@innovisionmedical.com |
| Submission Date: | TBD |
| Integration Profile(s) affected: | Point-of-Care Identity Management (PCIM) |
| Actor(s) affected: | Device-Patient Association Consumer  Device-Patient Association Manager  Device-Patient Association Reporter |
| IHE Technical Framework or Supplement modified: | PCIM Profile TI revision 1.1, dated 2018-12-07 |
| Volume(s) and Section(s) affected: | Trial Implementation, Multiple Sections |
| Rationale for Change:  Deterministic PCD-19 response messages are necessary for a consumer to accurately know patient association state. The original text indicated a empty response meant no associations for snapshot, however, a network loss or other processing failure could result in this same behavior leading to results that cannot be relied on.  The following changes are proposed:   * Update so that the PCD-19 QSB\_Q16 query message returns a RSP\_K11 response message acknowledging the query and total active matches. * Update so that the PCD-19 query message with real-time subscription option responds with active device associations in RSP\_K11 so consumer can deterministically know the current state of associations at the time of subscription setup. This eliminates the need for consumers to issue a snapshot query followed by a real-time query subscription along with the possibility of gaps that could occur depending on exact timing of events. Additionally, a single semantic response can always be expected by the consumer for the QSB\_Q16, independent of the query option. Finally, this eliminates concerns for a consumer to determine this association state when a manager it is communicating with may only implement one subscription option. * Correct an error in the definition of the subscription option definition.   This Change Proposal (CP) proposes changes to implement profile clarifications and positions for the above issues. | |
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Section **7.2.2 Subscription Option,** modify the first sentence on line 312 on page 16 to correctly reference “subscription” instead of “snapshot” and to clarify that it includes the snapshot :

Existing Text

The snapshot option applies to query and response interactions between Device-Patient Association Consumer and Device-Patient Association Manager and specifies that the query response desired is a continuing subscription to changes in device-patient associations.

Proposed Text

The subscription option applies to query and response interactions between Device-Patient Association Consumer and Device-Patient Association Manager and specifies that the query response desired consists of matching active device-patient associations and continuing subscription to changes in matching device-patient associations.

Section **3.19.4.2 Device-Patient Association Query Response,** expand the second sentence on line 605 on page 28 to state the difference between snapshot and subscription queries :

Existing Text

If there is none available, the response is in effect an empty frame with zero data records in the position that data would be expected.

Proposed Text

For the subscription query, Device-Patient Association Reporter messages that match the filter criteria are sent immediately from the Device-Patient Association Manager to each Device-Patient Association Consumer using a segment pattern response type. For each PCD-19 query type, a QAK segment indicating the number of matches is returned immediately. If there are no matches, the QAK segment will contain a hit count of 0.

Table **A.2.3-3 Query Response Message Structure**, change table name to “Real-Time Query Response Message Structure”

**A.2.3 Details of Device-Patient Association Query Message [PCD-19],** add table for bolus/”snapshot” response structure:

**Table A.2.3-4: Bolus/Snapshot Query Response Message Structure**

|  |  |
| --- | --- |
| Segments | Description |
| MSH | Message Header |
| [{SFT}] | Software Segment |
| [UAC] | User Authentication Credential |
| MSA | Message Acknowledgement Segment |
| QAK | Query Acknowledgement Segment |
| QPD | Query Parameter Definition Segment (echoed) |
| { | One for each association match |
| PID | Patient Identification |
| [PV1] | Patient Visit Information (for room bed) |
| OBR | Observation Request |
| OBX | Observation Result |
| {PRT} | Participation – One PRT segment for device, one for responsible person |
| } |  |

**A.2.3 Details of Device-Patient Association Query Message [PCD-19]**, change the paragraph at line 867 on page 44 to distinguish real-time and bolus/snapshot responses”:

Original Text

Note that this segment pattern, unlike some segment patterns, is not introduced by any “header” type extra segments, but instead is a straight sequenced of repeats of [PCD-17] messages reporting device-patient association events, filtered according to the query parameters. This implies that it should be the same connection as the query was sent from the Device-Patient Association Consumer to the Device-Patient Association Manager, so there can be no confusion with other messages not from this profile. Since there is no end indication in the message sequence, either, in the case of a bolus query getting current state information (see the discussion under the RCP segment, RCP-3), the Device-Patient Association Manager will close the connection initiated by the Device-Patient Association Consumer when all the data have been sent. A new connection must then be connected if and when another query is sent.

Proposed Text

Note that this segment pattern, for the continuous subscription option, unlike some segment patterns, is not introduced by any “header” type extra segments, but instead is a straight sequenced of repeats of [PCD-17] messages reporting device-patient association events, filtered according to the query parameters. This sequenced segment pattern for the bolus or “snapshot” option is preceded by a QAK segment indicating the hit count which provides a deterministic response to bolus queries with no matches.

Section **A.2.4 RCP Segment,** remove the sentence on line 927, page 47 as doing a snapshot and subscription query in sequence are no longer necessary:

Text to Remove

The Device-Patient Association Consumer wanting a continuous real-time feed of association events may need to make a bolus query first to get all existing associations meeting the desired filter specification to get the starting state.

Section **A.2.4 RCP Segment,** update the paragraph on line 935 to indicate the “snapshot” query will include a QAK segment indicating no records before closing the connection with no further connection necessary.

Existing Text

Because the segment pattern for real-time mode has no start or end indication, the Device-Patient Association Manager will signal the completion of a bolus query by closing the connection to the Device-Patient Association Consumer. The Device-Patient Association Consumer will then make a new connection for the real-time continuing query.

Proposed Text

The Device-Patient Association Manager will signal the completion of a snapshot (bolus) query by returning an ACK with a QAK segment that indicates the number of results that match the query filter. The segment patterns for the specified hit count are then included following the QAK segment.

Section **A.4 Example Messages,** add a bolus/snapshot example message request/response pair on or near page 51.

Example 5**.** A device consumer inquires for current device-patient associations by sending a “snapshot” query to the Device-Patient Association Manager.

MSH|^~\&|||MonitoringGateway||AssocMgr||QSB^Q66^QSB\_Q16||P|2.8|

[QPD|Z66|Q1|@PRT.10^EQ^020000FFFE000000](mailto:QPD|Z66|Q1|@PRT.10%5eEQ%5e020000FFFE000000)

RCP|I||T

The Device-Patient Association manager immediately sends the single matching response.

MSH|^~\&|Monitoring Gateway|||COMWEST|||ORU^R01^ORU\_R01|3059802|P|2.8

MSA|AA|ACK3059802|

QAK|Q1|OK|Z66|1

[QPD|Z66|Q1|@PRT.10^EQ^020000FFFE000000](mailto:QPD|Z66|Q1|@PRT.10%5eEQ%5e020000FFFE000000)

PID|||4567^^^MPI^MR|….

PV1||I|3 West ICU^10^4

OBR|…

OBX|1|CWE|68487^MDC\_ATTR\_EVT\_COND^MDC||198332^MDC\_EVT\_DEV\_ASSOCIATION\_PATIENT\_DEVICE^MDC||||||F

PRT|1|…

PRT|2|…