



5

IHE Radiology Technical Framework Supplement

10

Scheduled Workflow.b (SWF.b)

15

Rev. 1.7 – Trial Implementation

20 Date: August 9, 2019
 Author: IHE Radiology Technical Committee
 Email: radiology@ihe.net

25

Please verify you have the most recent version of this document. See [here](#) for Trial Implementation and Final Text versions and [here](#) for Public Comment versions.

Foreword

30 This is a supplement to the IHE Radiology Technical Framework V18.0. Each supplement undergoes a process of public comment and trial implementation before being incorporated into the volumes of the Technical Frameworks.

This supplement is published on August 9, 2019 for trial implementation and may be available for testing at subsequent IHE Connectathons. The supplement may be amended based on the results of testing. Following successful testing it will be incorporated into the Radiology
35 Technical Framework. Comments are invited and may be submitted at http://ihe.net/Radiology_Public_Comments.

This supplement describes changes to the existing technical framework documents.

“Boxed” instructions like the sample below indicate to the Volume Editor how to integrate the relevant section(s) into the relevant Technical Framework volume.

40 *Amend Section X.X by the following:*

Where the amendment adds text, make the added text **bold underline**. Where the amendment removes text, make the removed text **~~bold strikethrough~~**. When entire new sections are added, introduce with editor’s instructions to “add new text” or similar, which for readability are not bolded or underlined.

45

General information about IHE can be found at www.ihe.net.

Information about the IHE Radiology domain can be found at http://ihe.net/IHE_Domains.

Information about the organization of IHE Technical Frameworks and Supplements and the process used to create them can be found at http://ihe.net/IHE_Process and <http://ihe.net/Profiles>.

50 The current version of the IHE Radiology Technical Framework can be found at http://ihe.net/Technical_Frameworks.

CONTENTS

55	Introduction to this Supplement.....	7
	Closed Issues	7
	General Introduction	9
	Appendix A – Actor Summary Definitions	9
60	Appendix B – Transaction Summary Definitions.....	9
	Glossary	9
	Volume 1 – Profiles	10
	3.2 Scheduled Workflow Integration Profile Options	10
	3.2.1 HL7 v2.5.1 Option	11
65	3.3.3 Order Change Flow	12
	3.3.3.1 Order Change Flow, HL7 v2.3.1	12
	3.3.3.2 Change Order Flow, HL7 v2.5.1 Option	12
	4.2 Patient Information Reconciliation Integration Profile Options	12
	4.2.1 HL7 v2.5.1 Option	13
70	13.2 Reporting Workflow Integration Profile Options	13
	13.2.1 HL7 v2.5.1 Option	14
34	Scheduled Workflow.b (SWF.b) Profile.....	14
	34.1 SWF.b Actors/Transactions	15
	34.1.1 Actor Descriptions and Actor Profile Requirements.....	18
75	34.1.1.1 ADT Patient Registration	18
	34.1.1.2 Order Placer	18
	34.1.1.3 Order Filler	19
	34.1.1.4 Image Manager/Image Archive	19
	34.1.1.5 Performed Procedure Step Manager	19
80	34.2 SWF.b Actor Options	19
	34.2.1 Departmental Appointment Notification Option.....	21
	34.2.2 Image Availability Option.....	21
	34.2.3 PPS Exception Management Option	21
	34.2.4 Modality Group Case Option	21
85	34.2.5 Assisted Acquisition Protocol Setting Option.....	22
	34.2.6 Billing and Material Management Option	22
	34.2.7 Creator Performed Procedure Step Option.....	22
	34.2.8 Availability of PPS-Referenced Instances Option	22
	34.2.9 Performed Work Status Update – Receive Option.....	22
90	34.2.10 Enterprise Identity Option	22
	34.3 SWF.b Required Actor Groupings	24
	34.4 SWF.b Overview	24
	34.4.1 Concepts	25
	34.4.1.1 Model of the Real World.....	25
95	34.4.1.2 Scheduled Workflow Concepts in Practice	27
	34.4.1.2.1 Tracking Performed Procedure Steps	28

	34.4.1.2.2 Extending the Scheduled Workflow Concepts to Include Post-Processing Tasks	30
	34.4.1.3 Scheduled Workflow Information Model	31
100	34.4.2 Use Cases	34
	34.4.2.1 Use Case #1: Simple.....	35
	34.4.2.1.1 Simple Use Case Description	35
	34.4.2.1.2 Simple Process Flow.....	35
	34.4.2.2 Use Case #2: Patient Update	38
105	34.4.2.2.1 Patient Update Use Case Description	38
	34.4.2.2.2 Patient Update Process Flow	38
	34.4.2.3 Use Case #3: Order Change	41
	34.4.2.3.1 Order Change Use Case Description	41
	34.4.2.3.2 Order Change Process Flow	42
110	34.4.2.4 Use Case #4: Exception Management Without Reason Codes	43
	34.4.2.4.1 Exception Management Without Reason Codes Use Case Description...	44
	34.4.2.4.2 Basic Exception Management Process Flow	45
	34.4.2.5 Use Case #5: Exception Management With Reason Codes	46
	34.4.2.5.1 Exception Management With Reason Codes Use Case Description.....	46
115	34.4.2.5.2 Exception Management with Reason Codes Process Flow	46
	34.4.2.6 Use Case #6: Implicit Post-Processing.....	48
	34.4.2.6.1 Implicit Post-Processing Use Case Description	48
	34.4.2.6.2 Implicit Post-Processing Process Flow.....	49
	34.4.2.7 Use Case #7: Departmental Appointment Booking	52
120	34.4.2.7.1 Departmental Appointment Booking Use Case Description	52
	34.4.2.7.2 Departmental Appointment Booking Process Flow	52
	34.4.2.8 Use Case #8: Unidentified Patient Registered at ADT and Ordered at the Order Placer	53
	34.4.2.8.1 Unidentified Patient Registered at ADT and Ordered at the Order Placer Use Case Description.....	53
125	34.4.2.8.2 Unidentified Patient Registered at ADT and Ordered at the Order Placer Process Flow	54
	34.4.2.9 Use Case #9: Unidentified Patient Registered at ADT and Ordered at Department System Scheduler/Order Filler	55
130	34.4.2.9.1 Unidentified Patient Registered at ADT and Ordered at Department System Scheduler/Order Filler Use Case Description	55
	34.4.2.9.2 Unidentified Patient Registered at ADT and Ordered at Department System Scheduler/Order Filler Process Flow	56
	34.4.2.10 Use Case #10: Unidentified Patient Registered at ADT but Completed at Modality Prior to Order	57
135	34.4.2.10.1 Unidentified Patient Registered at ADT but Completed at Modality Prior to Order Use Case Description	57
	34.4.2.10.2 Unidentified Patient Registered at ADT but Completed at Modality Prior to Order Process Flow.....	58

140	34.4.2.11 Use Case #11: Unidentified Patient Assigned Temporary Departmental ID and Scheduled at DSS/Order Filler	58
	34.4.2.11.1 Unidentified Patient Assigned Temporary Departmental ID and Scheduled at DSS/Order Filler Use Case Description	58
145	34.4.2.11.2 Unidentified Patient Assigned Temporary Departmental ID and Scheduled at DSS/Order Filler Process Flow	60
	34.4.2.12 Use Case #12: Image Acquisition Completed Without Scheduling at Department System Scheduler/Order Filler	61
	34.4.2.12.1 Image Acquisition Completed Without Scheduling at Department System Scheduler/Order Filler Use Case Description	61
150	34.4.2.12.2 Image Acquisition Completed Without Scheduling at Department System Scheduler/Order Filler Process Flow	62
	34.4.2.13 Use Case #13: Patient Information Reconciliation During Image Acquisition	63
	34.4.2.13.1 Patient Information Reconciliation During Image Acquisition Use Case Description	63
155	34.4.2.13.2 Patient Information Reconciliation During Image Acquisition Process Flow	64
	34.5 SWF.b Security Considerations	65
	34.6 SWF.b Cross Profile Considerations.....	65
160	Appendices.....	66
	Appendix B – Topics for Standards Corrections or Supplements	66
	B.1 HL7 Topics	66
	B.1.1 Version 2.5.1.....	66
	Appendix G – Patient Information Reconciliation for XDS-I.b (INFORMATIVE).....	66
165	G.2 Patient Information Reconciliation (PIR) in an Affinity Domain.....	67
	Volume 2 – Transactions	68
	4.1.4.1.2 Message Semantics	68
	4.1.4.1.2.1 Message Semantics (HL7 v2.3.1)	68
	4.1.4.1.2.2 Message Semantics (HL7 v2.5.1 Option)	68
170	4.2.4.1.3 Expected Actions	69
	4.3.4.1.1 Trigger Events.....	70
	4.3.4.2.1 Trigger Events.....	70
	4.3.4.3.1 Trigger Events.....	71
	4.3.4.3.3 Expected Actions	71
175	4.4.4.1.2.9 Enterprise Identity Option.....	72
	4.5.4.1.2.3 Enterprise Identity Option	75
	4.6.4.1.2.5 Enterprise Identity Option.....	76
	4.8.4.1.2.5 Enterprise Identity Option.....	77
	4.8.4.1.3.2 Enterprise Identity Option.....	78
180	4.12.4.1.2 Message Semantics	80
	4.12.4.3.1 Trigger Events	80
	4.12.4.3.2 Message Semantics	80
	4.13.1 Scope	81

	4.14.4.1.2 Message Semantics	81
185	4.14.4.1.2.1 Enterprise Identity Option	86
	4.18.4.1.2.6 Enterprise Identity Option.....	87
	4.18.4.1.3.2 Enterprise Identity Option.....	89
	4.20.4.1.2.4 Enterprise Identity Option.....	89
	Appendices.....	90
190	Appendix A: Attribute Consistency between Modality Worklist, Composite IODs, Evidence Documents, KIN and Modality Performed Procedure Step.....	90
	A.1: Image Acquisition Integration-critical Attributes	90
	A.3 Context-critical Attributes	100
	Appendix B: HL7 Order Mapping to DICOM MWL.....	102
195	Appendix D – Clarification of Patient Identifiers for Merge Cases	104
	D.1 Introduction	104
	D.2 Administrative Process Flow (RAD TF-1: 3.3.1)	105
	D.3 Patient Merge (RAD TF-1: 3.3.2)	106
	D.4 Trauma Cases 1 and 2 (RAD TF-1: 4.3)	107
200	D.5 Trauma Case 3 (RAD TF-1: 4.3)	109
	D.6 Trauma Case 4 (RAD TF-1: 4.3)	110
	D.7 Trauma Case 5 (RAD TF-1: 4.3)	112
	Appendix E – HL7 Version 2.3.1 Message Field Replaced with HL7 Version 2.5.1 Summary	114
205		

Introduction to this Supplement

210 The Scheduled Workflow.b Profile is introduced as a variant of the Scheduled Workflow Profile. SWF.b makes support of HL7^{®1} v2.5.1 mandatory for the HL7 based transactions. HL7 v2.3 is not part of SWF.b. SWF.b also incorporates the transactions and functionality of the Patient Information Reconciliation (PIR) Profile into SWF.b. The original Scheduled Workflow Profile left PIR as a separate profile.

The original SWF mandates support of HL7 V2.3 and provides a named option for additional support of HL7 v2.5.1. This supplement removes this named HL7 v2.5.1 Option. Systems that support both versions of HL7 may claim support for both SWF and SWF.b.

215 SWF.b is added to Volume 1 with essentially the same actors, scope and options as SWF. References in Volume 2 are updated.

This supplement modifies the current Final Text Technical Framework. Modifications related to TI Supplements (if any) will be handled separately.

220 Closed Issues

1	<p>Should Patient Information Reconciliation be folded into SWF.b?</p> <p>A. Yes.</p> <p>The original split of SWF and PIR was just because it was too much to address all at once in the first year.</p>
2	<p>What about pulling Report Manager into SWF.b (since it's in PIR)?</p> <p>A. Leave it out of SWF.b for now</p> <p>Report Manager is in PIR to get reconciliation in RWF. RWF is an open topic (proposal to shift from GP-Worklist to UPS). When we deal with RWF we can either:</p> <p>A: Reference SWF.b (I don't remember what this meant)</p> <p>B: Incorporate PIR transactions into RWF.b as we did with SWF.b</p> <p>C: Add Report Manager to SWF.b</p> <p>D: Other</p> <p>In the meantime, Report Managers can still claim PIR till retired. (Not that many are doing RWF anyway).</p>
3	<p>Should we add Option Summary sections to 34.2.2 for each existing option?</p> <p>B. Yes.</p>

¹ HL7 is the registered trademark of Health Level Seven International.

	<p>It resolves the issue that currently most options don't have a "shall trigger".</p> <p>But keep the Option sections simple.</p>
4	<p>How should we roll this supplement out?</p> <p>For now, publish this supplement and retain SWF and PIR in the Technical Framework.</p> <p>Promote SWF.b and see what the uptake is in Connectathon. Collect feedback from IHE-J Connectathon too. Based on feedback, consider retiring SWF and/or PIR at a future date.</p> <p>The Cardiology/Eye Care/etc. documents currently reference the RAD-1,2,3... transactions in the current TF (not in this supplement) so by default they are not immediately affected since they don't reference the 2.5.1 option. To be perfectly clear they should add a line stating use of 2.3.1 Message Semantics.</p> <p>Cardiology doesn't really want to be pushed into 2.5.1 yet. Would prefer to coast for a bit.</p> <p>PAM would like to see further changes to factor out the PAM transactions from SWF.b and/or SWF. Input on this is encouraged.</p> <p>A recommendation on whether to stop offering testing of v2.3.1 at Connectathon should come from the IHE Radiology Planning Committee. If such a recommendation should be sent to Lynn by June 30.</p>
5	<p>How do we handle the MIMA Option?</p> <p>For now, no MIMA Option listed explicitly in the SWF.b Supplement.</p> <p>Deciding what the MIMA Semantics are for v2.5.1 should be a MIMA activity, not a SWF.b activity. Address folding MIMA into SWF.b based on the outcome of that analysis.</p> <p>In principle our goal is to preserve all SWF options in SWF.b so we would like to address MIMA. Currently MIMA does not address HL7 v2.5.1 and some of the MIMA edits conflict with the CP-213 edits. Since MIMA was based on RAD TF 2009, there may be other CPs to rationalize. A question was also raised about forwarding the Procedure Scheduled message.</p> <p>MIMA augments SWF and PIR separately using separate options with the same name. Presumably these two options and semantics would be merged when folding MIMA into SWF.b.</p> <p>The order/likelihood of MIMA and SWF.b going to Final Text and getting folded into the Technical Framework is unknown.</p>

General Introduction

Update the following Appendices to the General Introduction as indicated below. Note that these are not appendices to Volume 1.

225

Appendix A – Actor Summary Definitions

Add the following actors to the IHE Technical Frameworks General Introduction list of actors:

None

230 Appendix B – Transaction Summary Definitions

Add the following transactions to the IHE Technical Frameworks General Introduction list of Transactions:

None

235 Glossary

Add the following glossary terms to the IHE Technical Frameworks General Introduction Glossary:

None

Volume 1 – Profiles

Modify Section 2.1.1 to mention SWF.b. Whether the text is modified to replace SWF with SWF.b (if we retire SWF at that time) or mention both profiles, or mention SWF.b at the bottom of the list, will depend on what we have decided at that time.

See instruction above.

Add the following text below Table 3.1-1: Scheduled Workflow - Actors and Transactions (and below its note)

In each of the transactions assigned in Table 3.1-1, actors shall implement the HL7 v2.3.1 Message Semantics when such semantics are defined.

Modify Section 3.2 to remove the 2.5.1 Option from SWF as shown below.

3.2 Scheduled Workflow Integration Profile Options

Options that may be selected for this Integration Profile are listed in Table 3.2-1 along with the actors to which they apply. Dependencies between options when applicable are specified in notes.

Table 3.2-1: Scheduled Workflow - Actors and Options

Actor	Option	Volume & Section
ADT Patient Registration	No options defined HL7 v2.5.1	RAD TF 1:3.2.1 RAD TF 2:4.1 RAD TF 2:4.12
Order Placer	Departmental Appointment Notification	RAD TF-3: 4.48
	HL7 v2.5.1	RAD TF 1:3.2.1 RAD TF 1:3.3.3.2 RAD TF 2:4.1 RAD TF 2:4.2 RAD TF 2:4.3 RAD TF:2.12
DSS/Order Filler	Image Availability	RAD TF-2: 4.11
	Departmental Appointment Notification	RAD TF-3: 4.48
	PPS Exception Management	RAD TF-2: 4.7
	Performed Work Status Update - Receive	RAD TF-2: 4.42
	Availability of PPS-Referenced Instances	RAD TF-3: 4.49

Actor	Option	Volume & Section
	HL7 v2.5.1	RAD TF-1:3.2.1 RAD TF-1:3.3.3.2 RAD TF-2:4.1 RAD TF-2:4.2 RAD TF-2:4.3 RAD TF-2:4.4 RAD TF-2:4.12 RAD TF-2:4.13
Acquisition Modality	Patient Based Worklist Query (Note 1)	RAD TF-2: 4.5
	Broad Worklist Query (Note 1)	RAD TF-2: 4.5
	Assisted Acquisition Protocol Setting	RAD TF-2: 4.6
	PPS Exception Management	RAD TF-2: 4.7
	Modality Group Case (Note 2)	RAD TF-2: 4.6
	Billing and Material Management	RAD TF-2: 4.7
Image Manager/ Image Archive	Availability of PPS-Referenced Instances	RAD TF-3: 4.49
	PPS Exception Management	RAD TF-2: 4.7
	Performed Work Status Update - Receive	RAD TF-3: 4.42
	HL7 v2.5.1	RAD TF-1:3.2.1 RAD TF-2:4.4 RAD TF-2:4.13
Image Display	<i>No options defined</i>	-
Performed Procedure Step Manager	<i>No options defined</i>	-
Evidence Creator	Creator Performed Procedure Step	RAD TF-2: 4.20 RAD TF-2: 4.21
	PPS Exception Management (see Note 3)	RAD TF-2: 4.21

Note 1: At least one of these two options is required. Both may be supported.

Note 2: When a modality claims support for the Modality Group Case Option, it is required to support all three grouping scenarios described in RAD TF-2: 4.6.4.1.2.3.4.

Note 3: An Evidence Creator claiming the PPS Exception Management Option shall also support the Creator Performed Procedure Step Option.

The Evidence Creator, Acquisition Modality and Image Manager/ Image Archive will likely support a variety of DICOM² SOP Classes. It is expected that this level of optionality will be documented by a reference in the IHE Integration Statement (see Appendix D).

3.2.1 HL7 v2.5.1 Option

The HL7 v2.5.1 Option has been retired. Relevant systems may instead claim support for SWF.b. See RAD TF-1: 34.

² DICOM is the registered trademark of the National Electrical Manufacturers Association for its standards publications relating to digital communications of medical information.

270 ~~The HL7 v2.5.1 Option requires actors to support HL7 v2.5.1 in addition to HL7 v2.3.1 in the transactions referenced in Table 3.2-1. The actor shall permit configuration for each system that it communicates with using the referenced transactions whether HL7 v2.3.1 or HL7 v2.5.1 is used. It is possible that the actor may receive HL7 v2.3.1 messages and send HL7 v2.5.1 messages or vice versa.~~

275 ~~The specifications in the HL7 v2.5.1 Option maintain semantic equivalency with HL7 v2.3.1 implementations and the field correspondences are summarized in RAD TF-2 Appendix E.~~

Remove the (now) redundant reference to 2.3.1

3.3.3 Order Change Flow

280 ~~3.3.3.1 Order Change Flow, HL7 v2.3.1~~

This case covers the situation when the Order Placer or the Department System Scheduler/Order Filler has to change order information or cancel/discontinue an order. When an order information change is necessary, for HL7 v2.3.1, the IHE Technical Framework requires the initiating actor to cancel the order and generate the new one using the new information. Figures 3.3-6 and 3.3-7
285 depict examples of order cancellation/re-ordering flow initiated by the Order Placer and the Department System Scheduler/Order Filler respectively. Note that one should consider these transactions as being performed between the process flow fragments depicted in Figures 3.3-1 and 3.3-2 to ensure synchronization of information between interested actors.

290 *Remove the (now) redundant Section 3.3.3.2 and its text*

~~3.3.3.2 Change Order Flow, HL7 v2.5.1 Option~~

...

Modify Section 4.2 to remove the 2.5.1 Option from PIR as shown below.

295 **4.2 Patient Information Reconciliation Integration Profile Options**

Options that may be selected for this Integration Profile are listed in the Table 4.2-1 along with the actors to which they apply.

300

Table 4.2-1: Patient Information Reconciliation – Actors and Options

Actor	Options	Volume & Section
ADT Patient Registration	<u>No options defined</u> HL7 v2.5.1	RAD TF 1:4.2.1 RAD TF 2:4.12
Order Placer	<u>No options defined</u> HL7 v2.5.1	RAD TF 1:4.2.1 RAD TF 2:4.12
DSS/Order Filler	<u>No options defined</u> HL7 v2.5.1	RAD TF 1:4.2.1 RAD TF 2:4.12 RAD TF 2:4.13
Acquisition Modality	<i>No options defined</i>	-
Image Manager/ Image Archive	<u>No options defined</u> HL7 v2.5.1	RAD TF 1:4.2.1 RAD TF 2:4.12 RAD TF 2:4.13
Performed Procedure Step Manager	<i>No options defined</i>	-
Report Manager	<u>No options defined</u> HL7 v2.5.1	RAD TF 1:4.2.1 RAD TF 2:4.12 RAD TF 2:4.13

4.2.1 HL7 v2.5.1 Option

The HL7 v2.5.1 Option has been retired. Relevant systems may instead claim support for SWF.b. See RAD TF-1: 34.

305 ~~The HL7 v2.5.1 Option requires actors to support HL7 v2.5.1 in addition to HL7 v2.3.1 in the transactions referenced in Table 4.2-1. The actor shall permit configuration for each system that it communicates with using the referenced transactions whether HL7 v2.3.1 or HL7 v2.5.1 is used. It is possible that the actor may receive HL7 v2.3.1 messages and send HL7 v2.5.1 messages or vice versa.~~

310 ~~The specifications in the HL7 v2.5.1 Option maintain semantic equivalency with HL7 v2.3.1 implementations and the field correspondences are summarized in RAD TF-2 Appendix E.~~

<i>Modify Section 13.2 to remove the 2.5.1 Option from RWF as shown below.</i>
--

315

13.2 Reporting Workflow Integration Profile Options

Options that may be selected for this Integration Profile are listed in the Table 13.2-1 along with the actors to which they apply. Dependencies between options when applicable are specified in notes.

320

Table 13.2-1: Reporting Workflow - Actors and Options

Actor	Options	Vol. & Section
Department System Scheduler / Order Filler	HL7 v2.5.1	RAD TF-1: 13.2.1 RAD TF-2: 4.4. <u>1.2.2</u> RAD TF-2: 4.13. <u>4.2</u>
Image Manager/ Image Archive	<i>No options defined</i>	-
Report Creator	<i>No options defined</i>	-
Report Manager	HL7 v2.5.1	RAD TF-1: 13.2.1 RAD TF-2: 4.4. <u>1.2.2</u> RAD TF-2: 4.13. <u>4.2</u>
Report Reader	<i>No options defined</i>	-
Performed Procedure Step Manager	<i>No options defined</i>	

13.2.1 HL7 v2.5.1 Option

The HL7 v2.5.1 Option requires actors to support HL7 v2.5.1 in addition to HL7 v2.3.1 in the transactions referenced in Table 13.2-1. The actor shall permit configuration for each system that it communicates with using the referenced transactions whether HL7 v2.3.1 or HL7 v2.5.1 is used. It is possible that the actor may receive HL7 v2.3.1 messages and send HL7 v2.5.1 messages or vice versa.

- **A Department System Scheduler / Order Filler that supports the HL7 v2.5.1 Option shall support the HL7 v2.5.1 Message Semantics for [RAD-4] and [RAD-13] in RAD TF-2: 4.4.1.2.2 and RAD TF-2: 4.13.4.2.**
- **A Report Manager that supports the HL7 v2.5.1 Option shall support the HL7 v2.5.1 Message Semantics for [RAD-4] and [RAD-13] in RAD TF-2: 4.4.1.2.2 and RAD TF-2: 4.13.4.2.**

The specifications in the HL7 v2.5.1 Option maintain semantic equivalency with HL7 v2.3.1 implementations and the field correspondences are summarized in RAD TF-2 Appendix E.

Add a new profile Chapter/Section for Scheduled Workflow.b as shown below.

34 Scheduled Workflow.b (SWF.b) Profile

The ***Scheduled Workflow.b Integration Profile*** establishes the continuity and integrity of basic departmental imaging data. It maintains the consistency of patient and ordering information as well as providing the scheduling and imaging acquisition procedure steps. This profile makes it possible to determine whether images and other evidence objects associated with a particular performed procedure step have been stored (archived) and are available to enable subsequent

345 workflow steps, such as reporting. It may also provide central coordination of the completion of processing and reporting steps as well as notification of appointments to the Order Placer.

350 This profile also offers the means to match images, diagnostic reports, and other evidence objects acquired for a misidentified or unidentified patient (for example, during a trauma case) with the patient's record. In the example of the trauma case, this Profile allows subsequent reconciliation of the patient record with images that are acquired (either without a prior registration or under a generic registration) before the patient's identity can be determined. Thus, images can be acquired and interpreted immediately and later, when the patient's official registration and order information is entered into the ADT, Order Placer and Order Filler Systems, this information is matched with the acquired image set and reports, greatly simplifying these exception handling situations.

34.1 SWF.b Actors/Transactions

This section defines the actors and transactions in this profile. General definitions of actors are given in the Technical Frameworks General Introduction Appendix A at http://ihe.net/Technical_Frameworks.

360 Figure 34.1-1 shows the actors directly involved in the SWF.b Profile and the relevant transactions between them. If needed for context, other actors that may be indirectly involved due to their participation in other related profiles are shown in dotted lines. Actors which have a mandatory grouping are shown in conjoined boxes.

365 Note: In an attempt to simplify Figure 34.1-1, not all of the "optional" transactions listed in Table 34.1-1 are shown in the diagram.

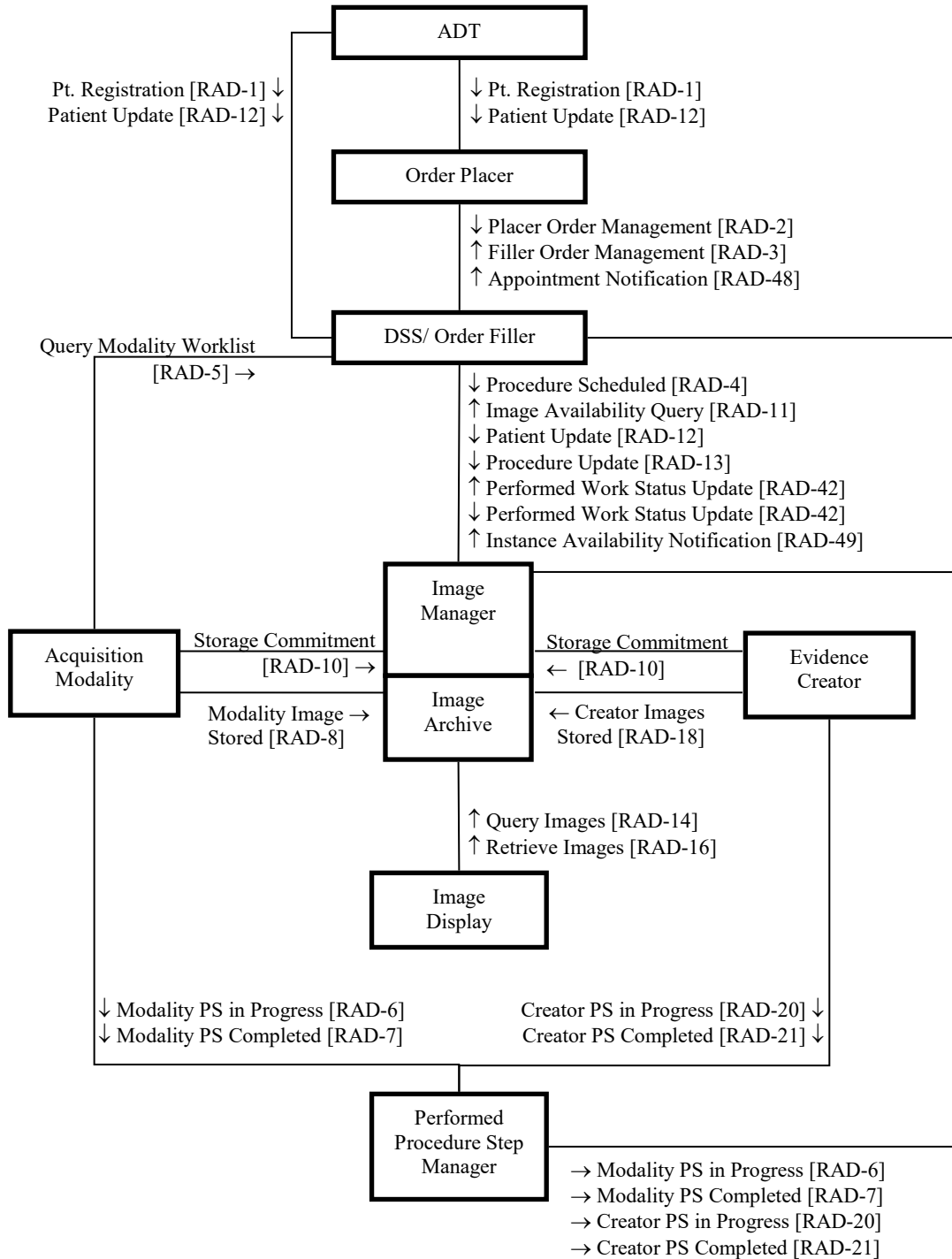


Figure 34.1-1: Scheduled Workflow.b Actor Diagram

370

Table 34.1-1 lists the transactions for each actor directly involved in the Scheduled Workflow.b Profile. To claim compliance with this profile, an actor shall support all required transactions (labeled “R”) and may support the optional transactions (labeled “O”).

Table 34.1-1: SWF.b Profile - Actors and Transactions

Actors	Transactions	Optionality	TF Reference
ADT Patient Registration	Patient Registration [RAD-1]	R	RAD TF-2: 4.1
	Patient Update [RAD-12]	R	RAD TF-2: 4.12
Order Placer	Patient Registration [RAD-1]	R	RAD TF-2: 4.1
	Patient Update [RAD-12]	R	RAD TF-2: 4.12
	Placer Order Management [RAD-2]	R	RAD TF-2: 4.2
	Filler Order Management [RAD-3]	R	RAD TF-2: 4.3
	Appointment Notification [RAD-48]	O	RAD TF-3: 4.48
Department System Scheduler/ Order Filler	Patient Registration [RAD-1]	R	RAD TF-2: 4.1
	Patient Update [RAD-12]	R	RAD TF-2: 4.12
	Placer Order Management [RAD-2]	R	RAD TF-2: 4.2
	Filler Order Management [RAD-3]	R	RAD TF-2: 4.3
	Procedure Scheduled [RAD-4]	R	RAD TF-2: 4.4
	Query Modality Worklist [RAD-5]	R	RAD TF-2: 4.5
	Modality Procedure Step In Progress [RAD-6]	R	RAD TF-2: 4.6
	Modality Procedure Step Completed [RAD-7]	R	RAD TF-2: 4.7
	Images Availability Query [RAD-11]	O	RAD TF-2: 4.11
	Procedure Update [RAD-13]	R	RAD TF-2: 4.13
	Creator Procedure Step in Progress [RAD-20]	R	RAD TF-2: 4.20
	Creator Procedure Step Completed [RAD-21]	R	RAD TF-2: 4.21
	Performed Work Status Update [RAD-42] (as the Receiver, see Note 1))	O	RAD TF-3: 4.42
	Appointment Notification [RAD-48]	O	RAD TF-3: 4.48
	Instance Availability Notification [RAD-49]	O	RAD TF-3: 4.49
Acquisition Modality	Query Modality Worklist [RAD-5]	R	RAD TF-2: 4.5
	Modality Procedure Step In Progress [RAD-6]	R	RAD TF-2: 4.6
	Modality Procedure Step Completed [RAD-7]	R	RAD TF-2: 4.7
	Modality Images Stored [RAD-8]	R	RAD TF-2: 4.8
	Storage Commitment [RAD-10]	R	RAD TF-2: 4.10
Image Manager/ Image Archive	Procedure Scheduled [RAD-4]	R	RAD TF-2: 4.4
	Modality Procedure Step In Progress [RAD-6]	R	RAD TF-2: 4.6
	Modality Procedure Step Completed [RAD-7]	R	RAD TF-2: 4.7
	Modality Images Stored [RAD-8]	R	RAD TF-2: 4.8
	Storage Commitment [RAD-10]	R	RAD TF-2: 4.10
	Images Availability Query [RAD-11]	R	RAD TF-2: 4.11
	Patient Update [RAD-12]	R	RAD TF-2: 4.12

Actors	Transactions	Optionality	TF Reference
	Procedure Update [RAD-13]	R	RAD TF-2: 4.13
	Query Images [RAD-14]	R	RAD TF-2: 4.14
	Retrieve Images [RAD-16]	R	RAD TF-2: 4.16
	Creator Images Stored [RAD-18]	R	RAD TF-2: 4.18
	Creator Procedure Step in Progress [RAD-20]	R	RAD TF-2: 4.20
	Creator Procedure Step Completed [RAD-21]	R	RAD TF-2: 4.21
	Performed Work Status Update [RAD-42] (as the Receiver, see Note 1)	O	RAD TF-3: 4.42
	Instance Availability Notification [RAD-49]	O	RAD TF-3: 4.49
Performed Procedure Step Manager	Modality Procedure Step In Progress [RAD-6]	R	RAD TF-2: 4.6
	Modality Procedure Step Completed [RAD-7]	R	RAD TF-2: 4.7
	Creator Procedure Step in Progress [RAD-20]	R	RAD TF-2: 4.20
	Creator Procedure Step Completed [RAD-21]	R	RAD TF-2: 4.21
Image Display	Query Images [RAD-14]	R	RAD TF-2: 4.14
	Retrieve Images [RAD-16]	R	RAD TF-2: 4.16
Evidence Creator	Creator Images Stored [RAD-18]	R	RAD TF-2: 4.18
	Creator Procedure Step in Progress [RAD-20]	O	RAD TF-2: 4.20
	Creator Procedure Step Completed [RAD-21]	O	RAD TF-2: 4.21
	Storage Commitment [RAD-10]	R	RAD TF-2: 4.10

Note 1: The Department System Scheduler or the Image Manager may optionally choose to be receivers of Performed Work Status Update transactions in order to monitor the status of work in workflows that are managed by other systems (see RAD TF-3: 4.42).

34.1.1 Actor Descriptions and Actor Profile Requirements

Most requirements are documented in Transactions (Volumes 2 & 3). This section documents any additional requirements on the profile's actors.

34.1.1.1 ADT Patient Registration

In each of the transactions assigned in Table 34.1-1, the ADT Patient Registration shall implement the HL7 v2.5.1 Message Semantics when such semantics are defined.

Note: The HL7 v2.5.1 message semantics maintain semantic equivalency with the HL7 v2.3.1 message semantics and the field correspondences are summarized in RAD TF-2: Appendix E.

34.1.1.2 Order Placer

In each of the transactions assigned in Table 34.1-1, the Order Placer shall implement the HL7 v2.5.1 Message Semantics when such semantics are defined.

Note: The HL7 v2.5.1 message semantics maintain semantic equivalency with the HL7 v2.3.1 message semantics and the field correspondences are summarized in RAD TF-2: Appendix E.

390 **34.1.1.3 Order Filler**

In each of the transactions assigned in Table 34.1-1, the Order Filler shall implement the HL7 v2.5.1 Message Semantics when such semantics are defined.

Note: The HL7 v2.5.1 message semantics maintain semantic equivalency with the HL7 v2.3.1 message semantics and the field correspondences are summarized in RAD TF-2: Appendix E.

395 **34.1.1.4 Image Manager/Image Archive**

In each of the transactions assigned in Table 34.1-1, the Image Manager/Image Archive shall implement the HL7 v2.5.1 Message Semantics when such semantics are defined.

Note: The HL7 v2.5.1 message semantics maintain semantic equivalency with the HL7 v2.3.1 message semantics and the field correspondences are summarized in RAD TF-2: Appendix E.

400 **34.1.1.5 Performed Procedure Step Manager**

The Performed Procedure Step Manager (which is grouped with both Order Fillers and Image Manager/Image Archives) shall be capable of being disabled via configuration. This avoids having two active PPS Managers creating confusion or forwarding loops.

34.2 SWF.b Actor Options

405 Options that may be selected for each actor in this profile, if any, are listed in Table 34.2-1. Dependencies between options when applicable are specified in notes.

Table 34.2-1: Scheduled Workflow.b - Actors and Options

Actor	Option Name	TF Reference
ADT Patient Registration	<i>No options defined</i>	
Order Placer	Departmental Appointment Notification	RAD TF-1: 34.2.1 RAD TF-1: 34.4.2.7 RAD TF-3: 4.48
DSS/Order Filler	Image Availability	RAD TF-1: 34.2.2 RAD TF-2: 4.11
	Departmental Appointment Notification	RAD TF-1: 34.2.1 RAD TF-1: 34.4.2.7 RAD TF-3: 4.48
	PPS Exception Management	RAD TF-1: 34.2.3 RAD TF-2: 4.7.4.1.2.2 RAD TF-2: 4.7.4.1.3.1 RAD TF-2: 4.21.4.1.2.1
	Performed Work Status Update - Receive	RAD TF-1: 34.2.9 RAD TF-3: 4.42
	Availability of PPS-Referenced Instances	RAD TF-1: 34.2.8 RAD TF-3: 4.49
	Billing and Material Management	RAD TF-1: 34.2.6 RAD TF-2: 4.7.4.1.3.2

Actor	Option Name	TF Reference
	Enterprise Identity	RAD TF-1: 34.2.10 RAD TF-2: 4.4.1.2.9 RAD TF-2: 4.5.4.1.2.3
Acquisition Modality	Patient Based Worklist Query (Note 1)	RAD TF-2: 4.5
	Broad Worklist Query (Note 1)	RAD TF-2: 4.5
	Assisted Acquisition Protocol Setting	RAD TF-1: 34.2.5 RAD TF-2: 4.5.4.2.3 RAD TF-2: 4.6.4.1.2.4 RAD TF-2: A.1
	PPS Exception Management	RAD TF-1: 34.2.3 RAD TF-2: 4.7.4.1.2.2 RAD TF-2: 4.7.4.1.3.1 RAD TF-2: 4.7.4.1.2.2
	Modality Group Case	RAD TF-1: 34.2.4 RAD TF-2: 4.6
	Billing and Material Management	RAD TF-1: 34.2.6 RAD TF-2: 4.7.4.1.2.3
	Enterprise Identity	RAD TF-1: 34.2.10 RAD TF-2: 4.5.4.1.2.3 RAD TF-2: 4.6.4.1.2.5 RAD TF-2: 4.8.4.1.2.5
Image Manager/ Image Archive	Availability of PPS-Referenced Instances	RAD TF-1: 34.2.8 RAD TF-3: 4.49
	PPS Exception Management	RAD TF-1: 34.2.3 RAD TF-2: 4.7.4.1.2.2 RAD TF-2: 4.7.4.1.3.1 RAD TF-2: 4.21.4.1.2.1
	Performed Work Status Update - Receive	RAD TF-1: 34.2.9 RAD TF-3: 4.42
	Enterprise Identity Option	RAD TF-1: 34.2.10 RAD TF-2: 4.4.1.2.9 RAD TF-2: 4.6.4.1.2.5 RAD TF-2: 4.8.4.1.2.5 RAD TF-2: 4.18.4.1.2.6 RAD TF-2: 4.20.4.1.2.5
Image Display	Enterprise Identity	RAD TF-2: 4.14.4.1.2
Performed Procedure Step Manager	<i>No options defined</i>	-
Evidence Creator	Creator Performed Procedure Step	RAD TF-1: 34.2.7 RAD TF-2: 4.20 RAD TF-2: 4.21
	PPS Exception Management Option (Note 2)	RAD TF-1: 34.2.3 RAD TF-2: 4.21.4.1.2.1

Actor	Option Name	TF Reference
	Enterprise Identity Option	RAD TF-1: 34.2.10 RAD TF-2: 4.18.4.1.2.6 RAD TF-2: 4.20.4.1.2.4

Note 1: At least one of these two options is required. Both may be supported.

Note 2: An Evidence Creator claiming the PPS Exception Management Option shall also support the Creator Performed Procedure Step Option.

The Evidence Creator, Acquisition Modality and Image Manager/ Image Archive will likely support a variety of DICOM SOP Classes. It is expected that this level of optionality will be documented by a reference in the IHE Integration Statement (see Appendix D).

34.2.1 Departmental Appointment Notification Option

This option involves the Order Filler notifying the Order Placer when imaging procedures are newly scheduled, rescheduled or canceled on the Order Filler.

Order Fillers and Order Placers that claim this option shall support the Appointment Notification [RAD-48] transaction and the use case and process flow described in RAD TF-1: 34.4.2.7.

Order Fillers that claim this option shall have ability to be configured so that the Appointment Notification transaction is not sent when connected to an Order Placer that does not support the Departmental Appointment Notification Option.

34.2.2 Image Availability Option

This option involves the Order Filler checking on the availability of images generated during acquisitions.

Order Filler Actors that claim this option shall support the Images Availability Query [RAD-11] transaction.

34.2.3 PPS Exception Management Option

This option involves using PPS message features to communicate and handle advanced exception cases.

Acquisition Modalities, Evidence Creators, Image Managers and Order Fillers that claim this option shall support the use case and process flow described in RAD TF-1: 34.4.2.5.

34.2.4 Modality Group Case Option

This option involves the Acquisition Modality combining multiple Scheduled Procedure Steps and performing them in a procedure described by a single Performed Procedure Step.

Acquisition Modality Actors that claim this option shall support all three grouping scenarios described in RAD TF-2: 4.6.4.1.2.3.4.

34.2.5 Assisted Acquisition Protocol Setting Option

440 This option involves the Acquisition Modality using procedure codes provided in the modality
worklist to automatically assist the operator in selecting and setting the acquisition protocol.
See RAD TF-2: 4.6.4.1.2.4.2 for more details.

34.2.6 Billing and Material Management Option

This option involves using PPS message features to communicate details related to billing and
materials consumed during the procedure from the Acquisition Modality to the Order Filler.
445 See RAD TF-2: 4.7.4.1.2.3 for more details.

34.2.7 Creator Performed Procedure Step Option

This option involves the Evidence Creator using PPS messages to keep the PPS Manager
informed about steps performed on the Evidence Creator.
Evidence Creator Actors that claim this option shall support the Creator Procedure Step in
450 Progress [RAD-20] transaction and the Creator Procedure Step Completed [RAD-21]
transaction.

34.2.8 Availability of PPS-Referenced Instances Option

This option involves Image Manager/Archives notifying relevant actors of the availability status
of newly stored DICOM objects.
455 Image Manager/Archive Actors and Order Filler Actors that claim this option shall support the
Instance Availability Notification [RAD-49] transaction.

34.2.9 Performed Work Status Update – Receive Option

This option involves Order Fillers and Image Mangers monitoring the status of work in
workflows that are managed by other systems.
460 Image Manager/Archive Actors and Order Filler Actors that claim this option shall support the
Performed Work Status Update [RAD-42] transaction as an SCP (to receive such updates).
Other profiles such as Charge Posting (CHG), Post-Processing Workflow (PWF) and Reporting
Workflow (RWF) require actors such as the Order Filler, Post-Processing Manager and Report
Manager to support the transactions as an SCU (to send such updates).

465 34.2.10 Enterprise Identity Option

The Enterprise Identity Option enhances the communication among the Evidence Creator,
Acquisition Modality, DSS/Order Filler, Image Display and Image Manager/Image Archive with
the inclusion and/or coercion of unique qualifiers for Institution, Patient ID and Accession
470 Number. Additionally, the attributes for Other Patient IDs are included, if provided by the
DSS/Order Filler.

Including the Issuer of Patient ID attribute to identify the Patient ID Registration Domain enables the Acquisition Modality to provide images for export with a uniquely qualified patient identifier.

475 Including the Issuer of Accession Number Sequence provides unique issuer identity of the Accession Number when multiple Accession Number Issuers may be part of the same enterprise, for example, when a Cardio-Vascular Information System and a Radiology Information System both exist and provide images to a common enterprise PACS.

Including the Institution Name, Institution Code Sequence and Institution Address provides enterprise identification information that is useful to recipients beyond the enterprise.

480

A DSS/Order Filler supporting the Enterprise Identity Option shall handle such information as specified in:

- Procedure Scheduled [RAD-4] See RAD TF-2: 4.4.1.2.5
- Query Modality Worklist [RAD-5] See RAD TF-2: 4.5.4.1.2.3
- 485 • Modality Procedure Step In Progress [RAD-6] See RAD TF-2: 4.6.4.1.2.5
- Creator Procedure Step In Progress [RAD-20] See RAD TF-2: 4.20.4.1.2.4

An Acquisition Modality supporting the Enterprise Identity Option shall handle such information as specified in:

- Query Modality Worklist [RAD-5] See RAD TF-2: 4.5.4.1.2.3
- 490 • Modality Procedure Step In Progress [RAD-6] See RAD TF-2: 4.6.4.1.2.5
- Modality Images Stored [RAD-8] See RAD TF-2: 4.8.4.1.2.5

An Evidence Creator supporting the Enterprise Identity Option shall handle such information as specified in:

- 495 • Creator Images Stored [RAD-18] See RAD TF-2: 4.18.4.1.2.6
- Creator Procedure Step in Progress [RAD-20] See RAD TF-2: 4.20.4.1.2.4

An Image Manager/Image Archive supporting the Enterprise Identity Option shall handle such information and coerce, if needed, the appropriate information as specified in:

- 500 • Modality Images Stored [RAD-8] See RAD TF-2: 4.8.4.1.3.2
- Creator Images Stored [RAD-18] See RAD TF-2: 4.18.4.1.3.2

An Image Display and an Image Manager/Image Archive supporting the Enterprise Identity Option shall handle such information in their queries, as specified in:

- 505 • Query Images [RAD-14] See RAD TF-2: 4.14.4.1.2

34.3 SWF.b Required Actor Groupings

510 An actor from this profile (Column 1) shall implement all of the required transactions and/or content modules in this profile in addition to all of the transactions required for the grouped actor (column 2).

Section 34.5 may describe some optional groupings that may be of interest for security considerations and Section 34.6 describes some optional groupings in other related profiles.

Table 34.3-1: Scheduled Workflow.b - Required Actor Groupings

SWF.b Actor	Actor to be grouped with	Reference
ADT Patient Registration	None	--
Order Placer	None	--
DSS/Order Filler	SWF.b / Performed Procedure Step Manager	RAD TF-1: 34.1
Acquisition Modality	None	--
Image Manager	SWF.b / Image Archive	RAD TF-1: 34.1
	SWF.b / Performed Procedure Step Manager	RAD TF-1: 34.1
Image Archive	SWF.b / Image Manager	RAD TF-1: 34.1
Image Display	None	--
Performed Procedure Step Manager	None	--
Evidence Creator	None	--

515 34.4 SWF.b Overview

The primary features of the Scheduled Workflow.b Profile are:

- Patient management
- Order management
- Bridging HL7 orders into DICOM worklists
- 520 • Acquisition of DICOM data with proper structure and identifiers
- Handling routine exceptions (such as emergency procedures that are performed before they are formally ordered, or procedures where the identity of the patient is unknown or mis-selected)

34.4.1 Concepts

525 This section defines the integrated data model adopted by the IHE Technical Framework for the HL7 messages and the DICOM Information Object Definitions (IODs). The Entity Relationship (ER) diagram represents the integration of proper subsets of HL7 2.5.1 and the DICOM Model of the Real World with minor extensions as noted in the following section and described in Appendix B.

530 34.4.1.1 Model of the Real World

Figure 34.4.1.1-1 depicts the model of the real world within scope of the Scheduled Workflow.b Profile. This model provides an overview of the high-level integration of the DICOM and HL7 models. This integrated model differs from the DICOM Model of the Real World (refer to DICOM PS 3.3) in the following respects:

- 535 • The Service Episode, Procedure Plan and Procedure Type entities have been excluded and are outside the scope of the IHE Technical Framework
- The relationship between the Visit and Imaging Service Request has been excluded and is outside the scope of the IHE Technical Framework.
- 540 • The HL7 Placer Order and Filler Order entities have been inserted into the DICOM hierarchy between the Patient entity and Imaging Service Request entity. IHE requires that a single Placer Order shall correspond to one and only one Filler Order.
- The DICOM Imaging Service Request Entity is equated with the HL7 Filler Order entity. In this relationship, IHE provides clarification of the use of the Accession Number - DICOM attribute (0008,0050); see Appendix A for further discussion.

545

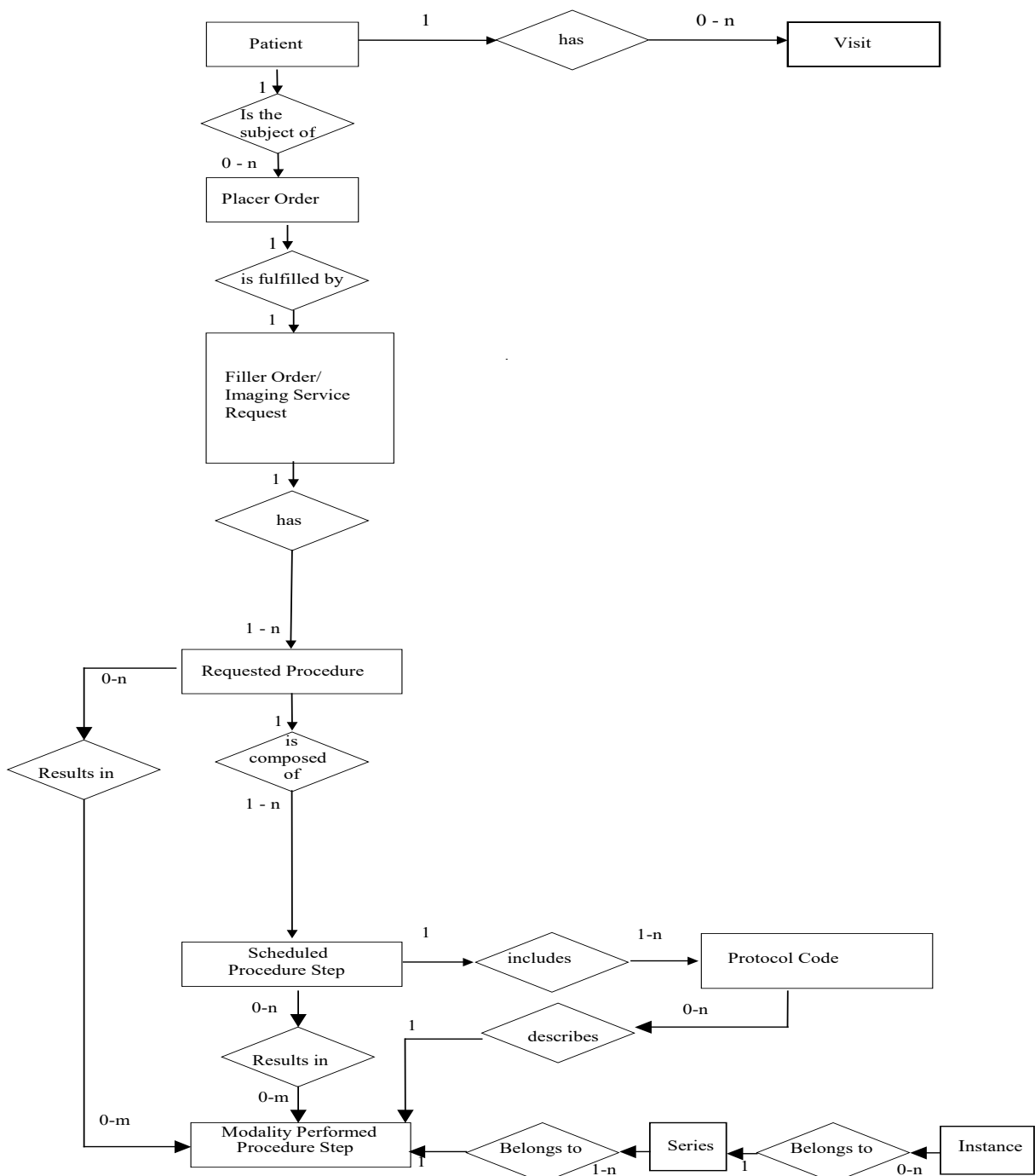


Figure 34.4.1.1-1: Real World Model for Scheduled Workflow

34.4.1.2 Scheduled Workflow Concepts in Practice

550 The IHE “Real World” model for Scheduled Workflow described above offers three major levels of control that can be used to customize a broad range of specific workflow situations:

Order: A request for an Imaging Service

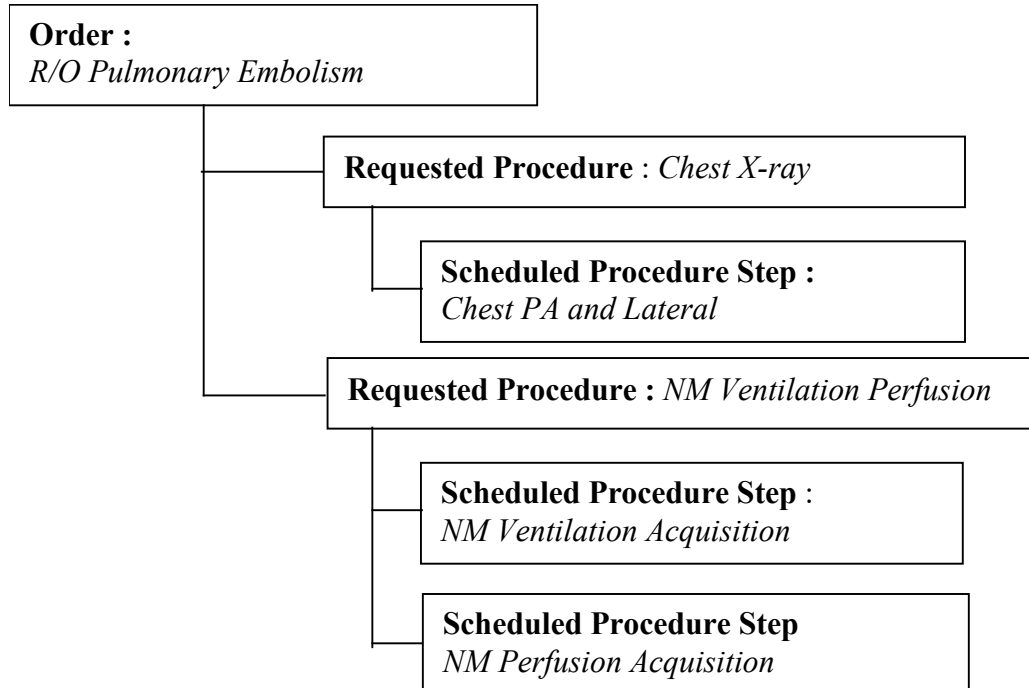
Requested Procedure: Unit of work resulting in one report with associated codified, billable acts.

555 **Scheduled and Performed Procedure Step:** the smallest unit of work in the workflow that is scheduled (work to do) and/or performed (work done).

The Order Filler/Department System Scheduler uses the Universal Service ID in each order that it receives to determine what specific Requested Procedures are needed, and for each Requested Procedure the Procedure Steps that need to be scheduled.

560 A departmental Procedure Plan may be used in the Order Filler to predefine for each one of the types of Orders that may be requested from the imaging department (generally defined in the Order Placer) the breakdown in Requested Procedure (with a specific procedure code) and for each Requested Procedure Code, the breakdown in Scheduled Procedure Steps.

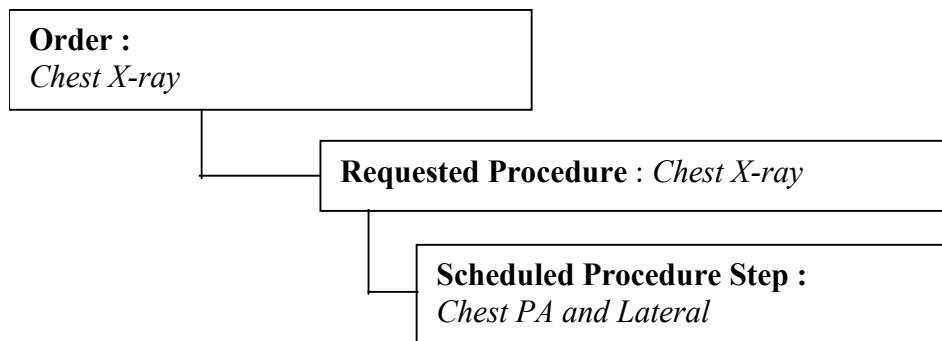
565 The figure below defines an example of the breakdown of a “rule out pulmonary embolism” Order.



In this Procedure Plan, for this specific Order, two Requested Procedures are defined. The Chest X-ray that will be read and reported by a different radiologist than the NM Ventilation-Perfusion, hence two different Requested Procedures. The NM Ventilation Perfusion Procedure has been scheduled as two different Scheduled Procedure Steps, to account for the fact that the patient will have the two NM acquisitions performed at a different time, thus allowing for patient preparation between the two examinations. This is the way this institution has decided to handle this Order.

Another Institution may choose to require the same radiologist to read both the X-ray and the NM images. In that case it would define in its Procedure plan for the same Order to have a single Requested Procedure with three Scheduled Procedure Steps.

Many Orders processed in a Radiology Department would have a simpler breakdown such as this Chest X-ray example.



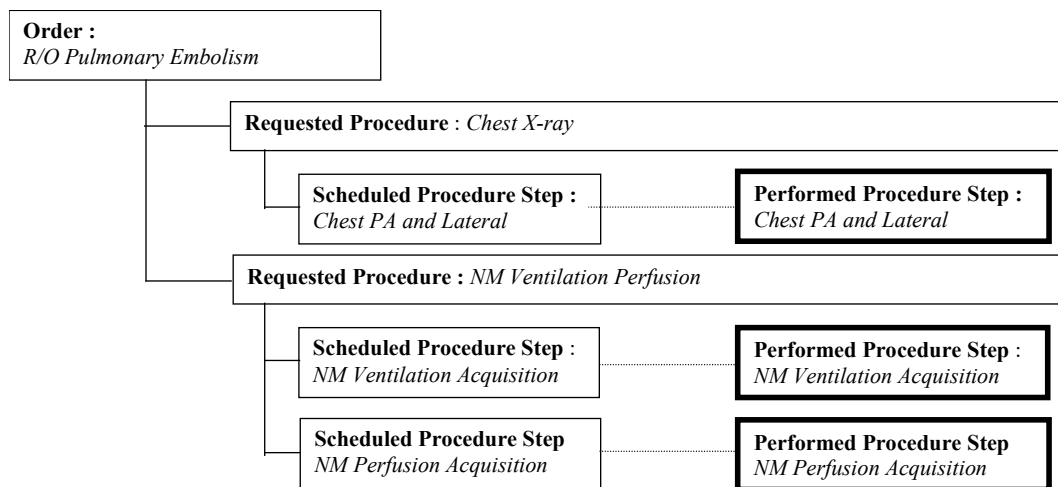
It should be noted that the three level Order breakdown has been defined in Scheduled Workflow.b so that any type of Orders, from the simple case to the more complex cases may be handled by the same workflow concepts, thus providing a general approach that can be easily customized by each imaging department in the definition of its Procedure Plan.

In Scheduled Workflow.b, the **Accession Number identifies the Order**. The requested Procedure ID distinguishes among Requested Procedures when an Order requires multiple Procedures. IHE sets a common meaning for these two terms to provide clinicians with a consistent and non-ambiguous access across different vendor products (RIS, PACS and Modalities).

34.4.1.2.1 Tracking Performed Procedure Steps

Scheduled Workflow.b not only addresses the breakdown of Orders into Requested Procedures and Scheduled Procedure Steps but also allows tracking the Procedure Steps that have actually been performed. The Performed Procedure Steps may or may not correspond to the Scheduled Procedure Steps. This provides the flexibility needed to adjust on the Modality if the actual acquisition differs from what was scheduled.

Using the Pulmonary Embolism example above, one may decide to follow the Order breakdown as defined in the procedure Plan.

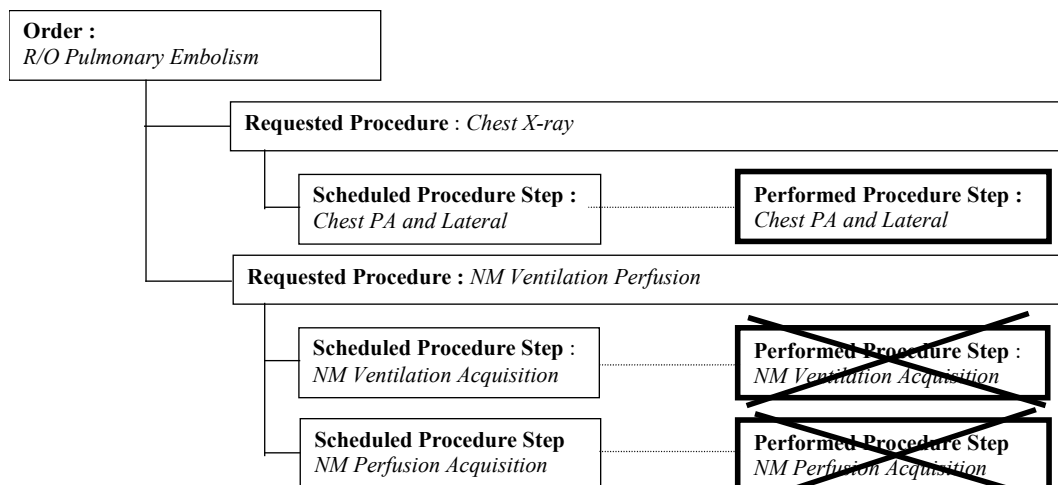


600

605

The Chest X-ray Requested Procedure would contain the series of images associated with the Chest PA and Lateral Performed Procedure and the NM Ventilation Perfusion would contain both the series for the ventilation and the series of images for the perfusion. From this example one can see how the Requested Procedure forms the “folder” where the radiologists find the images to be read resulting from the Scheduled Procedures Steps.

Using the Pulmonary Embolism example above, one may decide that following the Chest X-ray, it is not necessary to perform the NM Perfusion Ventilation.

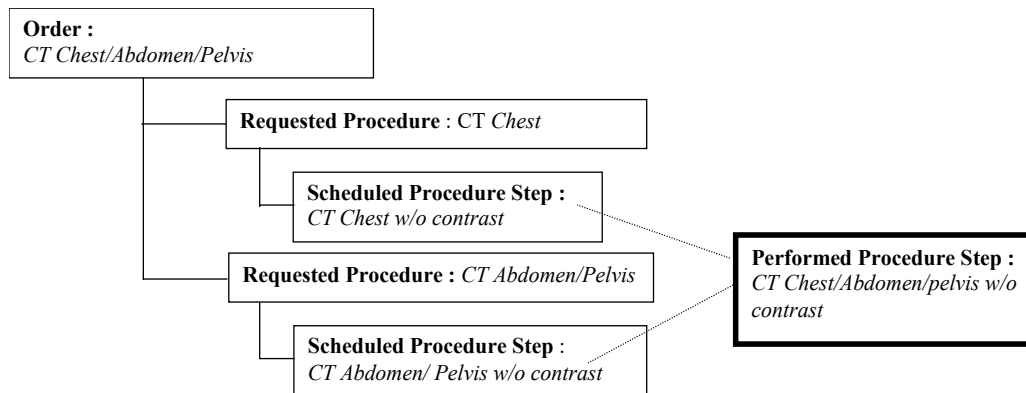


610

In this later case, the Nuclear Scheduled Procedure Steps will be cancelled. Only the Chest X-ray Requested Procedure will “contain” the Image corresponding to the Chest PA and lateral Chest X-ray.

615 To illustrate further the capabilities of Scheduled Workflow.b, let's look at a
 Chest/Abdomen/Pelvis Order that a radiology department chooses to break down into a Chest
 Requested Procedure and an Abdomen/Pelvis Requested Procedure in order to take advantage of
 the subspecialties of its radiologists. Some hospitals also may want to produce separate reports to
 align with the charging policies.

620



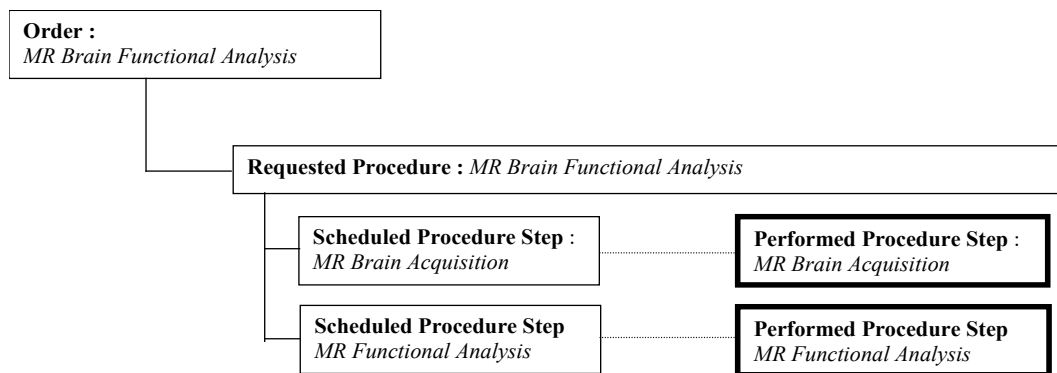
625 In this example, a single Performed Procedure Step has been performed in response to two
 Scheduled Procedure Steps. IHE refers to this as a Group Case (see RAD TF-2: 4.6). At the time
 of reading, the same series of images produced by this Performed Procedure Step would be read
 once in the context of the CT Chest Requested Procedure and again in the context of the
 Abdomen/Pelvis Requested Procedure.

34.4.1.2.2 Extending the Scheduled Workflow Concepts to Include Post-Processing Tasks

630 The workflow concepts described above may be extended to include other Scheduled Procedure
 Steps, such as those used to describe post-processing tasks.

Some of the Scheduled Procedure Steps may be Image Post-Processing related. These Scheduled
 Procedure Steps would result in Post-Processing Performed Procedure Steps. This is illustrated
 by the following example of an MR Brain with a Functional Analysis Post-Processing.

635



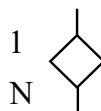
In the above example, two different Scheduled Procedure Steps have been defined for the Requested Procedure. This reflects the fact that in this radiology department, the functional analysis post-processing is not performed by the MR Technologist, but by the Radiologist and therefore needs to be independently scheduled on an independent workstation. Another department may well choose to have the Technologist perform the post-processing immediately after the MR acquisition (either on the MR itself or on a co-located workstation). In that case the Requested Procedure would include a single Scheduled Procedure Step that includes both the acquisition and the post-processing task.

This Section does not provide an exhaustive description of all the workflow cases supported by the Scheduled Workflow.b Profile, nor does it describe the Workflow enabled by other IHE Integration Profiles such as the Presentation of Grouped Procedures, Post-Processing Workflow and Reporting Workflow.

34.4.1.3 Scheduled Workflow Information Model

The Scheduled Workflow Model is represented in this section as an Entity Relationship (ER) diagram. The Scheduled Workflow Model is based on the DICOM and HL7 standards. The keys relating the entities and the unique keys of each entity are defined and the cardinality of the entities is indicated.

An example of the conventions used to specify an entity's relationships is presented in Figure 34.4.1.3-1.



Entity Name
Foreign Key (FK) relating this entity to previous - The FK is shown to clarify the ER diagram and not intended to represent a relational model.
Unique Key (U) for this entity. There are cases where Unique keys that are identical within the scope of this document have different contextual meanings, as defined in this document. The "+" symbol indicates two attributes must be combined to guarantee uniqueness.

Figure 34.4.1.3-1: Example of the Entity Relationship Diagram

660 Figures 34.4.1.3-2 and 34.4.1.3-3 present the overview of the IHE Information Model. Mappings between specific HL7 Elements and DICOM Attributes are identified in RAD TF-2: Appendix B.

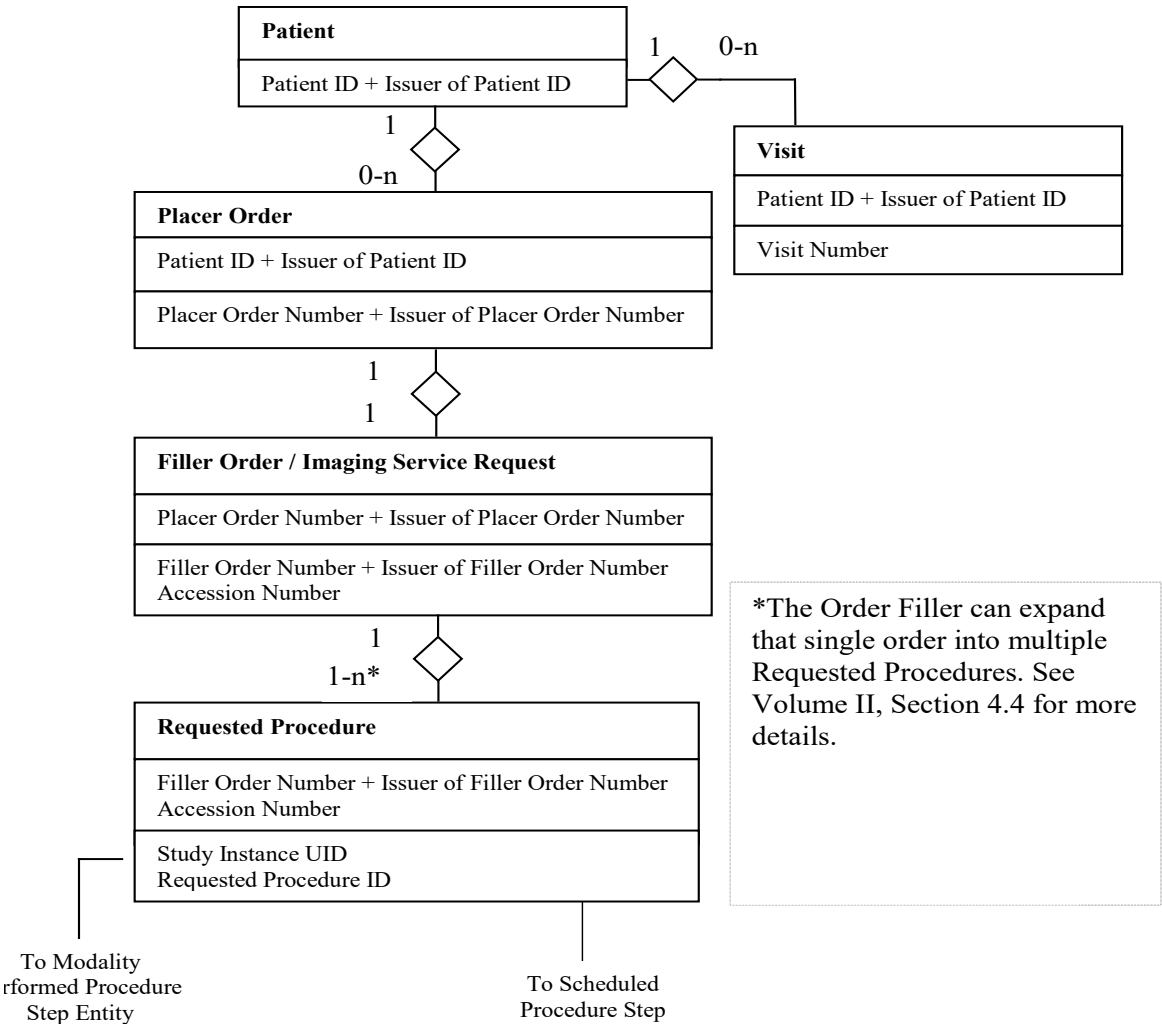
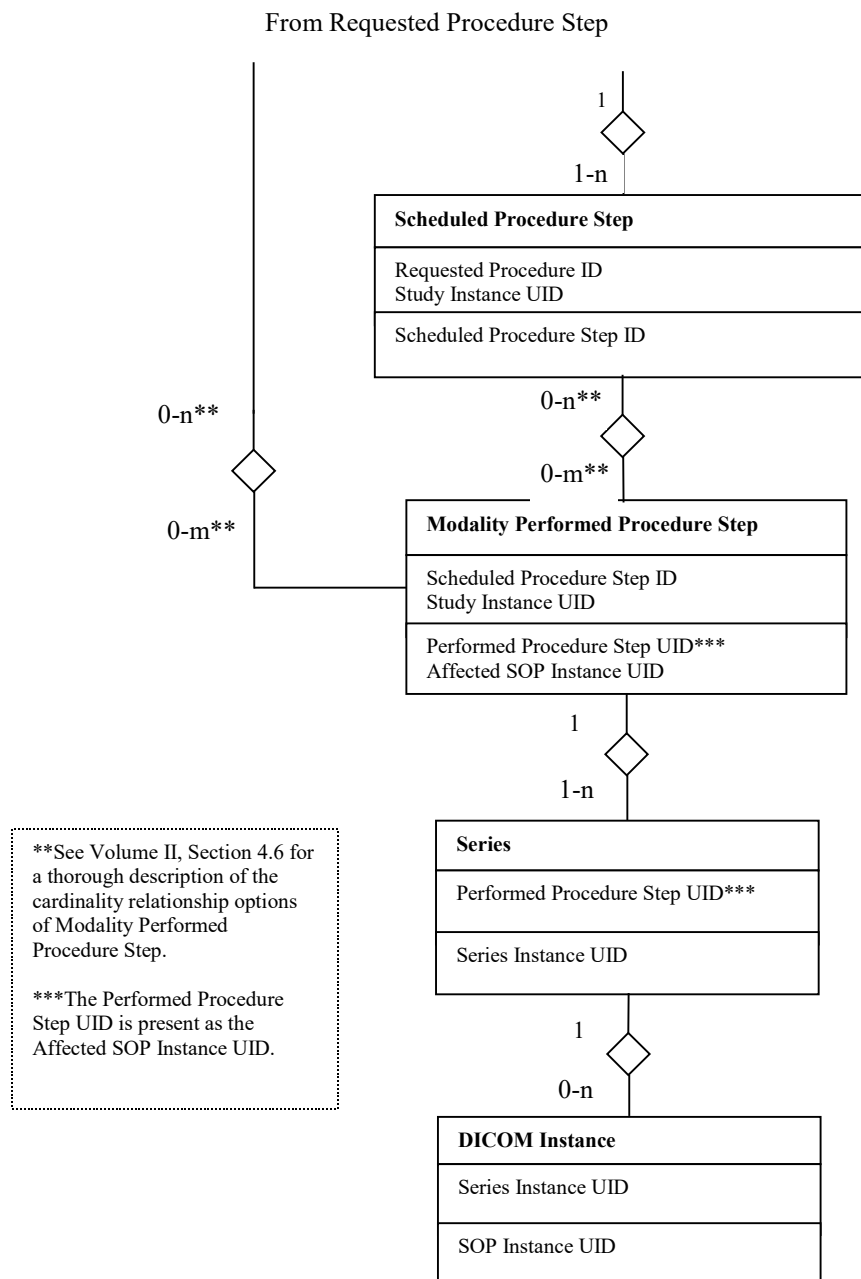


Figure 34.4.1.3-2: Schedule Workflow Information Model

665

**Figure 34.4.1.3-3: Schedule Workflow Information Model, continued**

34.4.2 Use Cases

This section first describes the process and information flow of patient care as it is defined in the IHE Technical Framework under “normal” circumstances, reflecting a typical patient encounter from registration/admission through the performance of an ordered procedure. Next a number of workflow variations (patient update, order change, exception management, implicit post-processing and departmental appointment notification) are described and finally, a variety of use cases related to handling unidentified patients.

The unidentified patient cases cover trauma cases or emergency room patients when a patient’s condition requires that a procedure be conducted immediately. This may need to be done before steps like proper patient registration, ordering and/or scheduling of the procedure are performed (due to the lack of either information or time or other deviation from the normal process flow). In this case patient/study information must be later reconciled and properly updated at the ADT, Order Placer, Department System Scheduler/Order Filler, and Image Manager. There are several examples of information flow in this case shown in Uses Cases #7-13.

The ADT may utilize a Master Patient Index (MPI) to resolve the patient information to the correct Patient ID.

The IHE Technical Framework also supports cases when registration or temporary registration of a patient by ADT is not applicable or desired, for example:

- Emergency Department patient can be identified but, due to time or system availability constraints the procedure must be performed before proper order entry and scheduling may occur.
- Patient ID, though valid, has never been propagated to all actors due to communication failures, or the wrong patient record was used in ordering/scheduling.
- Patient ID, though valid, has been mistyped at the modality.
- Patient cannot be registered at the ADT by the time of the procedure. The patient presents to the Order Filler (Imaging Department) and the order is placed and performed in the department.

Patient reconciliation may also be initiated on the department level. In the case of procedures performed on the unidentified patient in multiple departments (e.g., Radiology and Laboratory), this will require reconciliation of patient information in multiple locations.

See Appendix C for an overview of the information exchange between the Department System Scheduler/Order Filler and Image Manager.

To support the Scheduled Workflow.b Profile, an actor that claims support of other content profiles (Consistent Presentation of Images, Key Image Notes or Evidence Documents) is required to support the relevant storage, query and retrieve transactions and manage creation and reconciliation of those objects in the same way images are supported. The following diagrams will mostly show the management of images.

710 In case of DICOM SR, the patient information might be included in the content sequence. The update of the patient information in the report header might result in inconsistent header information with the report content. The patient information update shall not create a new SR SOP instance, according to DICOM SR SOP Class behavior as described in DICOM PS3.4, Annex O.

In the Unidentified Patient use cases, for the purpose of simplification, the following transactions were generally omitted from the corresponding diagrams:

- 715
- Modality Performed Procedure Step In Progress [RAD-6]
 - Modality Images Stored [RAD-8]
 - Modality Presentation State Stored [RAD-9]
 - Storage Commitment [RAD-10]

720 These transactions may occur within the time frame of the diagram, but their content does not affect each of the use cases.

34.4.2.1 Use Case #1: Simple

34.4.2.1.1 Simple Use Case Description

The most typical (“normal”) case involves a radiology procedure being ordered, scheduled and performed for a registered patient.

725 The administrative steps involve a patient being registered, an order being placed for the registered patient, and the order being scheduled. The procedure is then performed, with imaging data being produced and status messages communicated to interested systems.

This case covers both inpatient and outpatient procedures. The patient may be new or known to the current healthcare facility.

730 34.4.2.1.2 Simple Process Flow

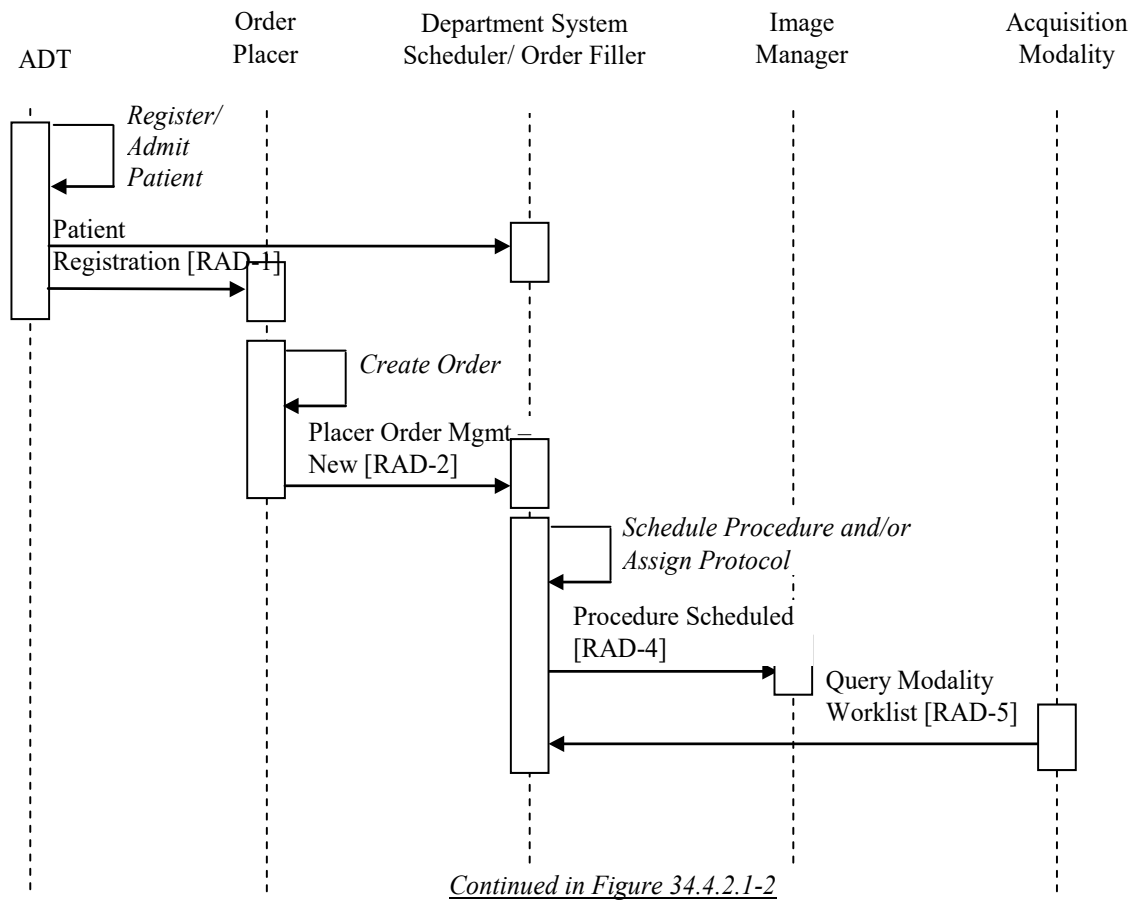


Figure 34.4.2.1.2-1: Administrative Process Flow in SWF.b

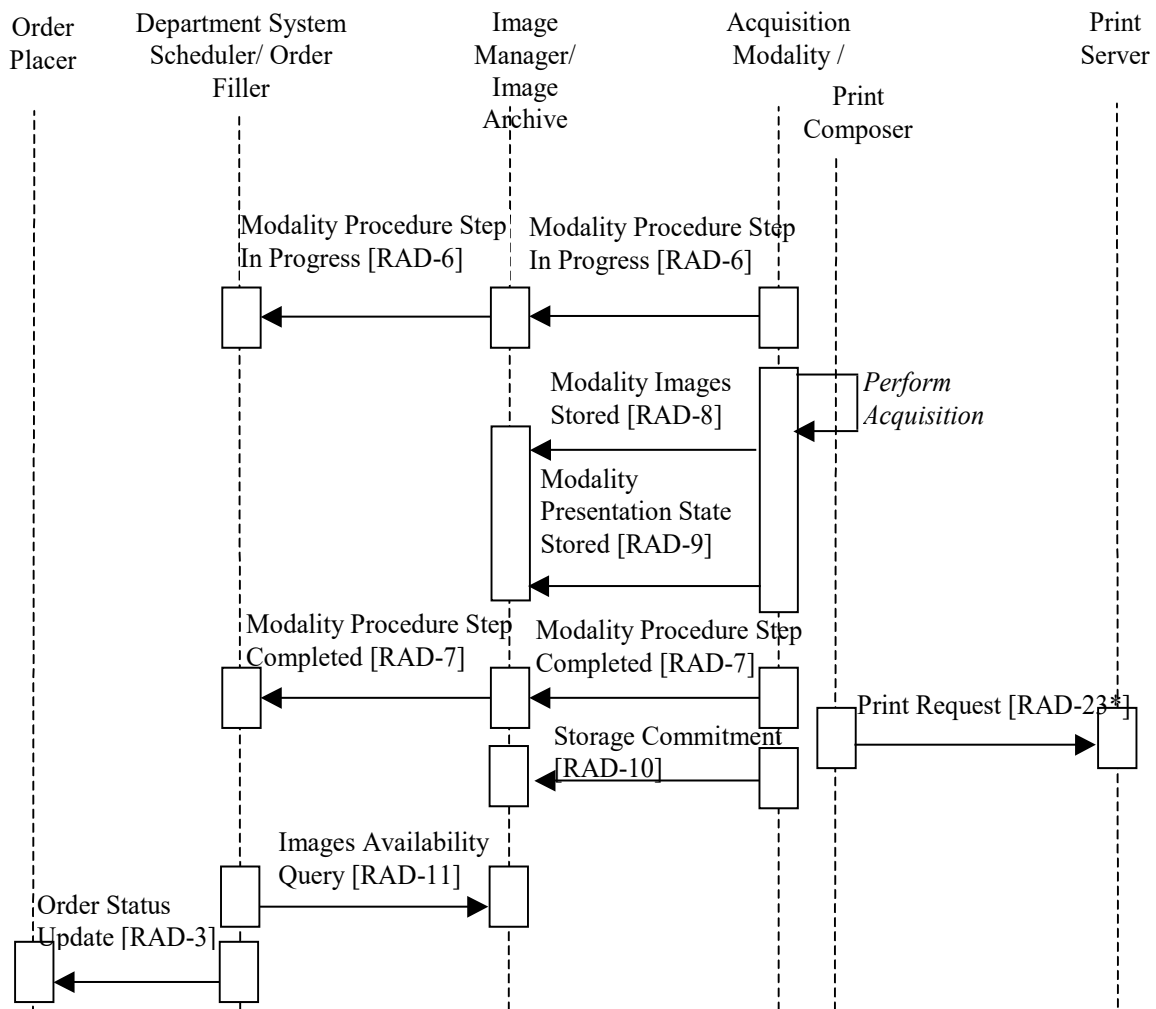


Figure 34.4.2.1.2-2: Procedure Performance Process Flow in SWF.b

Note: The Print Request [RAD-23] transaction is not a part of this profile; it is displayed for illustration purposes only.

The following should be noted in relation to the Administrative and Procedure Performance process flow:

The Print Composer is grouped with an Acquisition Modality but is shown separately in the diagram to distinguish the different transactions.

Schedule Procedure: The Department System associates the order with a number of Requested Procedures that have to be performed to satisfy the order. Each Requested Procedure prescribes a number of actions that have to be performed by Acquisition Modalities. Actions are grouped into Scheduled Procedure Steps based on the timing and ordering. Scheduled Procedure Steps are scheduled, i.e., assigned a time slot and performing resource (modality).

Protocol Assigned: The radiologist determines the protocol (i.e., settings and conditions to be used in performing the Scheduled Procedure Steps); in particular, the ordered list of codes identifying the protocol for each of the steps. This may happen prior to, simultaneous with, or subsequent to the *Schedule Procedure* process step.

The diagram above shows one particular sequencing of the Modality Procedure Step Completed [RAD-7] transaction. This transaction may occur at any point following the creation of an image and/or Presentation State (GSPS) objects. This means it can occur before images and/or GSPS are stored, after storage, after printing (as in this example), or even after storage commitment. The IHE Technical Framework does not specify the timing of this transaction in relation to other transactions.

The diagram above shows the managed creation of images. The equivalent flow applies to other Evidence Documents that the actor supports.

34.4.2.2 Use Case #2: Patient Update

This case covers the situation where patient information updates are introduced into the system at various stages of the normal process flow.

34.4.2.2.1 Patient Update Use Case Description

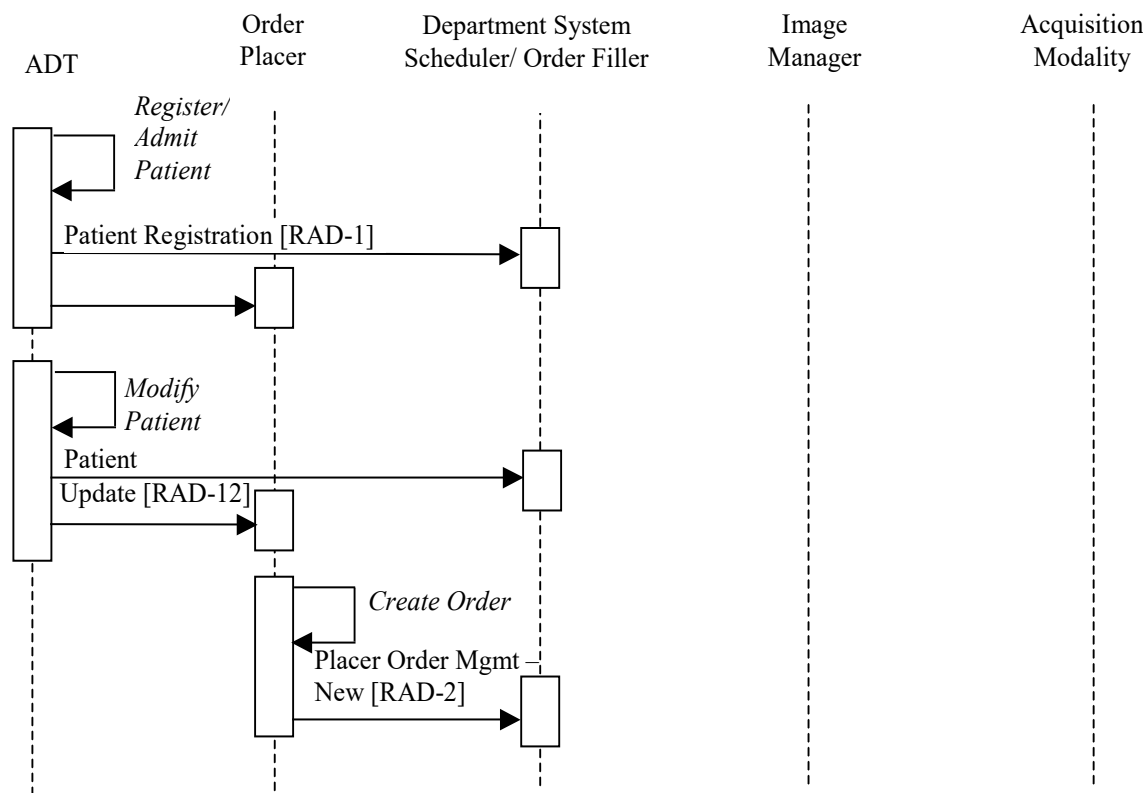
Such updates will cause additional transactions to occur to assure synchronization of information between interested actors. Only the affected parts of the normal flow diagram are presented below. All subsequent process steps will progress according to the normal flow diagram.

Three subcases are shown based on when the patient update is initiated:

- After the patient is registered but before the order is entered
- After the order is entered but before the procedure is scheduled
- After the procedure is scheduled

The *Modify Patient* process includes changing inpatient demographics, merging two patient records and moving the information from one patient record to another.

34.4.2.2.2 Patient Update Process Flow



775

Figure 34.4.2.2.2-1: Patient Update before Order Entry in SWF.b

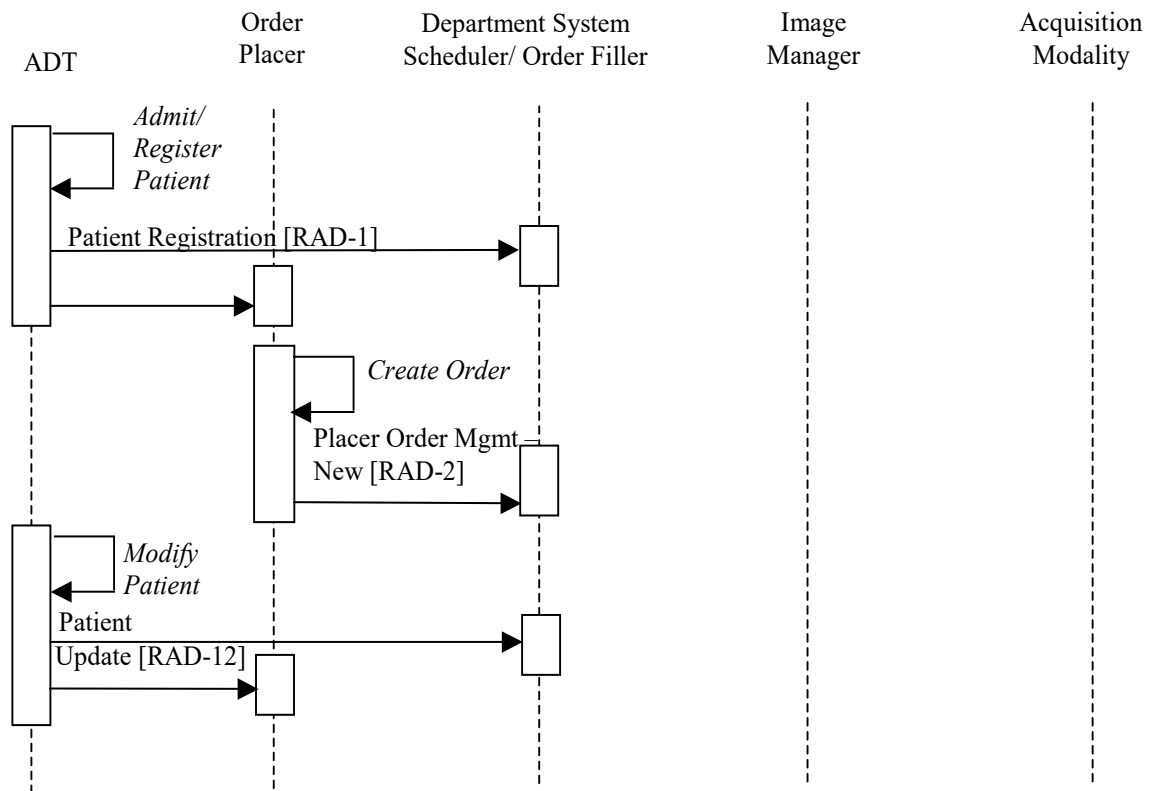


Figure 34.4.2.2-2: Patient Update after Order Entry in SWF.b

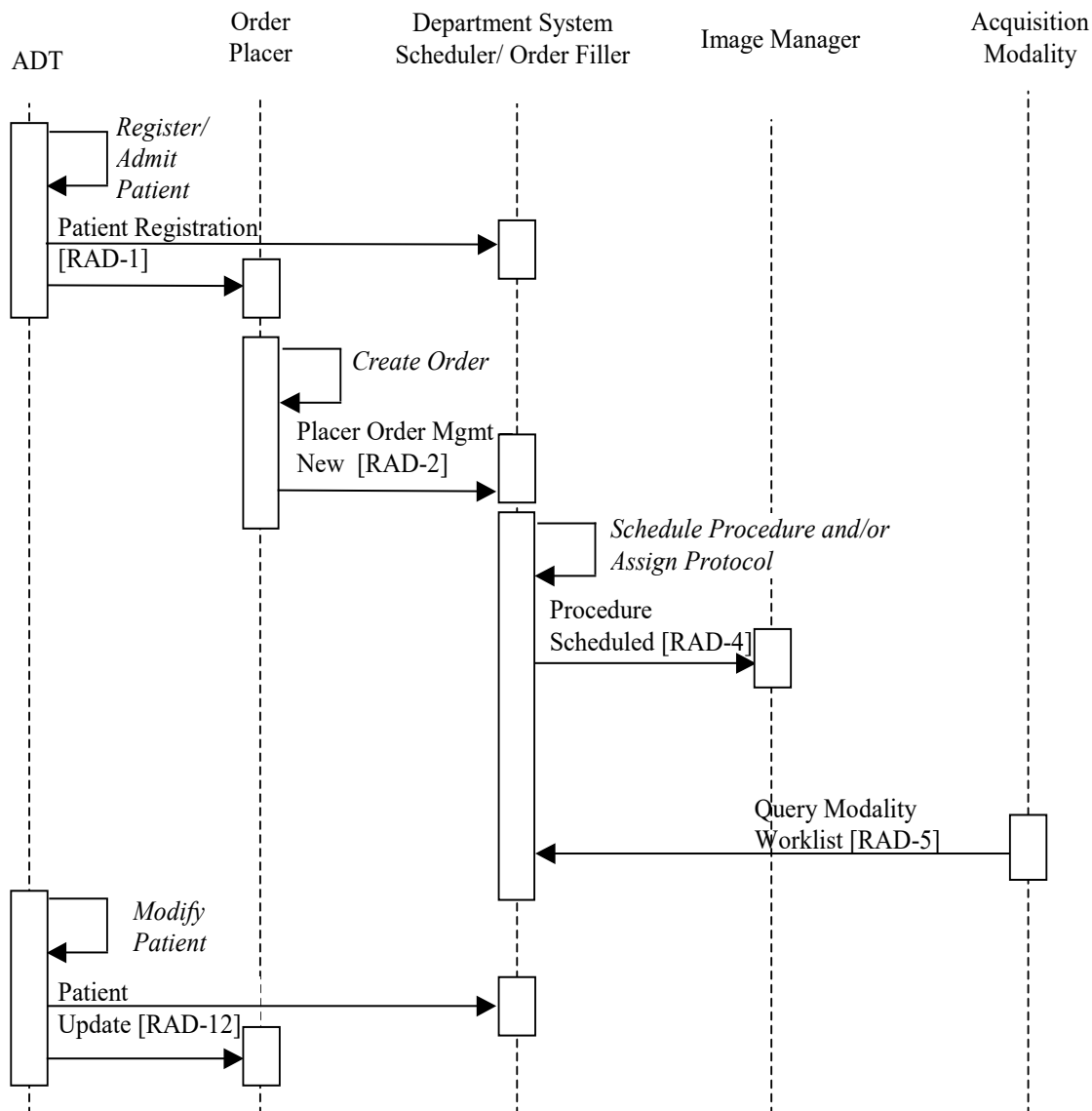


Figure 34.4.2.2-3: Patient Update after Procedure Scheduling in SWF.b

Note that in later use cases the Image Manager will also be notified and will have additional responsibility when Patient updates occur.

34.4.2.3 Use Case #3: Order Change

This case covers the situation when the Order Placer or the Department System Scheduler/Order Filler has to change order information or cancel/discontinue an order.

34.4.2.3.1 Order Change Use Case Description

When an order information change is necessary, the IHE Technical Framework allows for the initiating actor to change the order in a single message with the new information. Figures

34.4.2.3.2-1 and 34.4.2.3.2-2 depict examples of order change flow initiated by the Order Placer and the Department System Scheduler/Order Filler respectively. Note that one should consider these transactions as being performed between the process flow fragments depicted in the Figures 34.4.2.1-1 and 34.4.2.1-2 to ensure synchronization of information between interested actors.

Such updates will cause additional transactions to occur to assure synchronization of information between interested actors. Only the affected parts of the normal flow diagram are presented below. All subsequent process steps will progress according to the normal flow diagram.

Three subcases are shown based on when the patient update is initiated:

- After the patient is registered but before the order is entered
- After the order is entered but before the procedure is scheduled
- After the procedure is scheduled

The *Modify Patient* process includes changing inpatient demographics, merging two patient records and moving the information from one patient record to another.

34.4.2.3.2 Order Change Process Flow

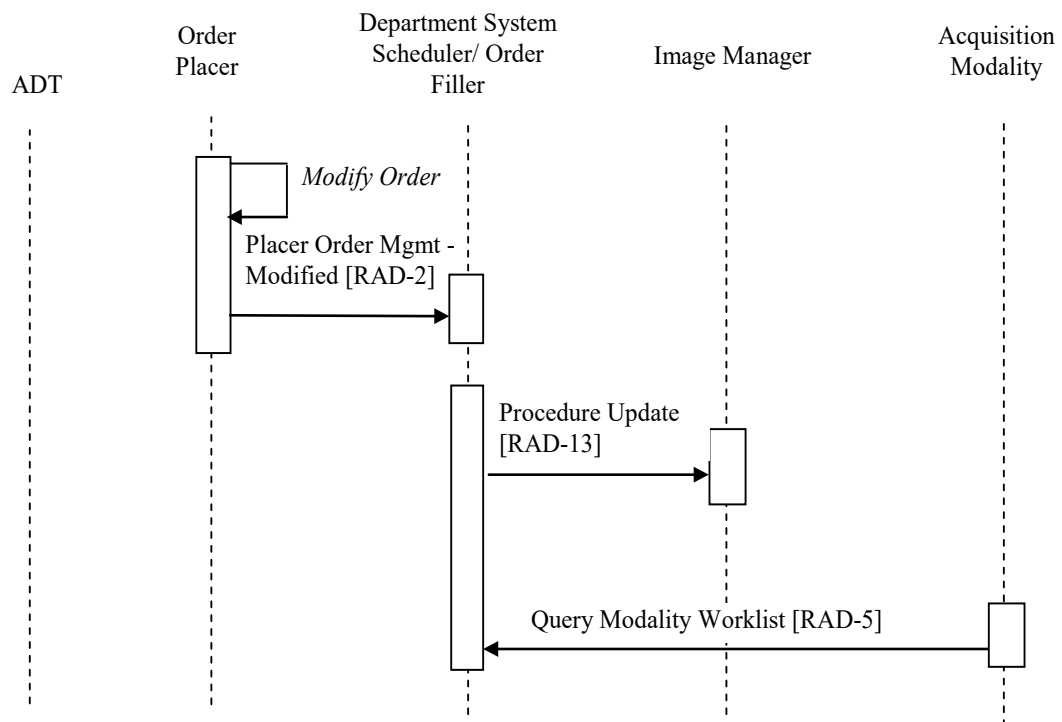


Figure 34.4.2.3.2-1: Order Modified by the Order Placer

Department System Scheduler/Order Filler may modify an order originally received from the Order Placer, as shown in Figure 34.4.2.3.2-2.

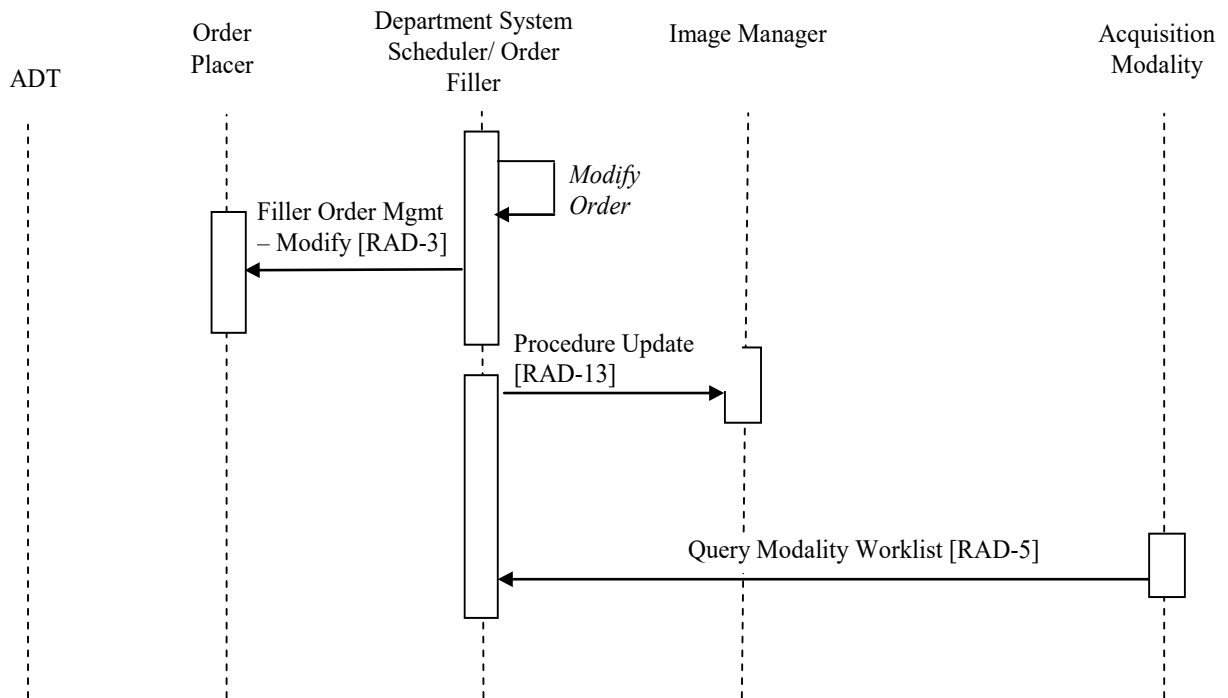


Figure 34.4.2.3.2-2: Order Modified by the Department System Scheduler/Order Filler

The Order Placer may not change an order that has already been started, i.e., one for which Order Filler has transmitted an “In-Progress” status. However, if the Order Filler receives the change order message after it has sent the Status Update message (for example, in a case of a race condition between two messages), Order Filler will accept the change order and perform Procedure Update [RAD-13] to notify Image Manager.

The Order Filler may not change a scheduled procedure step that has already been started, i.e., one for which the Acquisition Modality has transmitted an “In-Progress” status. The IHE Technical Framework does not support notification to the modality of the Scheduled Procedure Step discontinuation or change after the Modality Procedure Step In Progress message has been generated by the Acquisition Modality, i.e., the current procedure step will be completed even though the order could be changed or discontinued.

34.4.2.4 Use Case #4: Exception Management Without Reason Codes

This case addresses the need to manage errors at the modality (but without providing coded reasons for the exception).

34.4.2.4.1 Exception Management Without Reason Codes Use Case Description

The types of exceptions covered by this case are as follows:

- Selection of the incorrect Scheduled Procedure Step from the Modality Worklist.
- Handling the consequences of having performed a procedure step other than the scheduled one.

The following numbered items list exception cases that shall be supported by the actors listed in each item.

In the course of the scheduled workflow, such exceptions may occur at different times:

1. Before the Modality Procedure Step in Progress transaction is issued, the Operator/Radiologist changes the order on the Department System Scheduler which then provides the Modality Worklist as defined by the Scheduled Workflow.b Profile (see the Order Change flow described in Section 34.4.2.3). This will ensure that the most recent Worklist Information is used by the Modality. The Acquisition Modality shall be able to process new worklist information that results from this order change; when or how the modality re-queries the Department System Scheduler is not specified by this framework.
2. After the Modality Procedure Step in Progress transaction has been issued, but before the Modality Procedure Step Completed transaction is issued, the Operator/Radiologist may discontinue the PPS. In this case any images that may have been acquired are part of the discontinued PPS and they shall be Storage Committed. This case is supported by Abandoned case (see RAD TF-2: 4.6.4.1.2.3.5) of the Scheduled Workflow.b Profile. (See Section 34.4.2.5 for a description of Discontinuation with Reason.)
3. After the Modality Procedure Step Completed transaction has been issued, the Operator/Radiologist may notice or become aware that an incorrect worklist entry selection was made. Whether this occurs before the Requested Procedure is read or afterwards, the modality is not responsible for performing the necessary corrections. Rather the Image Manager and the Department System Scheduler/Order Filler must make such corrections (see RAD TF-2: 4.7.4.1.3.1). The Image Manager and the Order Filler may also offer a correction capability to recover the erroneous instances. IHE does not provide a mechanism to propagate automatically this correction between the Image Manager/Image Archive and the Department System Scheduler/Order Filler.

Acquisition Modalities are recommended, but not required, to support the following two cases to deal with using a different protocol at the modality as was scheduled by the Department System Scheduler/ Order Filler.

1. **After** the Modality Procedure Step in Progress transaction has been issued, but before the Modality Procedure Step Completed transaction is issued, the Operator/Radiologist may decide to modify the “in progress” Performed Procedure Step from what was intended by the Requested Procedure and Scheduled Procedure Step selected. In the Scheduled Workflow.b Profile, the Acquisition Modality notifies the PPS Manager (and in turn the Image Manager and the Department System Scheduler) by returning a Procedure Code

865 Sequence of zero length. In addition, if the ASSISTED ACQUISITION PROTOCOL SETTING Option is supported by the Acquisition Modality, it can indicate this change by returning a Performed Protocol Code Sequence different from the Scheduled Protocol Code Sequence (see Figure 34.4.2.4.2-1 below).

870 2. **Before** the Modality Procedure Step in Progress transaction is issued, the Operator/Radiologist decides to proceed without changing the order on the Department System Scheduler/Order Filler by performing one or more Procedure Steps different than scheduled by the Modality Worklist entry as defined by the Scheduled Workflow.b Profile. Its handling at the Acquisition Modality may be facilitated by the ASSISTED ACQUISITION PROTOCOL SETTING Option.

875 34.4.2.4.2 Basic Exception Management Process Flow

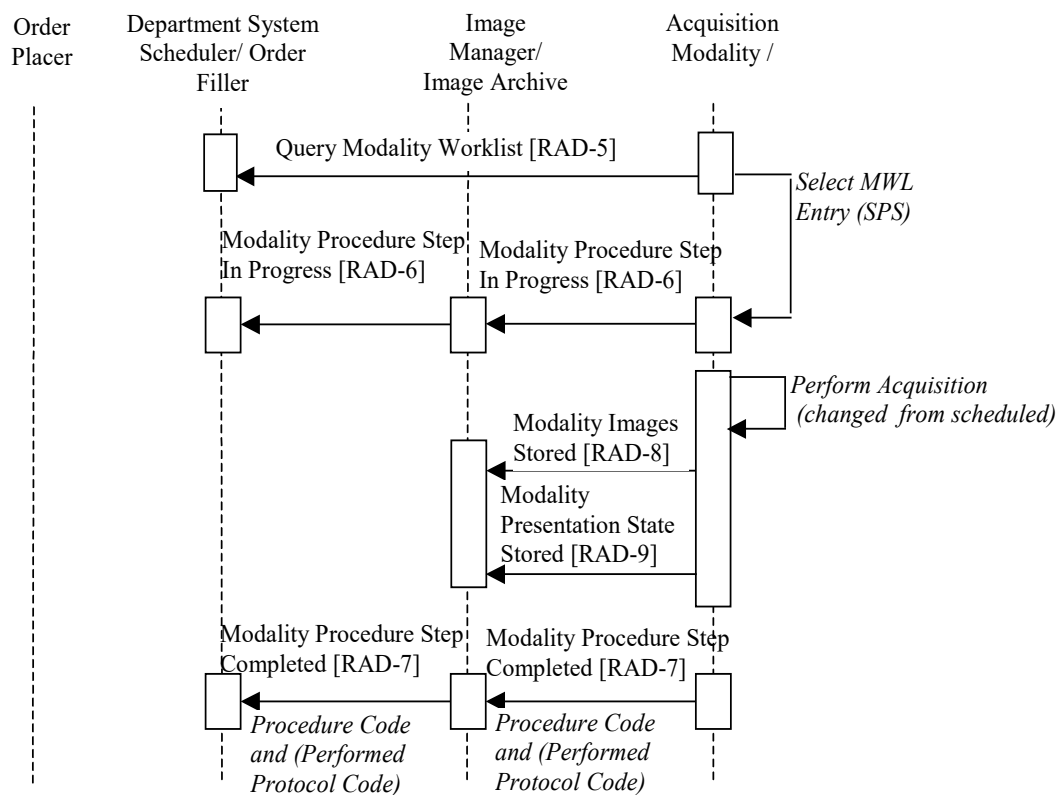


Figure 34.4.2.4.2-1: Exception Management Workflow (Changed from Scheduled on Modality)

34.4.2.5 Use Case #5: Exception Management With Reason Codes

34.4.2.5.1 Exception Management With Reason Codes Use Case Description

These additional use cases include providing coded reasons for the exception and are only required for systems claiming support of the PPS Exception Management Option (see Section 34.2.3).

1. After the Modality Procedure Step In Progress transaction has been issued, the Operator/Radiologist may realize that the wrong SPS has been selected (incorrect patient or incorrect Requested Procedure/Order for the same patient). In this case some of the acquired images or other evidence objects may already have been stored to the Image Manager/Image Archive (with or without storage commitment confirmed). The Acquisition Modality notifies the PPS Manager (and in turn, the Image Manager and the Department System Scheduler/Order Filler) of the error using the Reason Codes as described in RAD TF-2: 4.7.4.1.2.2 so that these systems take appropriate action as described in RAD TF-2: 4.7.4.1.3.1 (see Figure 34.4.2.6.2-1 below).

IHE does not define how the modality may dispose of and/or correct the images or other evidence objects. Each implementation may decide if it is useful to support the storage of the corrected images or other evidence objects, when clinically meaningful. However, if they do, new *Modality Procedure Step in Progress/Completed* and Storage Commitment transactions shall be used.

As in sub-case 2 of Exception Management Without Reason Codes, after the Modality Procedure Step in Progress transaction has been issued, but before the Modality Procedure Step Completed transaction is issued, the Operator/Radiologist may discontinue the PPS. In addition to the Exception Management Without Reason Codes behavior, the Modality also notifies the PPS Manager (and in turn the Image Manager and the Department System Scheduler) of the reason for the discontinuation using the Reason Codes as described in RAD TF-2: 4.7.4.1.2.2 so that these systems may take the appropriate actions (see Figure 34.4.2.6.2-2 below).

34.4.2.5.2 Exception Management with Reason Codes Process Flow

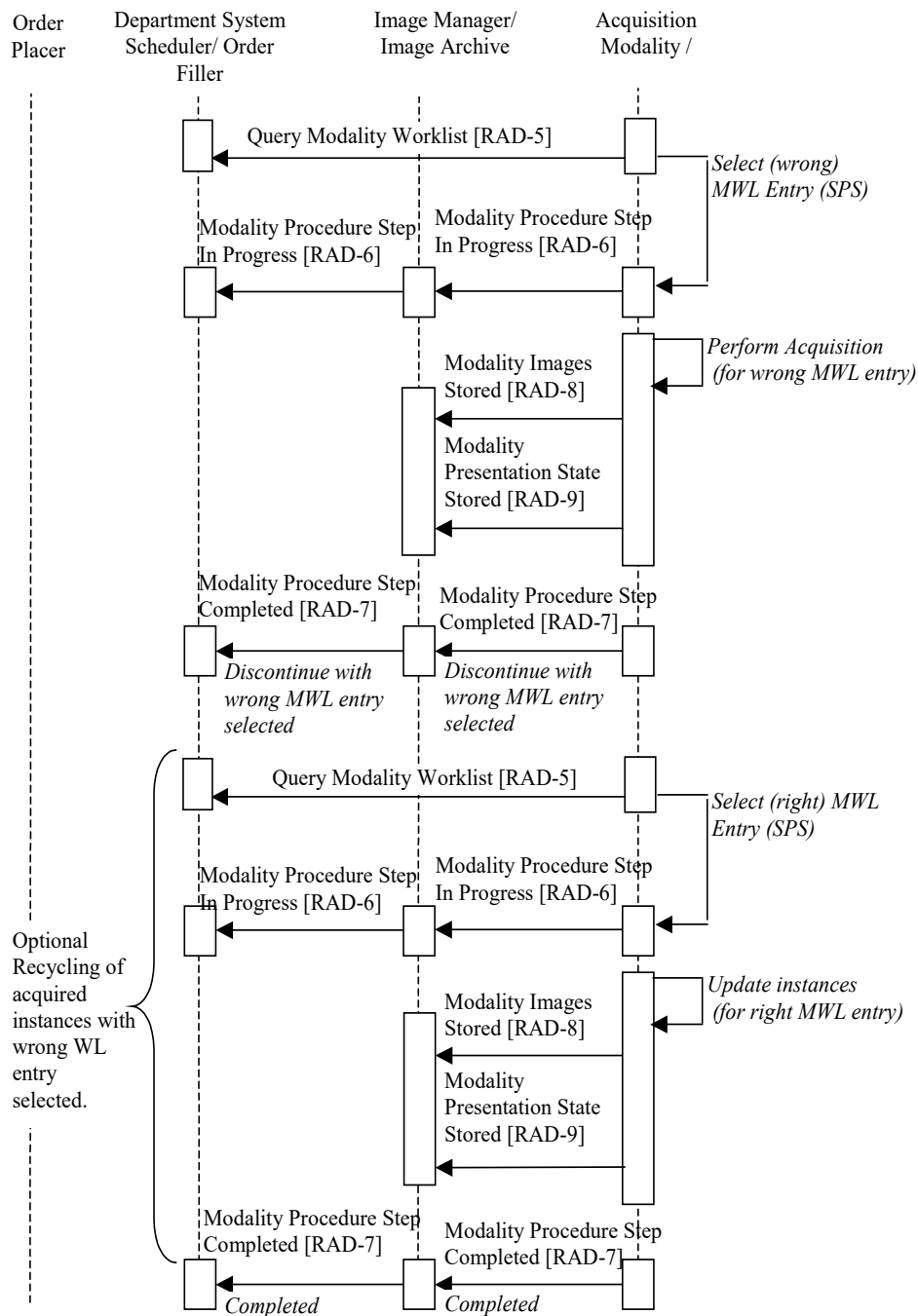


Figure 34.4.2.5.2-1: Exception Management Workflow (Wrong Worklist Entry Selected)

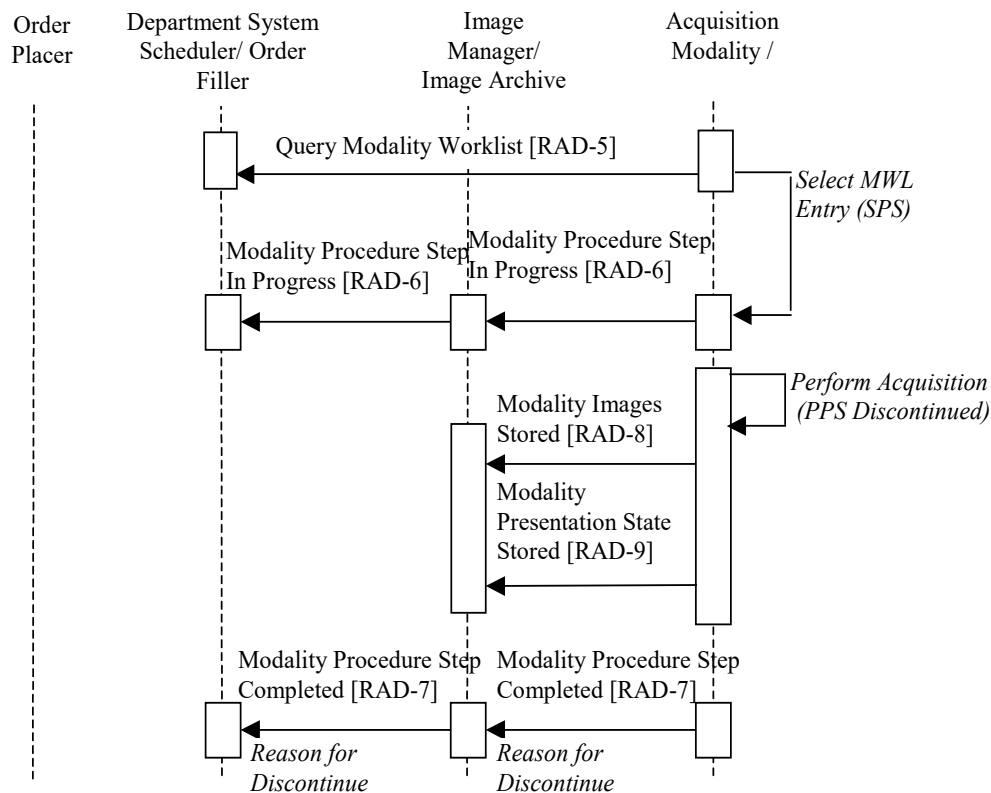


Figure 34.4.2.5.2-2: Exception Management Workflow (Discontinued with a Reason)

915 34.4.2.6 Use Case #6: Implicit Post-Processing

This case addresses image post-processing tasks performed as an implicit part of the scheduled workflow.

34.4.2.6.1 Implicit Post-Processing Use Case Description

920 In general, post-processing tasks scheduled and managed explicitly using post processing worklists are addressed by the Post-Processing Workflow Profile (see RAD TF-1: 12 for further details on that profile). However, at some sites, post-processing tasks performed on the acquisition system or adjacent workstations are implied by the information in the acquisition worklist. In such cases, the post-processing is managed by the technician simply carrying out the steps following acquisition.

925 Technicians may be instructed that certain post-processing should always be performed for certain acquisitions, or alternatively, different protocol codes may be provided in the acquisition worklist to indicate intended post-processing. In either case, no worklist is used on the post-processing Evidence Creator.

930 In the case of this “implicit post-processing workflow”, the Evidence Creator may obtain source images and other evidence objects necessary for post-processing by receiving them from the Acquisition Modality (either pulled or pushed via some non-IHE defined mechanism) or by

being grouped with an Image Display (giving the system query/retrieve capabilities). Based on the information contained in the images, the Evidence Creator can send status messages and store its results according to the IHE transactions as shown in the following use cases.

935 34.4.2.6.2 Implicit Post-Processing Process Flow

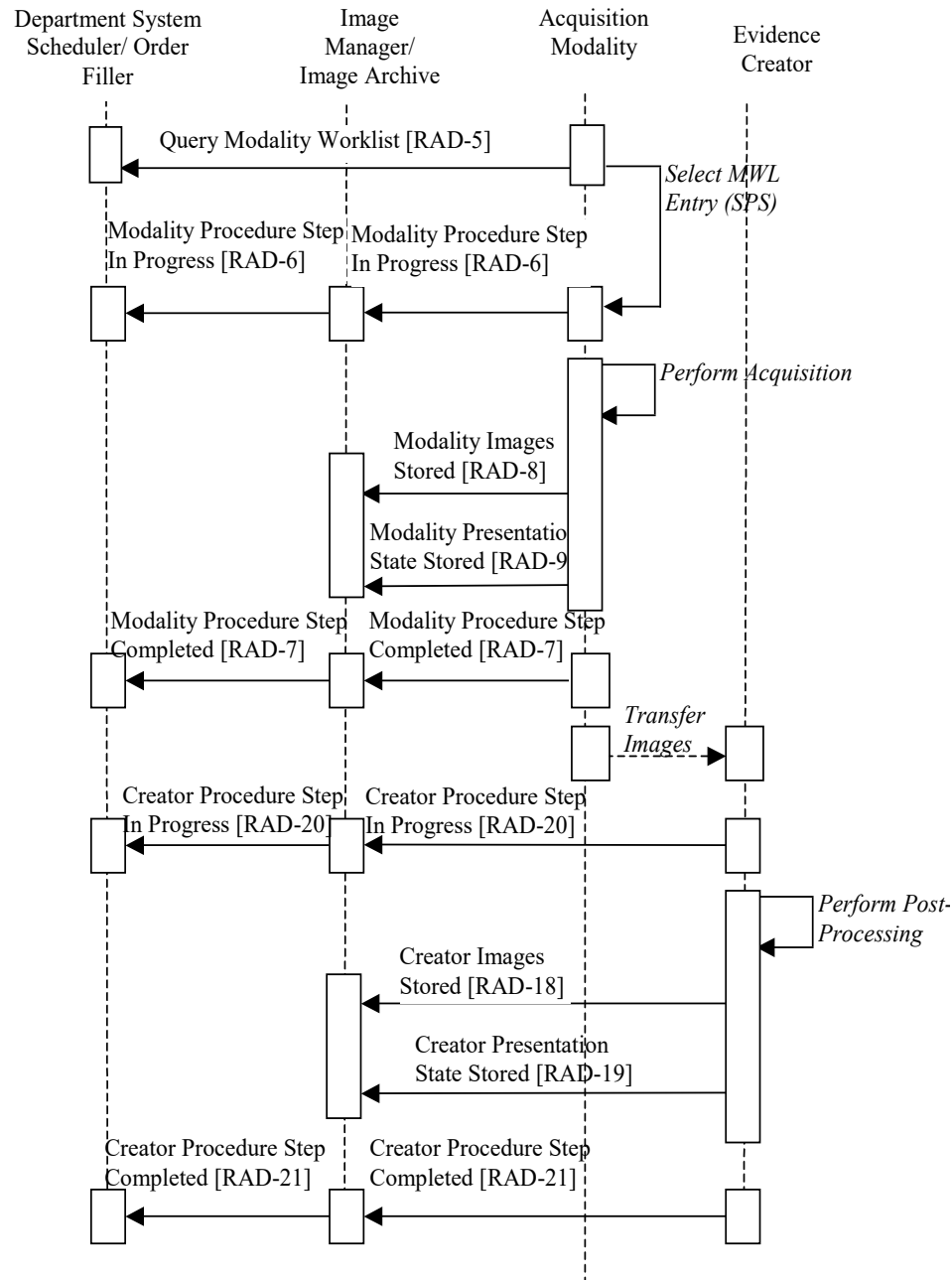


Figure 34.4.2.6.2-1: Post-processing in Scheduled Workflow.b

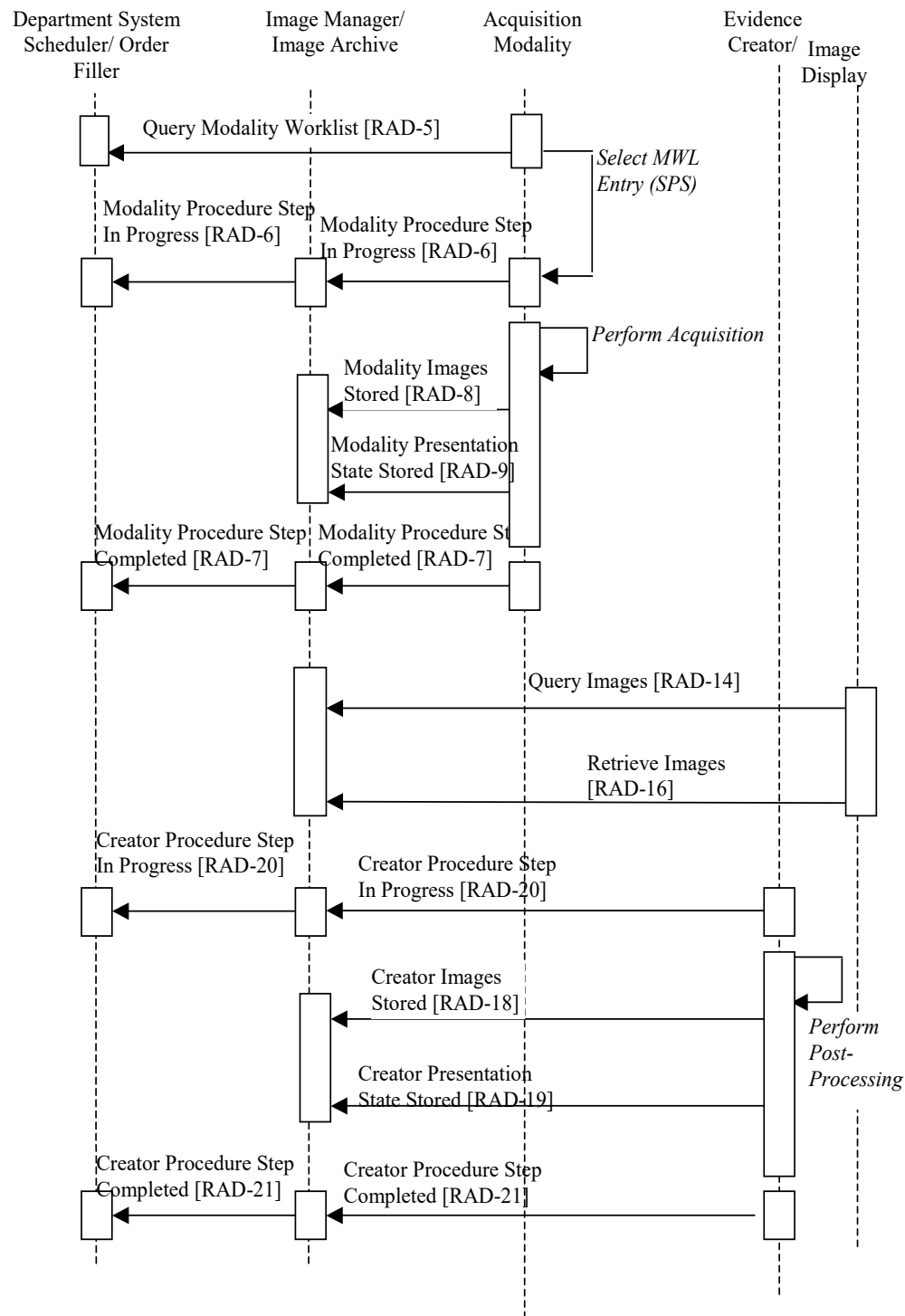
940 Note: The Modality Presentation State Stored [RAD-9] and Creator Presentation State Stored [RAD-19] transactions are not a part of this profile; they are displayed for illustration purposes only.

The following should be noted in relation to the Post-Processing process flow in Scheduled Workflow.b as described above:

945 The images for post-processing are transferred from the Acquisition Modality to the Evidence Creator by means that are out of scope of the IHE Technical Framework.

Perform Post-Processing: The Evidence Creator uses the source images and/or other evidence objects it receives from the Acquisition Modality to perform post-processing tasks and generate new set(s) of images and/or other evidence documents. It uses information from
950 the source images to populate the newly created objects and the Creator Performed Procedure Step Messages.

The following sequence of steps describes the typical process flow when Evidence Creator is grouped with Image Display.



955

Figure 34.4.2.6.2-2: Post-processing in Scheduled Workflow.b (performed on Evidence Creator)

Note: The Modality Presentation State Stored [RAD-9] and Creator Presentation State Stored [RAD-19] transactions are not a part of this profile; they are displayed for illustration purposes only.

960 The following should be noted in relation to the Post-Processing process flow on the independent workstation:

The Evidence Creator is grouped with the Image Display and the images for post-processing are retrieved from the Image Archive where the Acquisition Modality has transferred them.

965 *Perform Post-Processing:* The Evidence Creator uses the source images and/or other evidence objects it receives from the Image Archive to perform post-processing tasks and generate new set(s) of images and/or other evidence documents. It uses information from the source images to populate the newly created objects and the Creator Performed Procedure Step Messages.

34.4.2.7 Use Case #7: Departmental Appointment Booking

970 This case addresses the use of the Departmental Appointment Notification Option by the Order Placer and Order Filler Actors.

34.4.2.7.1 Departmental Appointment Booking Use Case Description

975 In the Scheduled Workflow.b Profile, the scheduling needed to perform an Order is managed by the Departmental System Scheduler/Order Filler. The Order Placer may request along with an Order a preferred date and time for this Order, but it is the Order Filler that sets, updates and possibly cancels the appointment(s) for examinations. When a new Order is placed by the Order Placer or the Order Filler, an Appointment Notification (New Bookings) is sent to the Order Placer. This Appointment Notification (New Bookings) may include several appointments bookings in case some of the Scheduled Procedure Steps require separate appointments. Equally, one or more Scheduled Procedure Steps may be scheduled during the same appointment
980 booking.

If any changes to some of these appointments are made by the Order Filler, it issues an Appointment Notification (Reschedule Bookings) to inform the Order Placer of the change. If that appointment is cancelled by the Order Filler, it issues an Appointment Notification (Cancel Bookings) to the Order Placer.

985 Although the Order Placer is kept aware of any scheduling changes that may be made by the Order Filler, no mechanism is defined in SWF.b to request an appointment change. For such a change, a phone call to the person entering orders on the Order Filler could be used.

34.4.2.7.2 Departmental Appointment Booking Process Flow

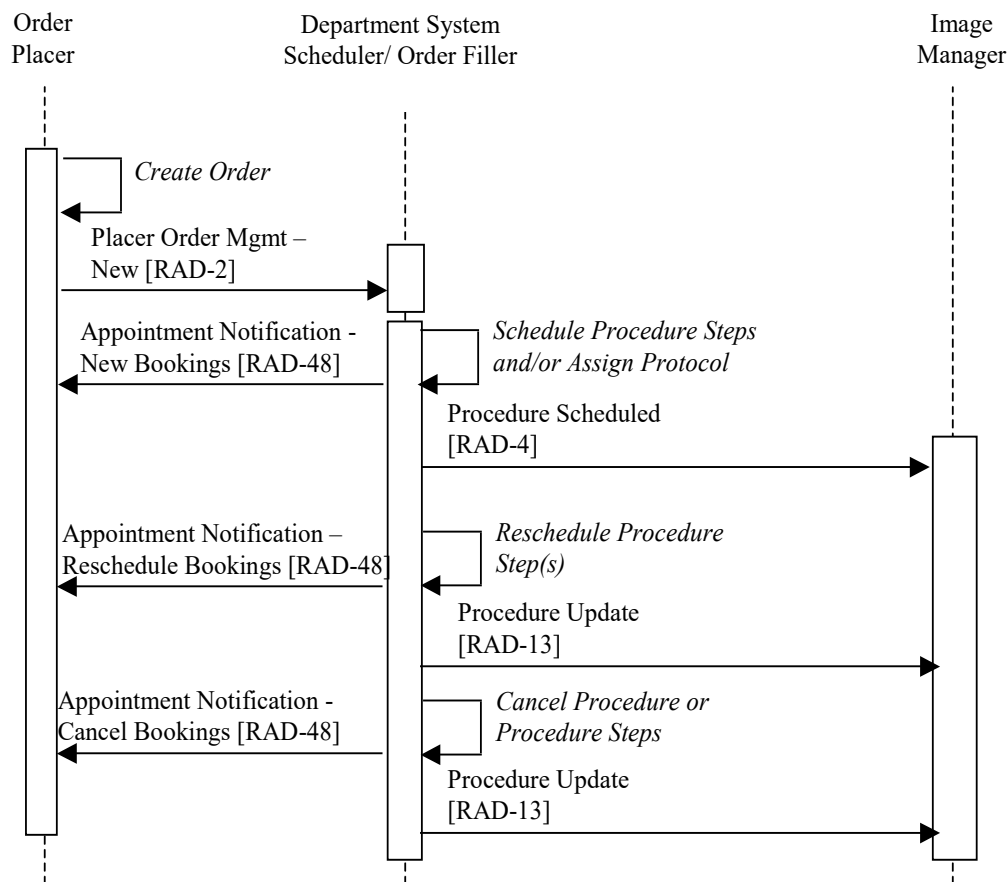


Figure 34.4.2.7.2-1: Departmental Appointment Booking Process Flow

34.4.2.8 Use Case #8: Unidentified Patient Registered at ADT and Ordered at the Order Placer

34.4.2.8.1 Unidentified Patient Registered at ADT and Ordered at the Order Placer Use Case Description

In this case, the Unidentified Patient has been registered at the ADT and the procedure Ordered at the Order Placer.

The ADT is a single point of patient reconciliation in the enterprise. Process flow requires that any unidentified patient be assigned a permanent Patient ID and a temporary name (e.g., “John Doe”). All subsequent transactions follow the normal flow (see Section 34.4.2.1) including order entry and procedure scheduling. When the real patient identity is known, the ADT is responsible for reconciliation of its own records as well as informing the Order Placer and Department System Scheduler/Order Filler about corresponding changes. The ADT sends a Patient Update message to both the Order Placer and Department System Scheduler/Order Filler. The Department System Scheduler/Order Filler sends the Patient Update message to the Image Manager and the Report Manager.

Significant Transactions:

To reconcile the patient information, the ADT may register a new patient and merge the temporary patient with the correct patient and send both Patient Registration [RAD-1] and Patient Update [RAD-12] (Merge) transactions.

If a permanent Patient ID was assigned, then the ADT may only send a Patient Update [RAD-12] transaction with proper information.

Note that the Performed Procedure Step Manager is not shown on the Process Flow diagrams and is presumed to be grouped with the Image Manager. It may be grouped with the Department System Scheduler/Order Filler with corresponding changes in the flow of PPS related transactions between the Image Manager and Department System Scheduler/Order Filler.

34.4.2.8.2 Unidentified Patient Registered at ADT and Ordered at the Order Placer Process Flow

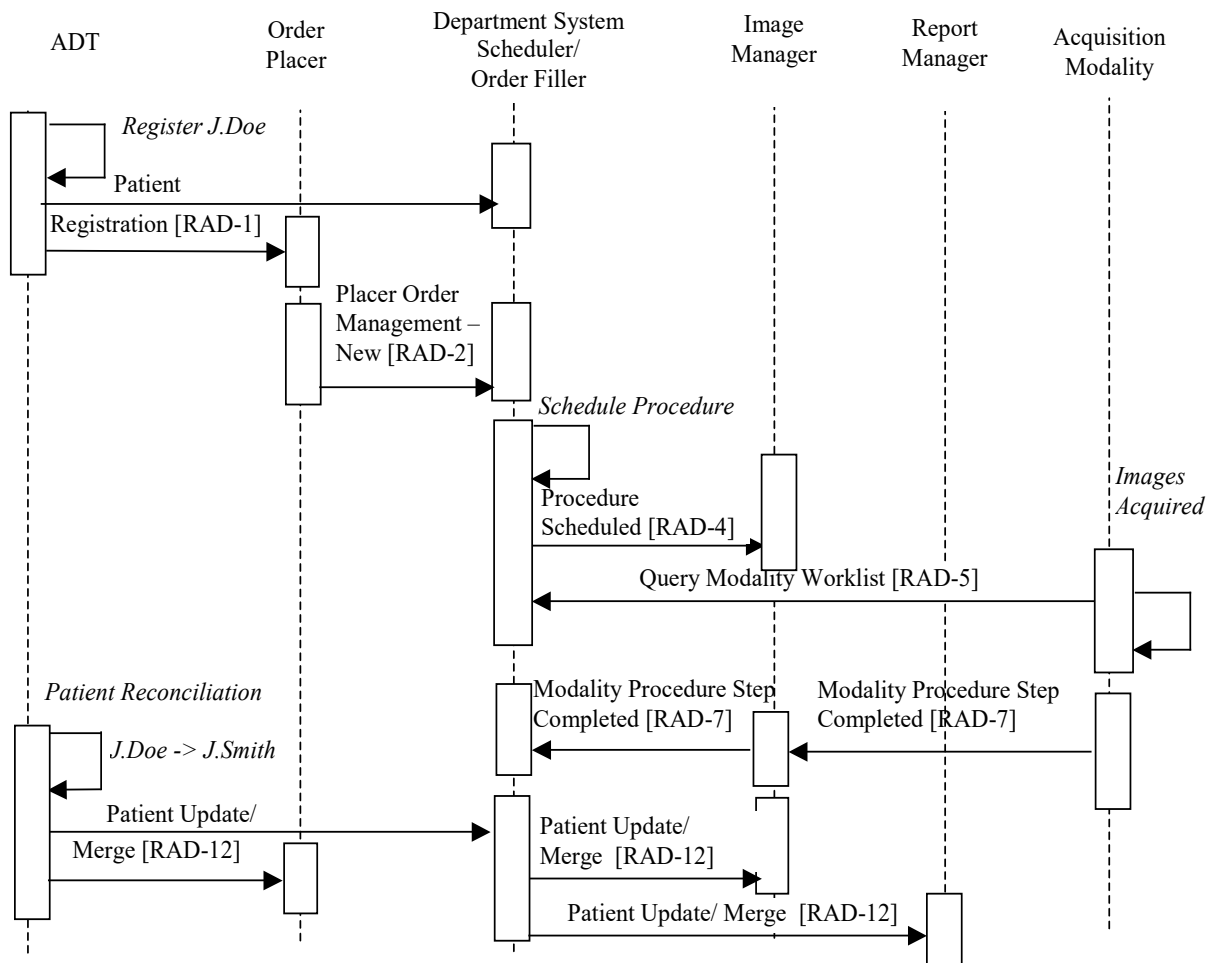


Figure 34.4.2.8.2-1: Unidentified Patient – Placer Order

34.4.2.9 Use Case #9: Unidentified Patient Registered at ADT and Ordered at Department System Scheduler/Order Filler

1025 34.4.2.9.1 Unidentified Patient Registered at ADT and Ordered at Department System Scheduler/Order Filler Use Case Description

1030 This case is based on Use Case 7. However, in this situation the order for a procedure is generated by the Department System Scheduler/Order Filler and submitted to the Order Placer. Procedures are scheduled normally and image acquisition uses modality worklist. When the patient information is reconciled, the ADT sends the Patient Update messages to both the Order Placer and Department System Scheduler/Order Filler. The Department System Scheduler/Order Filler sends the Patient Update message to the Image Manager and the Report Manager.

Significant Transactions:

- 1035 To reconcile the patient information, the ADT may register a new patient and merge the temporary patient with the correct patient and send both registration and merge transactions.
- If a permanent Patient ID was assigned, then the ADT may only send a Patient Update transaction with proper information.
- A Filler Order Management (New Order) [RAD-3] transaction is sent from Department System Scheduler/Order Filler to the Order Placer.

1040

34.4.2.9.2 Unidentified Patient Registered at ADT and Ordered at Department System Scheduler/Order Filler Process Flow

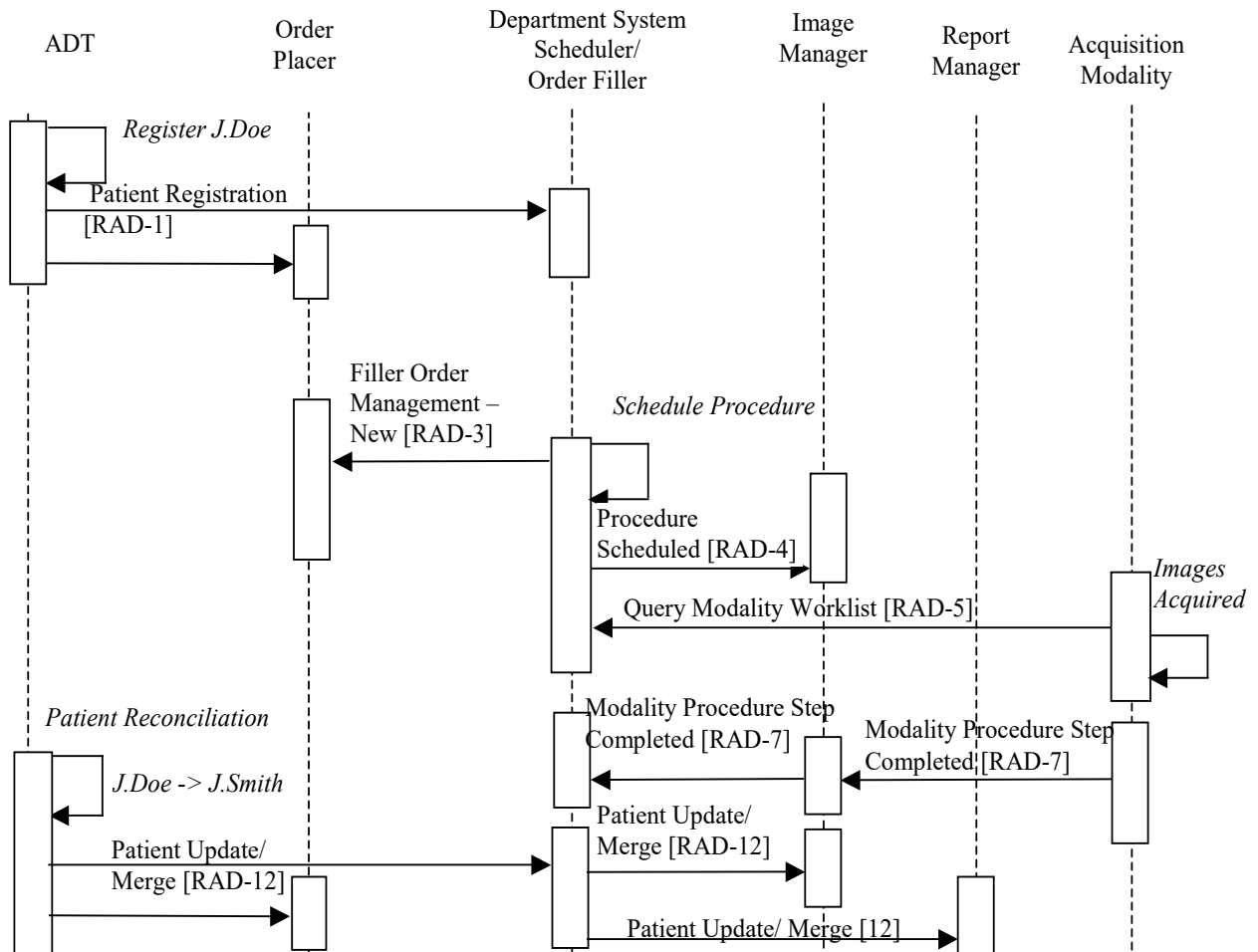


Figure 34.4.2.9.2-1: Unidentified Patient – Filler Order

1045 **34.4.2.10 Use Case #10: Unidentified Patient Registered at ADT but Completed at Modality Prior to Order**

34.4.2.10.1 Unidentified Patient Registered at ADT but Completed at Modality Prior to Order Use Case Description

1050 As in Use Cases 8 and 9, this uses a permanent Patient ID generated by the ADT. However, no order entry or scheduling takes place before the Acquisition Modality performs the procedure. A permanent Patient ID and a temporary name are manually entered at the Acquisition Modality (typically, from a card) and conveyed to the Department System Scheduler/Order Filler and the Image Manager by the Acquisition Modality. Subsequently, the Department System Scheduler/Order Filler generates and submits an order to the Order Placer. When the patient

1055 information is reconciled, the ADT sends the Patient Update messages to both the Order Placer and the Department System Scheduler/Order Filler. The Department System Scheduler/Order Filler sends a Patient Update message to the Image Manager and the Report Manager.

 Significant Transactions:

1060 On receiving a Modality Procedure Step Completed [RAD-7], the Department System Scheduler/Order Filler recognizes it as an unscheduled case.

 The Department System Scheduler/Order Filler sends a Filler Order Management (New Order) [RAD-3] transaction to the Order Placer.

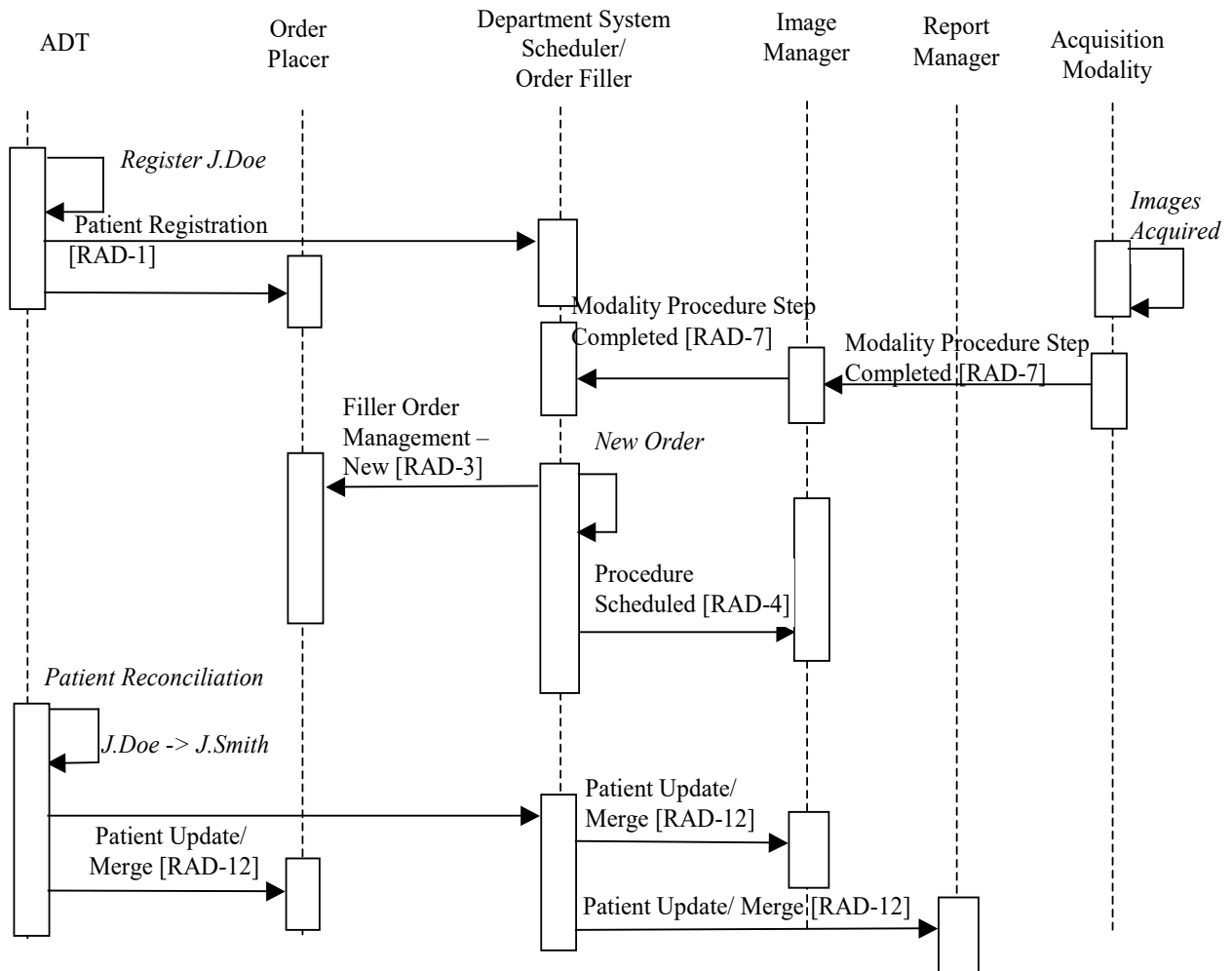
1065 Using the information from the Procedure Step Completed transaction and the placed order, the DSS/Order Filler creates a new Requested Procedure record and sends a Procedure Scheduled transaction to the Image Manager.

 To reconcile the patient information, the ADT may register a new patient and merge the temporary patient with the correct patient and send both registration and merge transactions.

 If a permanent Patient ID was assigned, then the ADT may only send a Patient Update transaction with proper information.

1070 The DSS/Order Filler sends a Patient Update transaction to the Image Manager.

34.4.2.10.2 Unidentified Patient Registered at ADT but Completed at Modality Prior to Order Process Flow



1075

Figure 34.4.2.10.2-1: Unidentified Patient– Unscheduled

34.4.2.11 Use Case #11: Unidentified Patient Assigned Temporary Departmental ID and Scheduled at DSS/Order Filler

34.4.2.11.1 Unidentified Patient Assigned Temporary Departmental ID and Scheduled at DSS/Order Filler Use Case Description

1080

In this case, no valid Patient ID is available to the Department System Scheduler/Order Filler. It assigns a temporary Patient ID and a temporary name and schedules the required procedure.

Note: The Department System Scheduler/Order Filler must ensure that the assigned temporary Patient ID is unique within its scope.

1085

The temporary Patient ID is conveyed to the Image Manager. When patient information becomes known, the ADT sends new patient information to both the Order Placer and the Department

System Scheduler/Order Filler. The Department System Scheduler/Order Filler reconciles received patient information with that associated with the temporary Patient ID and merges the permanent patient record with its own temporary one and sends a Patient Update transaction to the Image Manager and the Report Manager. At the same time, the Department System Scheduler/Order Filler generates and submits an order to the Order Placer using a permanent Patient ID.

1090

Significant Transactions:

Patient information is reconciled internally by the Department System Scheduler/Order Filler using the Patient Registration from ADT.

1095

The Department System Scheduler/Order Filler sends the Patient Update [RAD-12] transaction to the Image Manager.

The Department System Scheduler/Order Filler sends the Filler Order Management (New Order) [RAD-3] transaction to the Order Placer.

1100

The IHE Technical Framework also recognizes that the following 4-step case of handling unidentified patients may be utilized in certain installations:

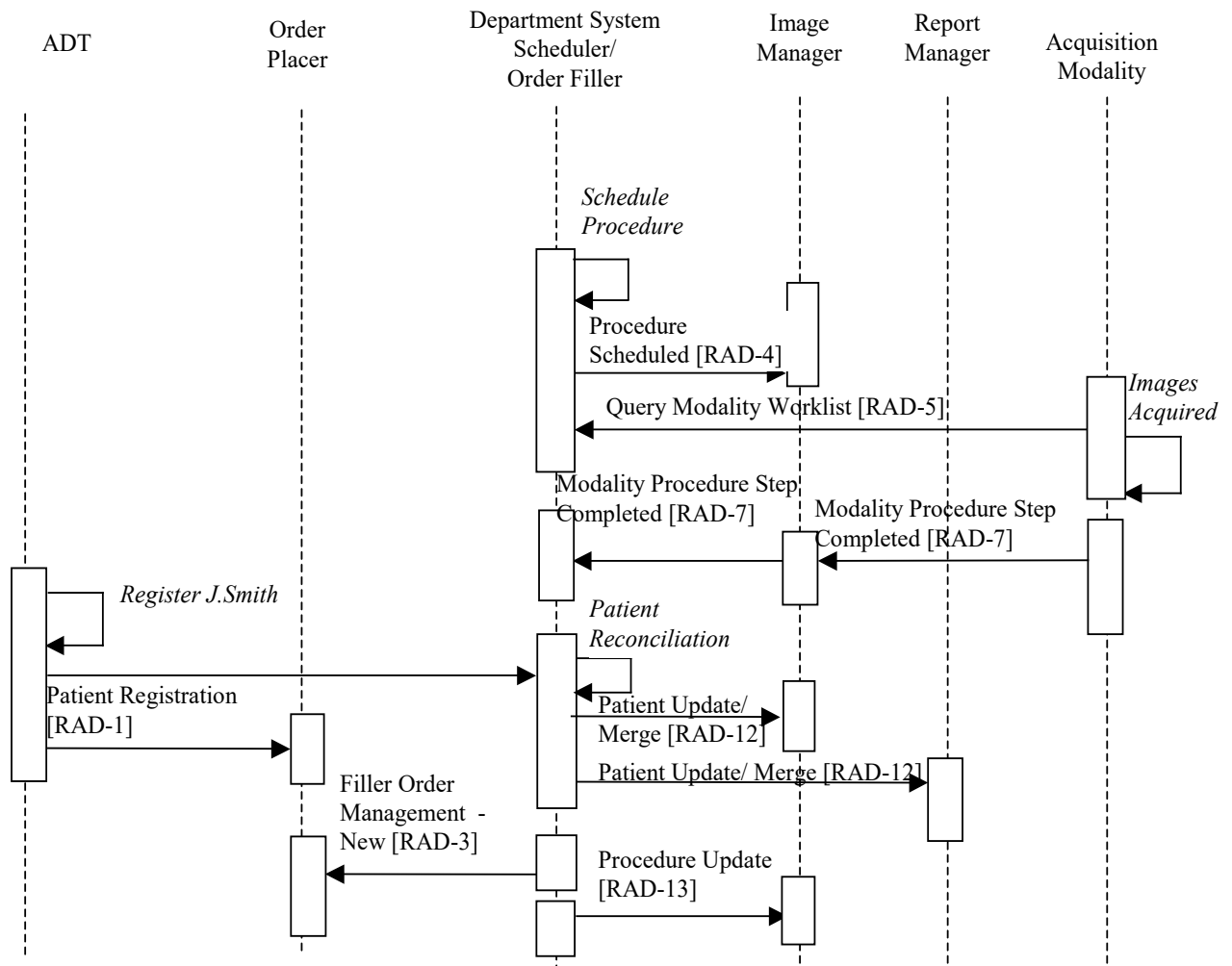
1. The patient is delivered to the department, where a temporary departmental Patient ID and/or name are assigned.
2. The order is then entered by the Department System Scheduler/Order Filler and with this Patient ID and/or name, and the procedure is performed on the Acquisition Modality.
3. The Department System Scheduler/Order Filler sends a new order transaction to the Order Placer. This departmental Patient ID is shared by the Image Manager, Department System Scheduler/Order Filler and Order Placer. However, this departmental Patient ID is not known to the ADT.
4. After resolution of the patient identity, the ADT registers/admits the patient with the correct Patient ID and sends a message to the Order Placer and Department System Scheduler/Order Filler. Each system locally merges the new record with the existing one identified by the departmental Patient ID.

1105

1110

Because this case requires reconciliation at multiple points throughout the enterprise, IHE does not recommend this workflow.

1115 **34.4.2.11.2 Unidentified Patient Assigned Temporary Departmental ID and Scheduled at DSS/Order Filler Process Flow**



34.4.2.12 Use Case #12: Image Acquisition Completed Without Scheduling at Department System Scheduler/Order Filler

34.4.2.12.1 Image Acquisition Completed Without Scheduling at Department System Scheduler/Order Filler Use Case Description

1125 In this case, no valid Patient ID is available to the Department System Scheduler/Order Filler and
no scheduling is done before the procedure is performed. A temporary ID and name are entered
by the technologist at the Modality and conveyed to the Department System Scheduler/Order
Filler and to the Image Manager. The Patient ID and name are selected by the technologist
1130 according to the locally defined rules; for example, selected from the predefined pool of “Patient
ID–patient name” pairs. The rules for selecting temporary Patient ID shall guarantee its
uniqueness within the scope of Department System Scheduler/Order Filler.

Upon receiving the Modality Procedure Step Completed message, the DSS/Order Filler and
Image Manager recognize an unscheduled case based on the content of the message (absent or
empty Referenced Study Sequence, see RAD TF-2: Appendix A). When patient information
1135 becomes known, the ADT sends the new patient information to both the Order Placer and
Department System Scheduler/Order Filler. The Department System Scheduler/Order Filler
performs a merge of the permanent patient record with the temporary one and sends a Patient
Update to the Image Manager and the Report Manager. At the same time, Department System
Scheduler/Order Filler generates and submits an order to the Order Placer using a valid Patient
1140 ID.

Significant Transactions:

On receiving a Procedure Step Completed transaction, the Department System
Scheduler/Order Filler recognizes it as an unscheduled case.

1145 Patient information is reconciled internally by the Department System Scheduler/Order Filler
using the Patient Registration from the ADT.

The Department System Scheduler/Order Filler sends a Patient Update (Merge) transaction
to the Image Manager and to the Report Manager.

The Department System Scheduler/Order Filler sends a Filler Order Management (New
Order) [RAD-3] transaction to the Order Placer.

1150 Using the information from the Procedure Step Completed transaction and placed order, the
Department System Scheduler/Order Filler creates a new Requested Procedure record and
sends a Procedure Scheduled [RAD-4] transaction to the Image Manager and Report
Manager.

1155

34.4.2.12.2 Image Acquisition Completed Without Scheduling at Department System Scheduler/Order Filler Process Flow

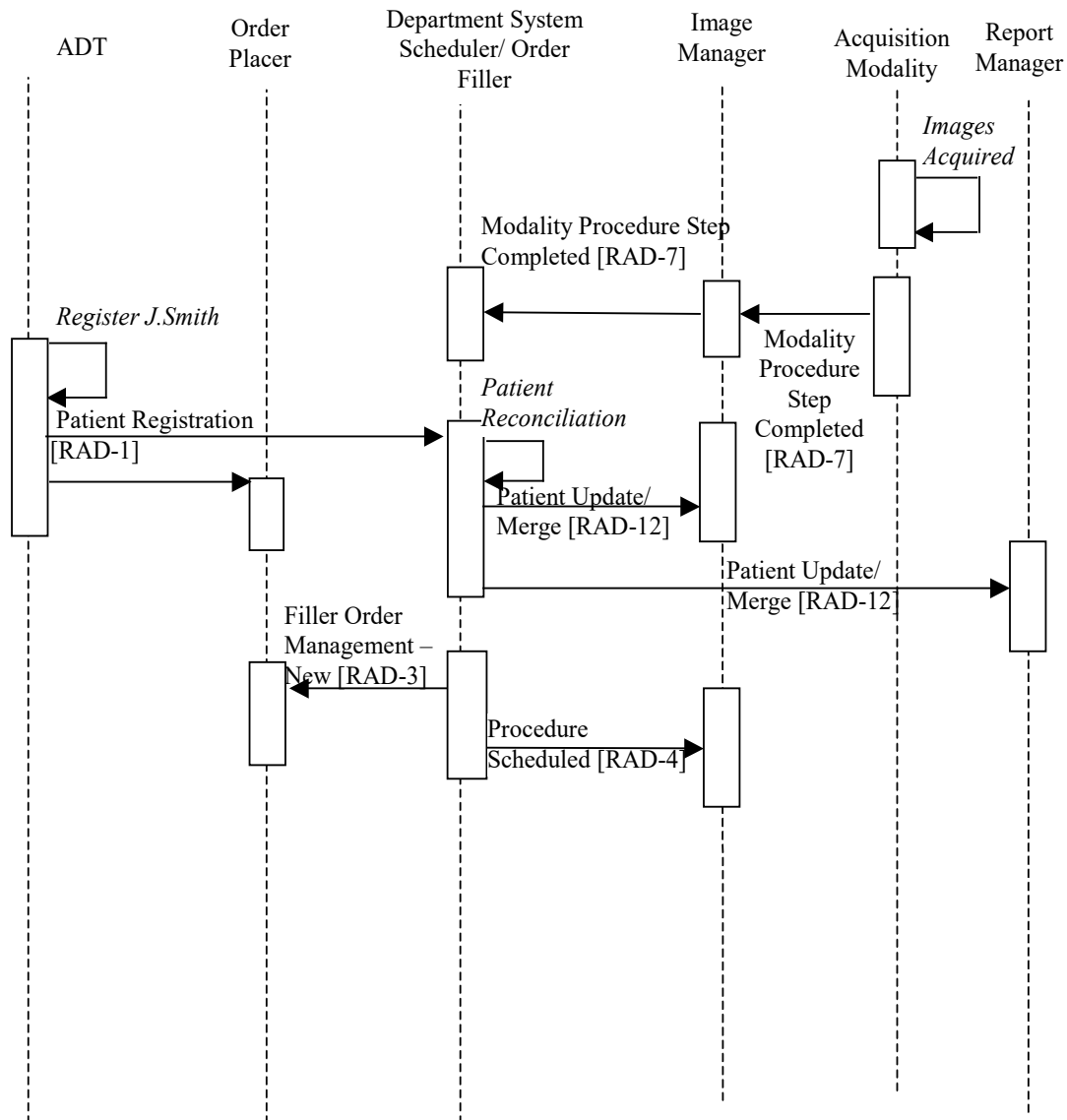


Figure 34.4.2.12.2-1: Unidentified Patient – Unscheduled Temp ID

1160

34.4.2.13 Use Case #13: Patient Information Reconciliation During Image Acquisition

34.4.2.13.1 Patient Information Reconciliation During Image Acquisition Use Case Description

1165 This section describes the process flow related to the handling of image acquisition ongoing during patient reconciliation.

1170 When a Patient Update occurs, in addition to the information exchange between the ADT, Order Placer and Department System Scheduler/Order Filler, Patient Update information is also sent to the Image Manager. Even after a Patient Update has occurred images coming from the Modality may continue to use the original Patient Information, so on-going Patient update with incoming images from the modality may be necessary. It is the responsibility of the Image Manager to ensure that the patient information is updated in the images, Grayscale Softcopy Presentation States and other Evidence Objects when they are retrieved from the Image Archive.

1175 Updates may need to occur after the initial Patient Registration and Order Placement has occurred. The Modality may have requested information from the Department System Scheduler before the update has occurred and continue to send the images with the original Patient Registration and Order information. The Image Manager will need to continue updating the patient information from items retrieved from the Image Archive.

Significant Transactions:

1180 The Modality may continue to send information using the original patient information even after the patient update has occurred.

The Image Manager must continue reconciling Patient Information even after the Patient Update transaction has been completed.

1185 Only partial transactions are shown. Other transactions are performed according to the profile requirements.

34.4.2.13.2 Patient Information Reconciliation During Image Acquisition Process Flow

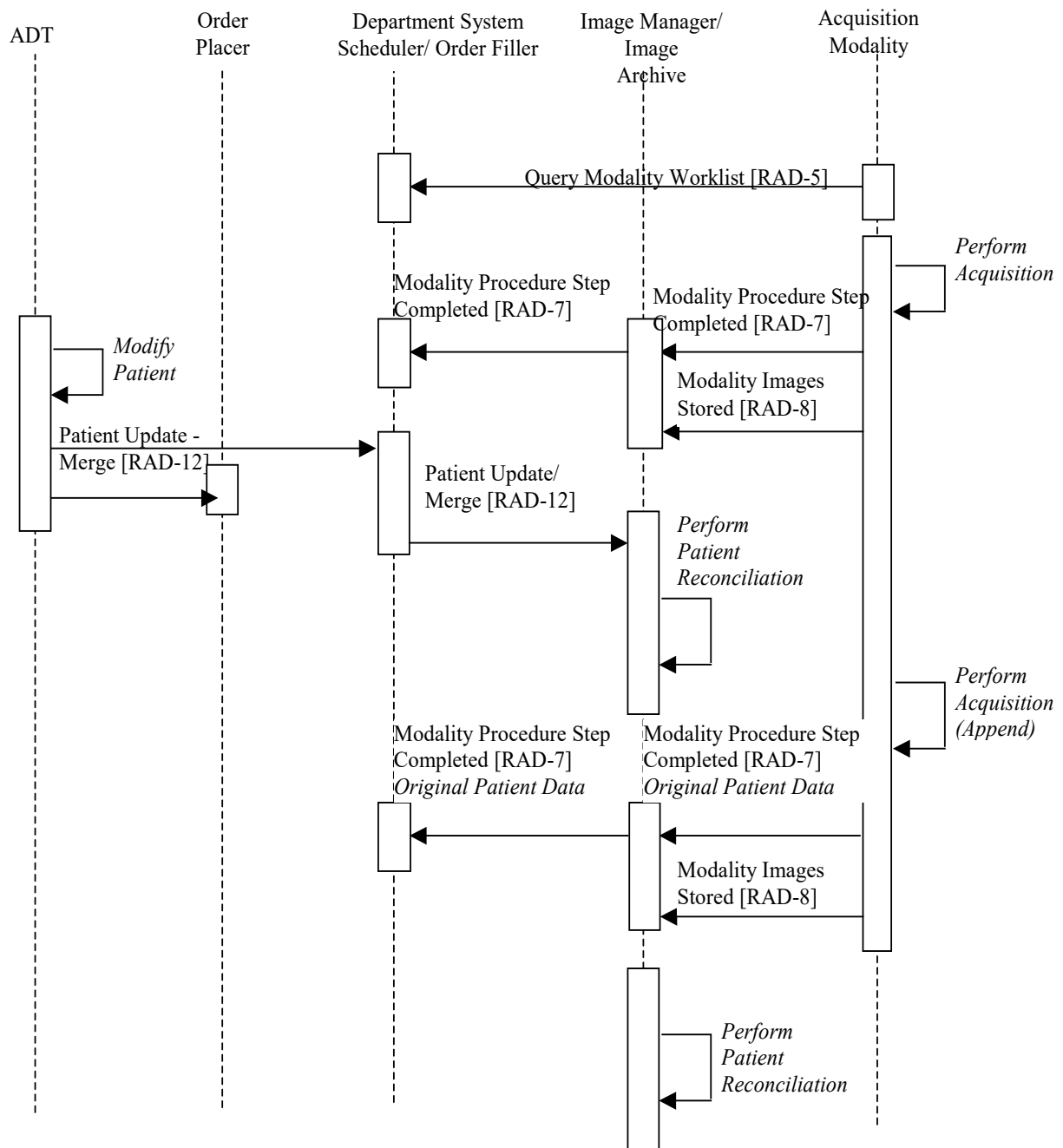


Figure 34.4.2.13.2-1: Reconciliation During Acquisition

34.5 SWF.b Security Considerations

Refer to RAD TF-1: Appendix F Security Environment Considerations.

34.6 SWF.b Cross Profile Considerations

1195 SWF – Scheduled Workflow

Systems which may be deployed in environments transitioning from HL7 v2.3.1 to HL7 v2.5.1 may find it useful to support both the new SWF.b Profile and the original Scheduled Workflow Profile (RAD TF-1: 3). Specifically, it would be useful to be able to configure for each system it communicates with using the referenced transactions whether HL7 v2.3.1 or HL7 v2.5.1 is used.

1200 In such a scenario, the actor might need to be able to receive HL7 v2.3.1 messages and send HL7 v2.5.1 messages or vice versa.

Appendices

Modify Appendix B as shown below:

1205 **Appendix B – Topics for Standards Corrections or Supplements**

B.1 HL7 Topics

B.1.1 Version 2.5.1

1210 The IHE Radiology Technical Framework ~~is primarily based on the~~ profiles several versions ~~2.3.1~~ of the HL7 standard (see RAD TF-2: 2.4.4 for discussion of HL7 Versioning). The profile or option that invokes a transaction provided in the Technical Framework will specify the base version of HL7 used if necessary.

1215 Details needed by IHE Radiology are not always available in all versions of HL7. For example, the Appointment Notification, Transaction [RAD-48] uses the SIU^S12 message first defined in HL7 Version 2.4 in order to take advantage of the additional scheduling information not available in previous versions.

1220 Likewise, IHE has had to provide temporary solutions in custom segments where definitions have not existed. An example is the HL7 v2.3.1 message semantics definition of Transactions [RAD-4] and [RAD-13] which include a ZDS Segment as a temporary solution for handling Study Instance UID. A definition for the Study Instance UID did not exist until HL7 version 2.5 when definitions were added to the OMI (Imaging Order) message.

Modify Appendix G as shown below:

Appendix G – Patient Information Reconciliation for XDS-I.b (INFORMATIVE)

1225 Patient Information Reconciliation (PIR) workflow within a local domain is well understood and addressed within the IHE PIR ~~Integration Profile and the Scheduled Workflow.b Profiles~~. However, within an XDS affinity domain, there is the added complexity of managing patient information within the XDS Registry and synchronizing data between the document sources, repository and registry.

1230 The ITI XAD-PID Change Management (XPID) Profile ~~does not~~ addresses the patient ID challenges in the context of an XDS environment. It allows a PIX Manager to notify an XDS Document Registry of external changes to XDS Affinity Domain Patient IDs (referred to as XAD-PIDs) so that it can affect these changes, as appropriate, in its database. of PIR. The reason for this is scope management (at the time of writing the initial XDS Profile) as well as a lack of content profiles to stress the PIR issue. It is the intent of the ITI Technical Committee to address the issue of PIR within XDS in due course.

1235

<i>Modify Appendix G.2 as shown below:</i>
--

G.2 Patient Information Reconciliation (PIR) in an Affinity Domain

- 1240 PIR workflow within a local domain is well understood and addressed within the IHE PIR Integration Profile **and the Scheduled Workflow.b Integration Profile**. However, within an XDS affinity domain, there is the added complexity of managing patient information within the XDS Registry and synchronizing data between the document sources, repository and registry.

1245

Volume 2 – Transactions

Add the following paragraph to the beginning of each of the following Message Semantics Sections: 4.1.4.1.2, 4.1.4.2.2, 4.2.4.1.2, 4.2.4.2.2, 4.3.4.1.2, 4.3.4.2.2, 4.3.4.3.2, 4.4.4.1.2, 4.12.4.1.2, 4.12.4.2.2, 4.12.4.3.2, 4.12.4.4.2, 4.12.4.5.2, 4.13.4.2:

1250

4.1.4.1.2 Message Semantics

Message semantics are defined for both HL7 v2.3.1 and HL7 v2.5.1. The Profile and/or Options being claimed that incorporate this transaction will specify whether actors are required to support one, the other, or both sets of semantics.

4.1.4.1.2.1 Message Semantics (HL7 v2.3.1)

1255

Delete the word “Option” in the header for each section and subsection in 4.1.4.1.2.2, 4.1.4.2.2.2, 4.2.4.1.2.2, 4.2.4.2.2.2, 4.3.4.1.2.2, 4.3.4.2.2.2, 4.3.4.3.2.2, 4.4.4.1.2.2, 4.12.4.1.2.2, 4.12.4.2.2.2, 4.12.4.3.2.2, 4.12.4.4.2.2, 4.12.4.5.2.2 and in the table titles for Table 4.4-15, for example:

1260

4.1.4.1.2.2 Message Semantics (HL7 v2.5.1-Option)

Modify Section 4.1.4.1.2.2 as shown below:

~~Actors claiming the HL7 v2.5.1 Option shall implement the contents of this section. The Actor shall also support the Message Semantics described in 4.1.4.1.2.1.~~

1265

Actors shall implement the message semantics of [ITI-31] for each trigger event specified in Section 4.1.4.1.1.

Modify Section 4.1.4.2.2.2 as shown below:

1270

~~Actors claiming the HL7 v2.5.1 Option shall implement the contents of this section. When an actor claims support for the HL7 v2.5.1 Option the Actor is required to support the HL7 v2.5.1 interface requirements described in the referenced volumes and sections. The Actor shall still support the HL7 v2.3.1 version of the transactions.~~

The [RAD-1] Patient Management-Cancel Admit/Register Patient transaction is implemented by the ~~ITI-PAM~~[ITI-31] “Patient Encounter Management” triggers events and related messages:

1275

Modify Section 4.2.4.1.2.2 as shown below:

~~Actors claiming the HL7 v2.5.1 Option shall implement the contents of this section. When an actor claims support for the HL7 v2.5.1 Option the Actor is required to support the HL7 v2.5.1 interface requirements described in the referenced volumes and sections. The Actor shall still support the HL7 v2.3.1 version of the transactions.~~

The HL7 v2.5.1 **Option Message Semantics** implements the Chapter 4 OMG message. Refer to the HL7 Standard for general message semantics.

Note: Additional qualifications to the level of specification and HL7 profiling are stated in Section 2.3.

Modify Section 4.2.4.1.3 as shown below:

4.2.4.1.3 Expected Actions

Department System Scheduler/Order Filler shall accept the order information for fulfillment. If error in data prevents it from fulfilling the order, it shall notify the Order Placer by returning proper information in the ACK message.

For actors ~~claiming~~ **implementing** the HL7 v2.5.1 **Message SemanticsOption**, the Order Placer shall not change an order that has already been started, e.g., one for which Order Filler has transmitted an “In-Progress” status in the Order Status message in the [RAD-3] transaction (see Section 4.3.4.2). However, if the Order Filler receives the change order message after it has sent the Order Status Update message (for example, in a case of a race condition between two messages), Order Filler shall accept the change order and perform transaction [RAD-13] Procedure Update to notify Image Manager.

Modify Section 4.2.4.2.2 as shown below:

~~Actors claiming the HL7 v2.5.1 Option shall implement the contents of this section. When an actor claims support for the HL7 v2.5.1 Option the Actor is required to support the HL7 v2.5.1 interface requirements described in the referenced volumes and sections. The Actor shall still support the HL7 v2.3.1 version of the transactions.~~

The HL7 v2.5.1 **Message Semantics** ~~implement the~~ **Chapter 4** OMG message. Refer to the HL7 standard for general message semantics. Refer to Section 4.2.4.1.2.26 above for detailed requirements of the OMG message.

Modify Section 4.3.2 as shown below:

Actor: Order Placer

Role: Receives new order, order change (HL7 v2.5.1 **Message Semantics-option**) and order cancellation requests from Order Filler. Receives Order Status updates from Order Filler.

Modify Section 4.3.4.1.1 as shown below:

4.3.4.1.1 Trigger Events

ORM - Department system Scheduler/Order Filler places an order (control code = SN).

1315 ORR – Order Placer replies (control code = NA).

~~Systems~~ Actors claiming implementing the HL7 v2.5.1 ~~Option~~ Message Semantics shall implement the following:

OMG - Department system Scheduler/Order Filler places an order (control code = SN) or changes an order (control code = XX).

1320 ORG – Order Placer replies (control code = NA).

The ORR (HL7 v2.3.1) or ORG (HL7 v2.5.1) messages are sent by the Order Placer to convey the Order Placer Number in those cases where the DSS/Order Filler places the Order. ORR messages shall not be used as acknowledgements in other cases.

1325 *Modify Section 4.3.4.1.2.2 as shown below:*

~~Actors claiming the HL7 v2.5.1 Option shall implement the contents of this section. When an actor claims support for the HL7 v2.5.1 Option the Actor is required to support the HL7 v2.5.1 interface requirements described in the referenced volumes and sections. The Actor shall still support the HL7 v2.3.1 version of the transactions.~~

1330 The HL7 v2.5.1 Message Semantics implement the ~~Chapter 4~~ OMG message. Refer to the HL7 Standard for general message semantics. Refer to Section 4.2.4.1.2.2 above for detailed requirements for the OMG message.

Modify Section 4.3.4.2.1 as shown below:

1335 4.3.4.2.1 Trigger Events

ORM - Department System Scheduler/Order Filler updates an order status (control code = SC).

~~Systems~~ Actors claiming implementing the HL7 v2.5.1 ~~Option~~ Message Semantics shall implement the following:

OMG - Department System Scheduler/Order Filler updates an order status (control code = SC).

1340

Modify Section 4.3.4.2.2.2 as shown below:

~~Actors claiming the HL7 v2.5.1 Option shall implement the contents of this section. When an actor claims support for the HL7 v2.5.1 Option the Actor is required to support the HL7~~

1345 ~~v2.5.1 interface requirements described in the referenced volumes and sections. The Actor shall still support the HL7 v2.3.1 version of the transactions.~~

The HL7 v2.5.1 Message Semantics implement theChapter 4 OMG message. Refer to the HL7 Standard for general message semantics.

Modify Section 4.3.4.3.1 as shown below:

4.3.4.3.1 Trigger Events

1350 ORM – Department System Scheduler/Order Filler cancels the order previously received from Order Placer (control code = OC).

Actors ~~claiming~~ implementing the HL7 v2.5.1 ~~Option~~ Message Semantics shall implement the following trigger event:

1355 OMG – Department System Scheduler/Order Filler cancels the order previously received from Order Placer (control code = OC).

Modify Section 4.3.4.3.2.2 as shown below:

~~Actors claiming the HL7 v2.5.1 Option shall implement the contents of this section.~~

1360 The HL7 v2.5.1 Message Semantics implement theChapter 4 OMG message. Refer to the HL7 standard for general message semantics. Required segments are listed below. Other segments are optional.

Modify Section 4.3.4.3.3 as shown below:

4.3.4.3.3 Expected Actions

1365 After receiving the ORM message (or OMG message if ~~claiming~~ implementing the HL7 v2.5.1 ~~Option~~Semantics) with the control code OC, Order Placer shall process the order the same way as if it was cancelled/discontinued by the Order Placer.

Modify Section 4.4.4.1.2.2 as shown below:

1370 ~~Actors claiming the HL7 v2.5.1 Option shall implement the contents of this section. When an actor claims support for the HL7 v2.5.1 Option the Actor is required to support the HL7 v2.5.1 interface requirements described in the referenced volumes and sections. The Actor shall still support the HL7 v2.3.1 version of the transactions.~~

1375 The HL7 v2.5.1 Message Semantics implement the OMI message. Refer to the HL7 Standard for general message semantics. This section contains additional requirements for the OMI message.

The Department System Scheduler/Order Filler uses an OMI message to convey necessary procedure and scheduling information.

1380 *Modify the title for Figure 4.4-15 to match the other dozen (i.e., no specific version reference)*

Table 4.4-15: DSS mappings of the OBR Segment (HL7 v2.5.1 Option)

Add Section 4.4.4.1.2.9:

4.4.4.1.2.9 Enterprise Identity Option

1385 A DSS/Order Filler supporting the Enterprise Identity Option shall send Assigning Authority values for the Patient Identifier and for the Accession Number sent in the OMI message.

The DSS/OF shall provide a value for the Patient Identifier Assigning authority in PID-3.

The DSS/Order Filler shall specify the Assigning Authority of the Accession Number in IPC-1.

1390 It shall provide values for all components of the Accession Identifier. The second component (namespace ID) shall reference the same entity as is referenced by the third and fourth components (universal ID and universal ID type).

Table 4.4-17: DSS/Order Filler requirements for the IPC Segment for Enterprise Identity Option

Element Name	Seq.	Shall Contain:	Notes
Accession Identifier	IPC-1	Accession Number and its assigning authority	Values shall be provided for all components: <entity identifier (ST)> ^ <namespace ID (IS)> ^ <universal ID (ST)> ^ <universal ID type (ID)>

1395 For example, a DSS/Order Filler at the Metropolitan Medical Center sends an Image Manager/Archive the following values in a Procedure Scheduled OMI message:

Table 4.4-18: Example Accession Number Assigning Authority in OMI Message

Element Name	Seq.	Value
Filler Order Number	OBR-3	35732^99MMC^1.2.mm.nnnnn.444.888888^ISO
Accession Identifier	IPC-1	A35732-1^99MMC^1.2.mm.nnnnn.444.888888^ISO

1400 Typically, the Accession Identifier value in IPC-1 will be the same value as the entity identifier value of the Filler Order Number in OBR-3; however, in this example they are not. Regardless, the same Assigning Authority is providing both of these values so the Image Manager/Archive shall still obtain the Accession Number Assigning Authority from OBR-3 or IPC-1. So in this example, the Image Manager would map the following values to their corresponding DICOM attributes:

Table 4.4-19: Example Mapping to DICOM Accession Number Attributes

DICOM Attribute	DICOM Tag	Value
Accession Number	(0008,0050)	A35732-1
Issuer of Accession Number Sequence	(0008,0051)	
>Local Namespace Entity ID	(0040,0031)	99MMC
>Universal Entity ID	(0040,0032)	1.2.mm.nnnnn.444.888888
>Universal Entity ID Type	(0040,0033)	ISO

1405 *Modify Table 4.5-3 in TF Vol 2 as follows*

Table 4.5-3: Return and Matching Keys For Modality Worklist

Attribute Name	Tag	Query Keys Matching		Query Keys Return	
		SCU	SCP	SCU	SCP
Scheduled Procedure Step					
...					
Requested Procedure					
Requested Procedure Comments	(0040,1400)	O	O	O	O
Requested Procedure Description	(0032,1060)	O	O	R+	R
Requested Procedure Code Sequence	(0032,1064)				
>Code Value	(0008,0100)	O	O	R+*	R
>Coding Scheme Version	(0008,0103)	O	O	O	O
>Coding Scheme Designator	(0008,0102)	O	O	R+*	R
>Code Meaning	(0008,0104)	O	O	R+	R+
Requested Procedure ID	(0040,1001)	R+ (Note 1)	R+ (Note 1)	R+	R
Names of Intended recipients of results	(0040,1010)	O	O	O	O
Study Instance UID	(0020,000D)	O	O	R+*	R
Referenced Study Sequence [IHE-3]	(0008,1110)				
>Referenced SOP Class UID	(0008,1150)	O	O	R+*	R
>Referenced SOP Instance UID	(0008,1155)	O	O	R+*	R
Imaging Service Request					
Imaging Service Request Comments	(0040,2400)	O	O	O	O
Accession Number	(0008,0050)	R+ (Note 1)	R+ (Note 1)	R+	R+ [IHE-3]
<u>Issuer of Accession Number Sequence</u>	<u>(0008,0051)</u>				
<u>>Local Namespace Entity ID</u>	<u>(0040,0031)</u>	<u>O</u>	<u>O</u>	<u>O [IHE-4]</u>	<u>O [IHE-5]</u>

Attribute Name	Tag	Query Keys Matching		Query Keys Return	
		SCU	SCP	SCU	SCP
>Universal Entity ID	(0040,0032)	<u>Q</u>	<u>Q</u>	<u>Q [IHE-4]</u>	<u>Q [IHE-5]</u>
>Universal Entity ID Type	(0040,0033)	<u>Q</u>	<u>Q</u>	<u>Q [IHE-4]</u>	<u>Q [IHE-5]</u>
Requesting Physician	(0032,1032)	O	O	O	R
Requesting Service	(0032,1033)	O	O	O	O
Referring Physician's Name	(0008,0090)	O	O	R+	R
Visit Identification					
Institution Name	(0008,0080)	<u>Q</u>	<u>Q</u>	<u>Q [IHE-4]</u>	<u>Q [IHE-5]</u>
Institution Address	(0008,0081)	<u>Q</u>	<u>Q</u>	<u>Q [IHE-4]</u>	<u>Q [IHE-5]</u>
Institution Code Sequence	(0008,0082)	<u>Q</u>	<u>Q</u>	<u>Q [IHE-4]</u>	<u>Q [IHE-5]</u>
>Code Value	(0008,0100)	<u>Q</u>	<u>Q</u>	<u>Q [IHE-4]</u>	<u>Q [IHE-5]</u>
>Coding Scheme Designator	(0008,0102)	<u>Q</u>	<u>Q</u>	<u>Q [IHE-4]</u>	<u>Q [IHE-5]</u>
>Code Meaning	(0008,0104)	<u>Q</u>	<u>Q</u>	<u>Q [IHE-4]</u>	<u>Q [IHE-5]</u>
Admission ID	(0038,0010)	O	O	O	R
Visit Status					
Current Patient Location	(0038,0300)	O	O	O	R
Visit Relationship					
Referenced Patient Sequence	(0008,1120)				
>Referenced SOP Class UID	(0008,1150)	O	O	O	R
>Referenced SOP Instance UID	(0008,1155)	O	O	O	R
Patient Identification					
Patient's Name	(0010,0010)	R+	R	R+	R
Patient ID	(0010,0020)	R+	R	R+	R
Issuer of Patient ID	(0010,0021)	<u>Q</u>	<u>Q</u>	<u>Q [IHE-4]</u>	<u>Q [IHE-5]</u>
Issuer of Patient ID Qualifiers Sequence	(0010,0024)				
>Universal Entity ID	(0040,0032)	<u>Q</u>	<u>Q</u>	<u>Q [IHE-4]</u>	<u>Q [IHE-5]</u>
>Universal Entity ID Type	(0040,0033)	<u>Q</u>	<u>Q</u>	<u>Q [IHE-4]</u>	<u>Q [IHE-5]</u>
Other Patient IDs Sequence	(0010,1002)				
>Patient ID	(0010,0020)	<u>Q</u>	<u>Q</u>	<u>Q [IHE-4]</u>	<u>Q [IHE-5]</u>
>Issuer of Patient ID	(0010,0021)	<u>Q</u>	<u>Q</u>	<u>Q [IHE-4]</u>	<u>Q [IHE-5]</u>
>Type of Patient ID	(0010,0022)	<u>Q</u>	<u>Q</u>	<u>Q [IHE-4]</u>	<u>Q [IHE-5]</u>
>Issuer of Patient ID Qualifiers Sequence	(0010,0024)				
>>Universal Entity ID	(0040,0032)	<u>Q</u>	<u>Q</u>	<u>Q [IHE-4]</u>	<u>Q [IHE-5]</u>
>>Universal Entity ID Type	(0040,0033)	<u>Q</u>	<u>Q</u>	<u>Q [IHE-4]</u>	<u>Q [IHE-5]</u>
Other Patient ID's	(0010,1000)	Ø	Ø	Ø	Ø
Patient Demographic					
...					

Note 1: The matching performed by the SCP for the Requested Procedure ID and Accession Number attributes shall be single value (SV) matching.

1410

(IHE-1): SCU implementations may choose ...

...

1415

(IHE-4): Acquisition Modalities that support the Enterprise Identity Option shall request Institution Name, Institution Address, Institution Code Sequence, Issuer of Accession Number Sequence, Other Patient IDs Sequence and Issuer of Patient ID Qualifiers Sequence. See Section 4.5.4.1.2.3. The normal DICOM rules for Sequence Matching apply.

1420

(IHE-5): DSS/Order Fillers that support the Enterprise Identity Option shall provide the Institution Name, Institution Address, Institution Code Sequence, Issuer of Accession Number Sequence, Other Patient IDs Sequence and Issuer of Patient ID Qualifiers Sequence upon request by an SCU. The normal DICOM rules for Sequence Matching apply. See RAD Section 4.5.4.1.2.3.

Add new Section 4.5.4.1.2.3 to TF Vol 2

4.5.4.1.2.3 Enterprise Identity Option

1425

An Acquisition Modality supporting the Enterprise Identity Option shall request additional return keys in its Modality Worklist. In Table 4.5-3, the following attributes for the Query Keys Return have optionality R+* (rather than O) for an SCU:

MWL Keys for Enterprise Identity Option

Return Key Attributes	Tag
Issuer of Accession Number Sequence	(0008,0051)
>Local Namespace Entity ID	(0040,0031)
>Universal Entity ID	(0040,0032)
>Universal Entity ID Type	(0040,0033)
Issuer of Patient ID	(0010,0021)
Issuer of Patient ID Qualifiers Sequence	(0010,0024)
>Universal Entity ID	(0040,0032)
>Universal Entity ID Type	(0040,0033)
Other Patient IDs Sequence	(0010,1002)
>Patient ID	(0010,0020)
>Issuer of Patient ID	(0010,0021)
>Issuer of Patient ID Qualifiers Sequence	(0010,0024)
>>Universal Entity ID	(0040,0032)
>>Universal Entity ID Type	(0040,0033)
>Type of Patient ID	(0010,0022)

Return Key Attributes	Tag
Institution Name	(0008,0080)
Institution Address	(0008,0081)
Institution Code Sequence	(0008,0082)
>Code Value	(0008,0100)
>Coding Scheme Designator	(0008,0102)
>Code Meaning	(0008,0104)

- 1430 A DSS/Order Filler supporting the Enterprise Identity Option shall provide the additional return keys in the Modality Worklist upon request from the SCU. In Table 4.5-3, the above attributes for the Query Keys Return have an optionality R+* (rather than O) for the SCP.

Add new Section 4.6.4.1.2.5 to TF Vol 2

4.6.4.1.2.5 Enterprise Identity Option

- 1435 An Acquisition Modality supporting the Enterprise Identity Option shall copy values for the following Patient Context-critical attributes from the information received in the Modality Worklist, if provided, as specified in Appendix A, to ensure consistency with the Performed Procedure Step object attributes, and the generated MPPS objects:

Patient Context-critical Attributes	Tag
Issuer of Patient ID	(0010,0021)
Issuer of Patient ID Qualifiers Sequence	(0010,0024)
>Universal Entity ID	(0040,0032)
>Universal Entity ID Type	(0040,0033)
Other Patient ID Sequence	(0010, 1002)
>Patient ID	(0010,0020)
>Issuer of Patient ID	(0010,0021)
>Issuer of Patient ID Qualifiers Sequence	(0010,0024)
>>Universal Entity ID	(0040,0032)
>>Universal Entity ID Type	(0040,0033)
>Type of Patient ID	(0010,0022)

1440

In the case where Issuer of Patient ID and Issuer of Patient ID Qualifiers Sequence attributes are not explicitly supplied by the DSS/Order Filler in the Modality Worklist (e.g., in the Unscheduled Case), the Acquisition Modality shall not include values for these attributes in the generated SOP Instances.

- 1445 Note: this requirement is intended to reduce complexity of information reconciliation on the Image Manager and Order Filler. An implementation that supports configuration of default values for these attributes will need to be configured, so that these defaults contain no value.

An Acquisition Modality supporting the Enterprise Identity Option shall copy values for the following Accession Context-critical attributes from the information received in the Modality Worklist, if provided, as specified in Appendix A to ensure consistency with the Performed Procedure Step object attributes, and the information included in the generated MPPS objects.

Accession Context-critical Attributes	Tag
Issuer of Accession Number Sequence	(0008,0051)
>Local Namespace Entity ID	(0040,0031)
>Universal Entity ID	(0040,0032)
>Universal Entity ID Type	(0040,0033)

Add new Section 4.8.4.1.2.5 to TF Vol 2

4.8.4.1.2.5 Enterprise Identity Option

An Acquisition Modality supporting the Enterprise Identity Option shall copy values from the corresponding source attributes in the Modality Worklist response, if provided, into these Patient Context-critical attributes in the generated SOP instances:

Patient Context-critical Attributes	Tag
Issuer of Patient ID	(0010,0021)
Issuer of Patient ID Qualifiers Sequence	(0010,0024)
>Universal Entity ID	(0040,0032)
>Universal Entity ID Type	(0040,0033)
Other Patient IDs Sequence	(0010,1002)
>Patient ID	(0010,0020)
>Issuer of Patient ID	(0010,0021)
>Issuer of Patient ID Qualifiers Sequence	(0010,0024)
>>Universal Entity ID	(0040,0032)
>>Universal Entity ID Type	(0040,0033)
>Type of Patient ID	(0010,0022)

In the case where Issuer of Patient ID and Issuer of Patient ID Qualifiers Sequence attributes are not explicitly supplied by the DSS/Order Filler in the Modality Worklist (e.g., in the Unscheduled Case), the Acquisition Modality shall not include values for these attributes in the generated SOP Instances.

Note: this requirement is intended to reduce complexity of information reconciliation on the Image Manager and Order Filler. An implementation that supports configuration of default values for these attributes will need to be configured, so that these defaults contain no value.

- 1470 An Acquisition Modality shall copy values for the following Accession Context-critical attributes from the information received in the Modality Worklist, if provided as specified in Appendix A to ensure consistency with the Performed Procedure Step object attributes, and the information included in the generated SOP instances:

Accession Context-critical Attributes	Tag
Issuer of Accession Number Sequence	(0008,0051)
>Local Namespace Entity ID	(0040,0031)
>Universal Entity ID	(0040,0032)
>Universal Entity ID Type	(0040,0033)

- 1475 An Acquisition Modality shall copy values for the following Institution Context-critical attributes, if provided in the Modality Worklist response, in the generated SOP Instances describing where the SOP Instances were created:

Institution Context-critical Attributes	Tag
Institution Name	(0008,0080)
Institution Address	(0008,0081)
Institution Code Sequence	(0008,0082)
>Code Value	(0008,0100)
>Coding Scheme Designator	(0008,0102)
>Code Meaning	(0008,0104)

1480

Add Section 4.8.4.1.3.2 Enterprise Identity Option in RAD TF 2 (Modality Image Stored transaction - Expected Actions) as follows

4.8.4.1.3.2 Enterprise Identity Option

- 1485 An Image Manager supporting the Enterprise Identity Option shall be capable of coercing the following Patient Context-critical attributes, when absent, to default values in the received SOP instances, before storing them:

Patient Context-critical Attributes	Tag
Issuer of Patient ID	(0010,0021)

Patient Context-critical Attributes	Tag
Issuer of Patient ID Qualifiers Sequence	(0010,0024)
>Universal Entity ID	(0040,0032)
>Universal Entity ID Type	(0040,0033)
Other Patient IDs Sequence	(0010,1002)
>Patient ID	(0010,0020)
>Issuer of Patient ID	(0010,0021)
>Issuer of Patient ID Qualifiers Sequence	(0010,0024)
>>Universal Entity ID	(0040,0032)
>>Universal Entity ID Type	(0040,0033)
>Type of Patient ID	(0010,0022)

- 1490 An Image Manager supporting the Enterprise Identity Option shall be capable of coercing the following Accession Context-critical attributes, when absent, to default values in the received SOP instances before storing them:

Accession Context-critical Attributes	Tag
Issuer of Accession Number Sequence	(0008,0051)
>Local Namespace Entity ID	(0040,0031)
>Universal Entity ID	(0040,0032)
>Universal Entity ID Type	(0040,0033)

- 1495 An Image Manager supporting the Enterprise Identity Option shall be capable of coercing the following Institution Context-critical attributes, when absent, to default values in the received SOP instances before storing them:

Institution Context-critical Attributes	Tag
Institution Name	(0008,0080)
Institution Address	(0008,0081)
Institution Code Sequence	(0008,0082)
>Code Value	(0008,0100)
>Coding Scheme Designator	(0008,0102)
>Code Meaning	(0008,0104)

1500

Move the trigger statement in 4.12.4.1.2 as shown below:

An A02 event is issued as a result of the patient changing his or her assigned physical location.

The message shall be generated by the system that performs the update whenever an error is resolved or a change occurs in patient location.

1505 **4.12.4.1.2 Message Semantics**

The Update Patient transaction is an HL7 ADT message. ~~The message shall be generated by the system that performs the update whenever an error is resolved or a change occurs in patient location.~~

1510 *Move the trigger statement in 4.12.4.3.2 as shown below:*

4.12.4.3.1 Trigger Events

Changes to patient demographics and account information (e.g., change in patient name, patient address, etc.) shall trigger the following Update Patient message:

- A08 – Update Patient Information

1515 **The message shall be generated by the system that performs the update whenever an error is resolved or a change occurs in patient demographics.**

4.12.4.3.2 Message Semantics

1520 The Update Patient transaction is an HL7 ADT message. ~~The message shall be generated by the system that performs the update whenever an error is resolved or a change occurs in patient demographics.~~

Modify the title for Figure 4.12-18 to match the rest (no specific version reference)

Table 4.12-18: IHE Profile - MRG segment (HL7 v2.5.1 Option)

1525

Modify Section 4.12.4.5.2.2 as shown below:

For ~~the~~ HL7 v2.5.1 **Option**, the messages used to communicate the Cancel Patient Transfer/Discharge messages are described in the following ITI Sections in the ITI Technical Framework sections:

- 1530
- ITI TF-2b: 3.31.7.12 Cancel Patient Transfer (ADT^A12^ADT_A12)
 - ITI TF-2b: 3.31.7.5 Cancel Discharge/End Visit (ADT^A13^ADT_A01)

Modify Section 4.13.1 as shown below:

4.13.1 Scope

- 1535 This transaction involves changes to procedure information communicated from the Department
System Scheduler to the Image Manager and Report Manager. Unlike the order message sent
between the Order Placer and Order Filler (where only the order status can be updated without
requiring a Cancel/New Order to change an order), the ORM or OMI (**HL7 v2.5.1 Option**)
1540 message from the Department System Scheduler/Order Filler and Image Manager may reference
a previously scheduled Requested Procedure identified by a Study Instance UID.

Modify Section 4.13.4.2.2 as shown below:

- 1545 ~~Actors claiming the HL7 v2.5.1 Option shall implement the contents of this section. When
an actor claims support for the HL7 v2.5.1 Option the Actor is required to support the HL7
v2.5.1 interface requirements described in the referenced volumes and sections. The Actor
shall still support the HL7 v2.3.1 version of the transactions.~~

The Procedure Update message is conveyed by the HL7 OMI message formatted according to
the rules described in Section 4.4.

- 1550 *Update Section 4.14 Query Images (from Vol 2) as follows. Note that the yellow highlighting is
added to make the change in the table visible. That highlighting will not be integrated into the
TF.*

4.14.4.1.2 Message Semantics

The message semantics are defined by the DICOM Query/Retrieve SOP Classes.

- 1555 A C-FIND Request from the DICOM Study Root Query/Retrieve Information Model – FIND
SOP Class or optionally the DICOM Patient Root Query/Retrieve Information Model – FIND
SOP Class shall be sent from the Image Display to the Image Archive. Hierarchical Search
Method shall be supported.

- 1560 The Image Display uses one or more matching keys as search criteria to obtain the list of
matching entries in the Image Archive at the selected level (Patient & Study/Series/Image).
Based on this list of entries, the Image Display may select relevant entries to be retrieved.

- 1565 The matching keys and return keys to be supported by the Image Display (SCU) and the Image
Manager (SCP) are defined in the table below. The table specifies for both the Query SCU
(Image Display) and the Query SCP (Image Archive) if Matching Keys (keys used as matching
criteria in the Query request) and Returned Keys (Keys used to request attributes to be returned
in the query responses) are Required (R) or Optional (O). See Section 2.2 for more information.

Table 4.14-1 below includes the definition of return and matching keys specified by DICOM.
Requirements indicated with R+ highlight the requirements added by the IHE Technical
Framework.

1570

Table 4.14-1: Images Query Matching and Return Keys

Attributes Name	Tag	Query Keys Matching		Query Keys Return		Notes
		SCU	SCP	SCU	SCP	
Study Level						
Study Date	(0008,0020)	R+	R	R+	R	
Study Time	(0008,0030)	R+	R	R+	R	
Accession Number	(0008,0050)	R+	R	R+	R	
<u>Issuer of Accession Number Sequence</u>	<u>(0008,0051)</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>IHE-7, IHE-8</u>
<u>>Local Namespace Entity ID</u>	<u>(0040,0031)</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>IHE-7, IHE-8</u>
<u>>Universal Entity ID</u>	<u>(0040,0032)</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>IHE-7, IHE-8</u>
<u>>Universal Entity ID Type</u>	<u>(0040,0033)</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>IHE-7, IHE-8</u>
Patient Name	(0010,0010)	R+	R	R+	R	IHE-1, IHE-2
Patient ID	(0010,0020)	R+	R	R+	R	
<u>Issuer of Patient ID</u>	<u>(0010,0021)</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>IHE-7, IHE-8</u>
<u>Issuer of Patient ID Qualifiers Sequence</u>	<u>(0010,0024)</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>IHE-7, IHE-8</u>
<u>>Universal Entity ID</u>	<u>(0040,0032)</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>IHE-7, IHE-8</u>
<u>>Universal Entity ID Type</u>	<u>(0040,0033)</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>IHE-7, IHE-8</u>
<u>Other Patient IDs Sequence</u>	<u>(0010,1002)</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>IHE-7, IHE-8</u>
<u>>Patient ID</u>	<u>(0010,0020)</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>IHE-7, IHE-8</u>
<u>>Issuer of Patient ID</u>	<u>(0010,0021)</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>IHE-7, IHE-8</u>
<u>>Issuer of Patient ID Qualifiers Sequence</u>	<u>(0010,0024)</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>IHE-7, IHE-8</u>
<u>>>Universal Entity ID</u>	<u>(0040,0032)</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>IHE-7, IHE-8</u>
<u>>>Universal Entity ID Type</u>	<u>(0040,0033)</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>IHE-7, IHE-8</u>
<u>>Type of Patient ID</u>	<u>(0010,0022)</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>IHE-7, IHE-8</u>
Study ID	(0020,0010)	R+	R	R+	R	
Study Instance UID	(0020,000D)	R+*	R	R+*	R	IHE-5
Modalities in Study	(0008,0061)	R+	R+	R+	R+	
Referring Physician's Name	(0008,0090)	R+	R+	R+	R+	IHE-1, IHE-2
Study Description	(0008,1030)	O	O	O	O	IHE-6

Attributes Name	Tag	Query Keys Matching		Query Keys Return		Notes
		SCU	SCP	SCU	SCP	
Procedure Code Sequence	(0008,1032)					
>Code Value	(0008,0100)	O	O	O	O	
>Coding Scheme Designator	(0008,0102)	O	O	O	O	
>Coding Scheme Version	(0008,0103)	O	O	O	O	
>Code Meaning	(0008,0104)	O	O	O	O	
Name of Physician(s) Reading Study	(0008,1060)	O	O	O	O	IHE-1, IHE-2
Admitting Diagnoses Description	(0008,1080)	O	O	O	O	
Referenced Study Sequence	(0008,1110)					
>Referenced SOP Class UID	(0008,1150)	O	O	O	O	
>Referenced SOP Instance UID	(0008,1155)	O	O	O	O	
Referenced Patient Sequence	(0008,1120)					
>Referenced SOP Class UID	(0008,1150)	O	O	O	O	
>Referenced SOP Instance UID	(0008,1155)	O	O	O	O	
Patient's Birth Date	(0010,0030)	O	O	R+	R+	
Patient's Birth Time	(0010,0032)	O	O	O	O	
Patient's Sex	(0010,0040)	O	O	R+	R+	
Other Patient IDs	(0010,1000)	O	O	O	O	
Other Patient Names	(0010,1001)	O	O	O	O	IHE-1, IHE-2
Patient's Age	(0010,1010)	O	O	O	O	
Patient's Size	(0010,1020)	O	O	O	O	
Patient's Weight	(0010,1030)	O	O	O	O	
Ethnic Group	(0010,2160)	O	O	O	O	
Occupation	(0010,2180)	O	O	O	O	
Additional Patient History	(0010,21B0)	O	O	O	O	
Patient Comments	(0010,4000)	O	O	O	O	
Other Study Numbers	(0020,1070)	O	O	O	O	
Number of Patient Related Studies	(0020,1200)	N/A	N/A	O	O	

Attributes Name	Tag	Query Keys Matching		Query Keys Return		Notes
		SCU	SCP	SCU	SCP	
Number of Patient Related Series	(0020,1202)	N/A	N/A	O	O	
Number of Patient Related Instances	(0020,1204)	N/A	N/A	O	O	
Number of Study Related Series	(0020,1206)	N/A	N/A	O	R+	
Number of Study Related Instances	(0020,1208)	N/A	N/A	O	R+	
Interpretation Author	(4008,010C)	O	O	O	O	IHE-1, IHE-2
Series Level						
Modality	(0008,0060)	R+	R	R+	R	
Series Number	(0020,0011)	R+	R	R+	R	
Series Instance UID	(0020,000E)	R+*	R	R+*	R	IHE-5
Number of Series Related Instances	(0020,1209)	N/A	N/A	O	R+	
Series Description	(0008,103E)	O	O	R+	R+	
Performed Procedure Step ID	(0040, 0253)	O	O	O	O	
Referenced Performed Procedure Step Sequence	(0008,1111)					
>Referenced SOP Class UID	(0008,1150)	O	O	O	O	
>Referenced SOP Instance UID	(0008,1155)	O	O	O	O	
Request Attribute Sequence	(0040, 0275)					IHE-3
>Requested Procedure ID	(0040,1001)	R+	R+	R+	R+	
>Scheduled Procedure Step ID	(0040,0009)	R+	R+	R+	R+	
Performed Procedure Step Start Date	(0040,0244)	R+	R+	R+	R+	
Performed Procedure Step Start Time	(0040,0245)	R+	R+	R+	R+	
Body Part Examined	(0018,0015)	O	O	O	O	
<u>Institution Name</u>	<u>(0008,0080)</u>	<u>O</u>	<u>O</u>	<u>O</u>	<u>O</u>	<u>IHE-7, IHE-8</u>
<u>Institution Address</u>	<u>(0008,0081)</u>	<u>O</u>	<u>O</u>	<u>O</u>	<u>O</u>	<u>IHE-7, IHE-8</u>
<u>Institution Code Sequence</u>	<u>(0008,0082)</u>	<u>O</u>	<u>O</u>	<u>O</u>	<u>O</u>	<u>IHE-7, IHE-8</u>
<u>>Code Value</u>	<u>(0008,0100)</u>	<u>O</u>	<u>O</u>	<u>O</u>	<u>O</u>	<u>IHE-7, IHE-8</u>

Attributes Name	Tag	Query Keys Matching		Query Keys Return		Notes
		SCU	SCP	SCU	SCP	
> <u>Coding Scheme Designator</u>	(0008,0102)	<u>O</u>	<u>O</u>	<u>O</u>	<u>O</u>	<u>IHE-7, IHE-8</u>
> <u>Code Meaning</u>	(0008,0104)	<u>O</u>	<u>O</u>	<u>O</u>	<u>O</u>	<u>IHE-7, IHE-8</u>
Composite Object Instance Level						
Instance Number	(0020,0013)	O	R	O	R	
SOP Instance UID	(0008,0018)	O	R	O	R	
SOP Class UID	(0008,0016)	O	R+	O	R+	IHE-4

Note: For a description of the notation/ modifiers used in the above table, see RAD TF-2: 2.2.

The table below extends the table above with image-specific keys.

Table 4.14-2: Image Specific Query Matching and Return Keys

Attribute Name	Tag	Query Keys Matching		Query Keys Return		Notes
		SCU	SCP	SCU	SCP	
Image Specific Level						
Rows	(0028,0010)	O	O	O	R+	
Columns	(0028,0011)	O	O	O	R+	
Bits Allocated	(0028,0100)	O	O	O	R+	
Number of Frames	(0028,0008)	O	O	O	R+	

- 1575 The SCP is required (R+) to support the query return key elements: Rows, Columns, Bits Allocated and Number of Frames for calculating the storage size needed for retrieving (storing) the images. Furthermore, the image Bits Allocated is used in matching the image pixel bit depth to the Hard Copy Device (Printer) pixel bit depth.
- 1580
- **IHE-1:** Case insensitive matching is allowed for attributes of VR PN per DICOM PS 3.4.
 - **IHE-2:** SCUs are recommended to append wildcard “*” at the end of each component of any structured name to facilitate matching (i.e., PN attributes).
 - **IHE-3:** Universal Matching (selecting return keys) against an Attribute of VR SQ, may be requested by the Query SCU using a Zero Length Sequence Attribute. Query SCPs shall accept such Universal Match Requests. In addition, Query SCPs are required by the DICOM Standard to support requests for a Universal Match for an SQ attribute encoded as a zero length item.
- 1585
- **IHE-4:** A SOP Class UID is a non-ambiguous key to identify a specific type of image (Modality is not).

- 1590
- **IHE-5:** SCUs shall be able to include Study and Series UIDs as Matching Keys in queries. UID values will most probably originate from actor-internal logic that was performed prior to the Image Query, not from direct user input. For instance, an Image Display wants to display images of a series that is referenced in a DICOM Presentation State instance it just has retrieved - it includes the Series Instance UID value from the Presentation State as a query matching key.

1595

 - **IHE-6: Study Description as a Return Key shall be supported as R+ in SWF.b by SCUs and SCPs.**
 - **IHE-7: Image Displays that support the Enterprise Identity Option shall request Institution Name, Institution Address, Institution Code Sequence, Issuer of Accession Number Sequence, Issuer of Patient ID, Issuer of Patient ID Qualifiers Sequence and Other Patient IDs Sequence. See Section 4.14.4.1.2.1. The normal DICOM rules for Sequence Matching apply.**

1600

 - **IHE-8: Image Managers that support the Enterprise Identity Option shall provide the Institution Name, Institution Address, Institution Code Sequence, Issuer of Accession Number Sequence, Issuer of Patient ID, Issuer of Patient ID Qualifiers Sequence and Other Patient IDs Sequence upon request by an SCU. The normal DICOM rules for Sequence Matching apply. See RAD Section 4.14.4.1.2.1.**

1605

Add new Section 4.14.4.1.2.1 to TF Vol 2

1610 4.14.4.1.2.1 Enterprise Identity Option

An Image Display supporting the Enterprise Identity Option shall request additional return keys in queries. In Table 4.14-1, the following attributes for the Query Keys Return have optionality R+* (rather than O) for an SCU:

Query Keys for Enterprise Identity Option

Return Key Attributes	Tag
Issuer of Accession Number Sequence	(0008,0051)
>Local Namespace Entity ID	(0040,0031)
>Universal Entity ID	(0040,0032)
>Universal Entity ID Type	(0040,0033)
Issuer of Patient ID	(0010,0021)
Issuer of Patient ID Qualifiers Sequence	(0010,0024)
>Universal Entity ID	(0040,0032)
>Universal Entity ID Type	(0040,0033)
Other Patient IDs Sequence	(0010,1002)
>Patient ID	(0010,0020)
>Issuer of Patient ID	(0010,0021)
>Issuer of Patient ID Qualifiers Sequence	(0010,0024)

Return Key Attributes	Tag
>>Universal Entity ID	(0040,0032)
>>Universal Entity ID Type	(0040,0033)
>Type of Patient ID	(0010,0022)
Institution Name	(0008,0080)
Institution Address	(0008,0081)
Institution Code Sequence	(0008,0082)
>Code Value	(0008,0100)
>Coding Scheme Designator	(0008,0102)
>Code Meaning	(0008,0104)

1615

An Image Manager supporting the Enterprise Identity Option shall provide the additional return keys in queries upon request from the SCU. In Table 4.14-1, the above attributes for the Query Keys Return have an optionality R+* (rather than O) for the SCP.

1620 *Add new Section 4.18.4.1.2.6 to TF Vol 2*

4.18.4.1.2.6 Enterprise Identity Option

An Evidence Creator supporting the Enterprise Identity Option shall include values for the following Patient Context-critical attributes in the generated SOP instances that are copied from the corresponding source attribute in the originating SOP instance, if available:

1625

Patient Context-critical Attributes	Tag
Issuer of Patient ID	(0010,0021)
Issuer of Patient ID Qualifiers Sequence	(0010,0024)
>Universal Entity ID	(0040,0032)
>Universal Entity ID Type	(0040,0033)
Other Patient IDs Sequence	(0010,1002)
>Patient ID	(0010,0020)
>Issuer of Patient ID	(0010,0021)
>Issuer of Patient ID Qualifiers Sequence	(0010,0024)
>>Universal Entity ID	(0040,0032)
>>Universal Entity ID Type	(0040,0033)
>Type of Patient ID	(0010,0022)

In the case where Issuer of Patient ID and Issuer of Patient ID Qualifiers Sequence attributes are not explicitly supplied in the SOP Instances received, the Evidence Creator shall not include values for these attributes in the generated SOP Instances sent.

- 1630 Note: this requirement is intended to reduce complexity of information reconciliation on the Image Manager and Order Filler. An implementation that supports configuration of default values for these attributes will need to be configured, so that these defaults contain no value.

- 1635 An Evidence Creator supporting the Enterprise Identity Option shall include values for the following Accession Context-critical attributes in the generated SOP instances that are copied from the corresponding source attribute in the originating SOP instance, if available:

Accession Context-critical Attributes	Tag
Issuer of Accession Number Sequence	(0008,0051)
>Local Namespace Entity ID	(0040,0031)
>Universal Entity ID	(0040,0032)
>Universal Entity ID Type	(0040,0033)

- 1640 An Evidence Creator shall send values for the following Institution Context-critical attributes in the generated SOP Instances describing where the SOP Instances were created:

Institution Context-critical Attributes	Tag
Institution Name	(0008,0080)
Institution Address	(0008,0081)
Institution Code Sequence	(0008,0082)
>Code Value	(0008,0100)
>Coding Scheme Designator	(0008,0102)
>Code Meaning	(0008,0104)

- 1645 These institution values shall be configurable as part of the Evidence Creator's default setup parameters. Note that the original images may not be acquired at the same institution where the evidence documents are created.

For mobile devices which create Evidence Documents at multiple locations, there may be multiple default values, one for each institution the device is used.

1650

Add new Section 4.18.4.1.3.2 to TF Vol 2 (New section for Creator Image Stored)

4.18.4.1.3.2 Enterprise Identity Option

- 1655 An Image Manager supporting the Enterprise Identity Option shall support the requirements from RAD TF-2: 4.8.4.1.3.2 Enterprise Identity Option.

<i>Add new Section 4.20.4.1.2.4 to TF Vol 2</i>

4.20.4.1.2.4 Enterprise Identity Option

- 1660 An Evidence Creator supporting the Enterprise Identity Option shall send values for the following Patient Context-critical attributes as specified in Appendix A to ensure consistency between Performed Procedure Step object attributes, Scheduled Procedure Step information, and the information included in MPPS objects that are copied from the corresponding source attribute in the originating SOP Instance, if available:

1665

Patient Context-critical Attributes	Tag
Issuer of Patient ID	(0010,0021)
Issuer of Patient ID Qualifiers Sequence	(0010,0024)
>Universal Entity ID	(0040,0032)
>Universal Entity ID Type	(0040,0033)
Other Patient ID Sequence	(0010, 1002)
>Patient ID	(0010,0020)
>Issuer of Patient ID	(0010,0021)
>Issuer of Patient ID Qualifiers Sequence	(0010,0024)
>>Universal Entity ID	(0040,0032)
>>Universal Entity ID Type	(0040,0033)

1670

An Evidence Creator shall send values for the following Accession Context-critical attributes as specified in Appendix A to ensure consistency between the Performed Procedure Step object attributes, Scheduled Procedure Step information from the originating SOP Instances, and the information included in the generated MPPS objects, if available:

Accession Context-critical Attributes	Tag
Issuer of Accession Number Sequence	(0008,0051)
>Local Namespace Entity ID	(0040,0031)
>Universal Entity ID	(0040,0032)
>Universal Entity ID Type	(0040,0033)

Appendices

Appendix A: Attribute Consistency between Modality Worklist, Composite IODs, Evidence Documents, KIN and Modality Performed Procedure Step

Modify Volume 2 Appendix A as follows

A.1: Image Acquisition Integration-critical Attributes

Table A.1-1: Simple Case - required mapping of corresponding attributes

DICOM attribute	Modality Worklist (return attribute values)	Filling values for:		
		Image/ Standalone IOD	MPPS IOD	
Study Instance UID (0020,000D)	Source	Copy	Scheduled Step Attributes Sequence (0040,0270)	Copy
Referenced Study Sequence (0008,1110)	Source	Copy		Copy
Accession number (0008,0050)	Source	Copy See (IHE-A.1.1)		Copy See (IHE-A.1.1)
<u>Issuer of Accession Number Sequence (0008,0051)</u>	<u>Source</u>	<u>Copy</u> <u>See (IHE-A.1.6)</u>		<u>Copy</u> <u>See (IHE-A.1.6)</u>
<u>>Local Namespace Entity ID (0040,0031)</u>	<u>Source</u>	<u>Copy</u>		<u>Copy</u>
<u>>Universal Entity ID (0040,0032)</u>	<u>Source</u>	<u>Copy</u>		<u>Copy</u>
<u>>Universal Entity ID Type (0040,0033)</u>	<u>Source</u>	<u>Copy</u>		<u>Copy</u>
<u>Institution Name (0008,0080)</u>	<u>Source</u>	<u>Copy</u> <u>See (IHE-A.1.6)</u>		
<u>Institution Address (0008,0081)</u>	<u>Source</u>	<u>Copy</u> <u>See (IHE-A.1.6)</u>		
<u>Institution Code Sequence (0008,0082)</u>	<u>Source</u>	<u>Copy</u> <u>See (IHE-A.1.6)</u>		

DICOM attribute	Modality Worklist (return attribute values)	Filling values for:	
		Image/ Standalone IOD	MPPS IOD
>Code Value (0008,0100)	<u>Source</u>	<u>Copy</u> <u>See (IHE-A.1.6)</u>	
>Coding Scheme Designator (0008,0102)	<u>Source</u>	<u>Copy</u> <u>See (IHE-A.1.6)</u>	
>Code Meaning (0008,0104)	<u>Source</u>	<u>Copy</u> <u>See (IHE-A.1.6)</u>	

...

(IHE-A.1.6) For Acquisition Modalities that support the Enterprise Identity Option

1685

See RAD TF-2: 4.6.4.1.2.5 and RAD TF-2: 4.8.4.1.2.5.**For Evidence Creators that support the Enterprise Identity Option, see RAD TF-2: 4.18.4.1.2.6 and RAD TF-2: 4.20.4.1.2.4.****Table A.1-2: Unscheduled Case - required mapping of corresponding attributes**

DICOM attribute	Filling values for:	
	Image/ Standalone IOD	MPPS IOD
Study Instance UID (0020,000D)	Equal (internally generated).	Equal (internally generated).
Referenced Study Sequence (0008,1110)	n.a.	Shall be empty.
Accession number (0008,0050)	Shall be empty (zero length).	Shall be empty.
Issuer of Accession Number Sequence (0008,0051)	<u>See (IHE-A.2.5)</u>	<u>See (IHE-A.2.5)</u>
>Local Namespace Entity ID (0040,0031)	<u>See (IHE-A.2.5)</u>	<u>See (IHE-A.2.5)</u>
>Universal Entity ID (0040,0032)	<u>See (IHE-A.2.5)</u>	<u>See (IHE-A.2.5)</u>
>Universal Entity ID Type (0040,0033)	<u>See (IHE-A.2.5)</u>	<u>See (IHE-A.2.5)</u>
Institution Name (0008,0080)	<u>See (IHE-A.2.5)</u>	
Institution Address (0008,0081)	<u>See (IHE-A.2.5)</u>	
Institution Code Sequence (0008,0082)	<u>See (IHE-A.2.5)</u>	
>Code Value (0008,0100)	<u>See (IHE-A.2.5)</u>	

DICOM attribute	Filling values for:	
	Image/ Standalone IOD	MPPS IOD
> <u>Coding Scheme Designator (0008,0102)</u>	<u>See (IHE-A.2.5)</u>	
> <u>Code Meaning (0008,0104)</u>	<u>See (IHE-A.2.5)</u>	
...		

1690

- (IHE-A.2.1)...
- ...
- **(IHE-A.2.5) For Acquisition Modalities that support the Enterprise Identity Option, see RAD TF-2: 4.6.4.1.2.5 and RAD TF-2: 4.8.4.1.2.5.**

1695

Table A.1-3: Append to a Simple/ Normal Case - required mapping of corresponding attributes

DICOM attribute	Filling values for:			
	Original Image/ Standalone IOD	Append Image/ Standalone IOD	Append MPPS IOD	
Study Instance UID (0020,000D)	Equal (copied from MWL)	Equal (copied from MWL)	Scheduled Step Attributes Sequence (0040,0270)	Equal (copied from MWL)
Referenced Study Sequence (0008,1110)	Equal (copied from MWL)	Equal (copied from MWL)		Equal (copied from MWL)
Accession number (0008,0050)	Equal (copied from MWL). See (IHE-A.3.1).	Equal (copied from MWL). See (IHE-A.3.1).		Equal (copied from MWL). See (IHE-A.3.1).
<u>Issuer of Accession Number Sequence</u> <u>(0008,0051)</u>	<u>Equal (copied from MWL)</u>	<u>Equal (copied from MWL) see (IHE-A.3.7)</u>		<u>Equal (copied from MWL)</u>

DICOM attribute	Filling values for:		
	Original Image/ Standalone IOD	Append Image/ Standalone IOD	Append MPPS IOD
<u>>Local Namespace Entity ID (0040,0031)</u>	<u>Equal (copied from MWL)</u>	<u>Equal (copied from MWL) see (IHE-A.3.7)</u>	<u>Equal (copied from MWL)</u>
<u>>Universal Entity ID (0040,0032)</u>	<u>Equal (copied from MWL)</u>	<u>Equal (copied from MWL) see (IHE-A.3.7)</u>	<u>Equal (copied from MWL)</u>
<u>>Universal Entity ID Type (0040,0033)</u>	<u>Equal (copied from MWL)</u>	<u>Equal (copied from MWL) see (IHE-A.3.7)</u>	<u>Equal (copied from MWL)</u>
<u>Institution Name (0008,0080)</u>	<u>Equal (copied from MWL)</u>	<u>Equal (copied from MWL) see (IHE-A.3.7)</u>	
<u>Institution Address (0008,0081)</u>	<u>Equal (copied from MWL)</u>	<u>Equal (copied from MWL) see (IHE-A.3.7)</u>	
<u>Institution Code Sequence (0008,0082)</u>	<u>Equal (copied from MWL)</u>	<u>Equal (copied from MWL) see (IHE-A.3.7)</u>	
<u>>Code Value (0008,0100)</u>	<u>Equal (copied from MWL)</u>	<u>Equal (copied from MWL) see (IHE-A.3.7)</u>	
<u>>Coding Scheme Designator (0008,0102)</u>	<u>Equal (copied from MWL)</u>	<u>Equal (copied from MWL) see (IHE-A.3.7)</u>	
<u>>Code Meaning (0008,0104)</u>	<u>Equal (copied from MWL)</u>	<u>Equal (copied from MWL) see (IHE-A.3.7)</u>	
...			

- (IHE-A.3.1)...
- ...
- (IHE-A.3.7) For Acquisition Modality that supports the Enterprise Identity Option, see RAD TF-2: 4.6.4.1.2.5 and RAD TF-2: 4.8.4.1.2.5.

1700

Table A.1-4: Group Case (3 SPSs belonging to 2 Requested Procedures) - required mapping of corresponding attributes

DICOM attribute	Modality Worklist (return attribute values)			Filling values for:							
	Item 1	Item 2	Item 3	Image IOD			MPPS IOD				
Study Instance UID (0020,000D)	Source-1	Source-2	Source-2	Equal (internally generated)			Scheduled Step Attributes Sequence (0040,0270)	Item 1	Item 2	Item 3	
Accession number (0008,0050)	Source-1	Source-2	Source-2	Copy (if same Accession Number in Source-1 and Source-2). Shall be empty if the grouped SPSs do not have the same Accession Number.				Equal	Equal	Equal	
Issuer of Accession Number Sequence (0008,0051)	Source-1	Source-2	Source-2	Copy (if same in Source-1 and Source-2). Shall not be included if the Accession Number is empty.				Copy-1	Copy-2	Copy-2	
>Local Namespace Entity ID (0040,0031)	Source-1	Source-2	Source-2	Copy (if same in Source-1 and Source-2).				Copy-1	Copy-2	Copy-2	
>Universal Entity ID (0040,0032)	Source-1	Source-2	Source-2	Copy (if same in Source-1 and Source-2).				Copy-1	Copy-2	Copy-2	
>Universal Entity ID Type (0040,0033)	Source-1	Source-2	Source-2	Copy (if same in Source-1 and Source-2).				Copy-1	Copy-2	Copy-2	
Referenced Study Sequence (0008,1110)	Source-1	Source-2	Source-2	Item 1		Item 2		Request Attributes Sequence (0040,0275)	Copy-1	Copy-2	Copy-2
				Copy-1		Copy-2					
Requested Procedure ID (0040,1001)	Source-1	Source-2	Source-2	Item 1	Item 2	Item 3			Copy-1	Copy-2	Copy-2
Requested Procedure Description (0032,1060)	Source-1	Source-2	Source-2	Copy-1	Copy-2	Copy-2			Copy-1	Copy-2	Copy-2
				Copy-1	Copy-2	Copy-2	Copy-1		Copy-2	Copy-2	
Requested Procedure Code Sequence (0032,1064)	Source-1	Source-2	Source-2	Copy-1	Copy-2	Copy-2	Copy-1		Copy-2	Copy-2	
Scheduled Procedure Step ID (0040,0009)	Source-1	Source-2	Source-3	Copy-1	Copy-2	Copy-3	Copy-1		Copy-2	Copy-3	
				Copy-1	Copy-2	Copy-3	Copy-1		Copy-2	Copy-3	
Scheduled Procedure Step Description (0040,0007)	Source-1	Source-2	Source-3	Copy-1	Copy-2	Copy-3	Copy-1		Copy-2	Copy-3	
Scheduled Protocol Code Sequence (0040,0008)	Source-1	Source-2	Source-3	Copy-1	Copy-2	Copy-3	Copy-1		Copy-2	Copy-3	

DICOM attribute	Modality Worklist (return attribute values)			Filling values for:				
	Item 1	Item 2	Item 3	Image IOD			MPPS IOD	
Accession number (0008,0050)	(documented above in this column)			Copy-1	Copy-2	Copy-2	n.a.	
<u>Issuer of Accession Number Sequence</u> (0008,0051)				<u>Copy-1</u>	<u>Copy-2</u>	<u>Copy-2</u>	<u>n.a.</u>	
<u>>Local Namespace Entity ID</u> (0040,0031)				<u>Copy-1</u>	<u>Copy-2</u>	<u>Copy-2</u>	<u>n.a.</u>	
<u>>Universal Entity ID</u> (0040,0032)				<u>Copy-1</u>	<u>Copy-2</u>	<u>Copy-2</u>	<u>n.a.</u>	
<u>>Universal Entity ID Type</u> (0040,0033)				<u>Copy-1</u>	<u>Copy-2</u>	<u>Copy-2</u>	<u>n.a.</u>	
Study Instance UID (0020,000D)				Equal (internally generated)	Equal (internally generated)	Equal (internally generated)	n.a.	
Referenced Study Sequence (0008,1110)				Copy-1	Copy-2	Copy-2	n.a.	
<u>Institution Name</u> (0008,0080)	<u>Source-1</u>	<u>Source-2</u>	<u>Source-2</u>	<u>Copy (if same in Source-1 and Source-2).</u>			<u>n.a.</u>	
<u>Institution Address</u> (0008,0081)	<u>Source-1</u>	<u>Source-2</u>	<u>Source-2</u>	<u>Copy (if same in Source-1 and Source-2).</u>			<u>n.a.</u>	
<u>Institution Code Sequence</u> (0008,0082)	<u>Source-1</u>	<u>Source-2</u>	<u>Source-2</u>	<u>Copy (if same in Source-1 and Source-2).</u>			<u>n.a.</u>	
<u>>Code Value</u> (0008,0100)	<u>Source-1</u>	<u>Source-2</u>	<u>Source-2</u>	<u>Copy (if same in Source-1 and Source-2).</u>			<u>n.a.</u>	
<u>>Coding Scheme Designator</u> (0008,0102)	<u>Source-1</u>	<u>Source-2</u>	<u>Source-2</u>	<u>Copy (if same in Source-1 and Source-2).</u>			<u>n.a.</u>	

DICOM attribute	Modality Worklist (return attribute values)			Filling values for:			
	Item 1	Item 2	Item 3	Image IOD	MPPS IOD		
>Code Meaning (0008,0104)	<u>Source-1</u>	<u>Source-2</u>	<u>Source-2</u>	<u>Copy (if same in Source-1 and Source-2).</u>	<u>n.a.</u>		
Performed Protocol Code Sequence (0040,0260)	n.a			Equal (internally generated). Recommendation: Absent if the value is not known. Is non-empty if Assisted Protocol Setting Option is supported (see 4.6.4.1.2.4).	Equal (internally generated). Shall be zero length if the value is not known, e.g., Assisted Protocol Setting not supported.		
...							

1705 ..

Table A.1-5: Group Case with PGP (3 SPS belonging to 2 Requested Procedures) - required mapping of corresponding attributes

DICOM attribute	Image IOD from Group Case Acquisition	Filling values for:					
		Presentation Group 1		Presentation Group 2			
		GSPS IOD	MPPS IOD	GSPS IOD	MPPS IOD		
Study Instance UID (0020,000D)	Equal	Equal	Item 1 Equal	Equal	Item 1 Equal	Item 2 Equal	
Accession number (0008,0050)	Equal. See (IHE-A.5.1)	Equal. See (IHE-A.5.1)	Scheduled Step Attributes Sequence (0040,0270)	Equal. See (IHE-A.5.2)	Equal. See (IHE-A.5.1)	Equal See (IHE-A.5.2)	Equal See (IHE-A.5.2)
Issuer of Accession Number Sequence (0008,0051)	<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>	<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>		<u>Equal.</u> <u>See (IHE-A.5.2) and (IHE A.5.10)</u>	<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>	<u>Equal</u> <u>See (IHE-A.5.2)</u> <u>and (IHE A.5.10)</u>	<u>Equal</u> <u>See (IHE-A.5.2)</u> <u>and (IHE A.5.10)</u>

DICOM attribute	Image IOD from Group Case Acquisition			Filling values for:						
				Presentation Group 1		Presentation Group 2				
				GSPS IOD	MPPS IOD	GSPS IOD		MPPS IOD		
>Local Namespace Entity ID (0040,0031)	Equal. See (IHE-A.5.1) and (IHE A.5.10)			Equal. See (IHE-A.5.1) and (IHE A.5.10)		Equal. See (IHE-A.5.2) and (IHE A.5.10)	Equal. See (IHE-A.5.1) and (IHE A.5.10)		Equal See (IHE-A.5.2) and (IHE A.5.10)	Equal See (IHE-A.5.2) and (IHE A.5.10)
>Universal Entity ID (0040,0032)	Equal. See (IHE-A.5.1) and (IHE A.5.10)			Equal. See (IHE-A.5.1) and (IHE A.5.10)		Equal. See (IHE-A.5.2) and (IHE A.5.10)	Equal. See (IHE-A.5.1) and (IHE A.5.10)		Equal See (IHE-A.5.2) and (IHE A.5.10)	Equal See (IHE-A.5.2) and (IHE A.5.10)
>Universal Entity ID Type (0040,0033)	Equal. See (IHE-A.5.1) and (IHE A.5.10)			Equal. See (IHE-A.5.1) and (IHE A.5.10)		Equal. See (IHE-A.5.2) and (IHE A.5.10)	Equal. See (IHE-A.5.1) and (IHE A.5.10)		Equal See (IHE-A.5.2) and (IHE A.5.10)	Equal See (IHE-A.5.2) and (IHE A.5.10)
Referenced Study Sequence (0008,1110)	Item 1		Item 2	Equal-1		Equal-1	Equal-2		Equal-2	Equal-2
	Equal-1		Equal-2							
Requested Procedure ID (0040,1001)	Request Attributes Sequence (0040,0275)	Item 1	Item 2	Item 3	Request Attributes Sequence (0040,0275)	Item 1				
		Equal-1	Equal-2	Equal-2		Equal-1			Equal-2	Equal-2
Requested Procedure Description (0032,1060)		Equal-1	Equal-2	Equal-2		Equal-1			Equal-2	Equal-2
Requested Procedure Code Sequence (0032,1064)		Equal-1	Equal-2	Equal-2		Equal-1			Equal-2	Equal-2
Scheduled Procedure Step ID (0040,0009)		Equal-1	Equal-2	Equal-3		Equal-1			Equal-2	Equal-3
Scheduled Procedure Step Description (0040,0007)		Equal-1	Equal-2	Equal-3		Equal-1			Equal-2	Equal-3
Scheduled Protocol Code Sequence (0040,0008)		Equal-1	Equal-2	Equal-3		Equal-1			Equal-2	Equal-3
Accession number (0008,0050)	Equal-1	Equal-2	Equal-2	Equal-1	n.a.		Equal-2	Equal-2	n.a.	
Issuer of Accession Number Sequence (0008,0051)	Equal-1	Equal-2	Equal-2	Equal-1	n.a.		Equal-2	Equal-2	n.a.	

DICOM attribute	Image IOD from Group Case Acquisition			Filling values for:					
				Presentation Group 1		Presentation Group 2			
				GSPS IOD	MPPS IOD	GSPS IOD	MPPS IOD		
<u>>Local Namespace Entity ID</u> (0040,0031)	<u>Equal-1</u>	<u>Equal-2</u>	<u>Equal-2</u>	<u>Equal-1</u>	<u>n.a.</u>	<u>Equal-2</u>	<u>Equal-2</u>	<u>n.a.</u>	
<u>>Universal Entity ID</u> (0040,0032)	<u>Equal-1</u>	<u>Equal-2</u>	<u>Equal-2</u>	<u>Equal-1</u>	<u>n.a.</u>	<u>Equal-2</u>	<u>Equal-2</u>	<u>n.a.</u>	
<u>>Universal Entity ID Type</u> (0040,0033)	<u>Equal-1</u>	<u>Equal-2</u>	<u>Equal-2</u>	<u>Equal-1</u>	<u>n.a.</u>	<u>Equal-2</u>	<u>Equal-2</u>	<u>n.a.</u>	
Study Instance UID (0020,000D)	Equal-1	Equal-2	Equal-2	Equal-1	n.a.	Equal-2	Equal-2	n.a.	
Referenced Study Sequence (0008,1110)	Equal-1	Equal-2	Equal-2	Equal-1	n.a.	Equal-2	Equal-2	n.a.	
<u>Institution Name</u> (0008,0080)	<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>			<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>	<u>n.a.</u>	<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>	<u>n.a.</u>		
<u>Institution Address</u> (0008,0081)	<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>			<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>	<u>n.a.</u>	<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>	<u>n.a.</u>		
<u>Institution Code Sequence</u> (0008,0082)	<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>			<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>	<u>n.a.</u>	<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>	<u>n.a.</u>		
<u>>Code Value</u> (0008,0100)	<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>			<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>	<u>n.a.</u>	<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>	<u>n.a.</u>		
<u>>Coding Scheme Designator</u> (0008,0102)	<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>			<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>	<u>n.a.</u>	<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>	<u>n.a.</u>		
<u>>Code Meaning</u> (0008,0104)	<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>			<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>	<u>n.a.</u>	<u>Equal.</u> <u>See (IHE-A.5.1) and (IHE A.5.10)</u>	<u>n.a.</u>		
Performed Protocol Code Sequence (0040,0260)	Note: Values shall not be used for the GSPS and associated MPPS.			Equal-1 (internally generated). See (IHE-A.5.3)	Equal-1 (internally generated). See (IHE-A.5.4)	Equal-2 (internally generated). See (IHE-A.5.3)	Equal-2 (internally generated). See (IHE-A.5.4)		
...									

-(IHE-A.5.1) When several SPSs belonging to Requested Procedures attached to the same Imaging Service Request have been grouped together, the original value of Accession Number (0008,0050) **and the associated Issuer of Accession Number**

1710

- 1715 **Sequence (0008,0051)** shall be copied in the Accession Number **and the associated Issuer of Accession Number Sequence (0008,0051)** fields in GSPSs. When the grouped SPSs belong to Requested Procedures attached to different Imaging Service Request, the Accession Number (0008,0050) in the original images is expected to be empty per the group case specified by IHE. Therefore, it shall also be empty in generated GSPS (as they belong to the same Study as the original images). **For the same reason, the associated Issuer of Accession Number Sequence in the original images is expected to be absent and it shall also be absent in the generated GSPS.**
- 1720 • (IHE-A.5.2) The Accession Number **and the associated Issuer of the Accession Number Sequence** in MPPS objects shall be equal to the MWL Accession Number **and the associated Issuer of Accession Number Sequence** return value, irrespective of the Accession Number value (including zero length) **or the associated Issuer of Accession Number Sequence (if it exists)** in Image and Standalone IODs and GSPSs.
- ...
- 1725 • **(IHE-A.5.10) For an Acquisition Modality that supports the Enterprise Identity Option, see RAD TF-2:4.6.4.1.2.5 and RAD TF-2:4.8.4.1.2.5.**

Table A.2-1: Evidence Document Attribute Mapping

DICOM attribute	Image/Stand-alone IOD	Filling values for Evidence Documents
Study Instance UID (0020,000D)	Source	Copy (IHE-A.2-1.1)
Referenced Study Sequence (0008,1110)	Source. (IHE-A.2-1.2)	Copy, if not absent in Image/ Standalone IOD. (IHE-A.2-1.1)
Accession number (0008,0050)	Source	Copy (IHE-A.2-1.1)
<u>Issuer of Accession Number Sequence (0008,0051)</u>	<u>Source</u>	<u>Copy</u> <u>(IHE-A.2-1.1 and IHE-A.2-1.3)</u>

DICOM attribute	Image/Stand-alone IOD	Filling values for Evidence Documents
<u>>Local Namespace Entity ID (0040,0031)</u>	<u>Source</u>	<u>Copy</u> <u>(IHE-A.2-1.1 and IHE-A.2-1.3)</u>
<u>>Universal Entity ID (0040,0032)</u>	<u>Source</u>	<u>Copy</u> <u>(IHE-A.2-1.1 and IHE-A.2-1.3)</u>
<u>>Universal Entity ID Type (0040,0033)</u>	<u>Source</u>	<u>Copy</u> <u>(IHE-A.2-1.1 and IHE-A.2-1.3)</u>
<u>Institution Name (0008,0080)</u>	<u>Source</u>	<u>Copy</u> <u>See (IHE-A. 2-1.3)</u>
<u>Institution Address (0008,0081)</u>	<u>Source</u>	<u>Copy</u> <u>See (IHE-A. 2-1.3)</u>
<u>Institution Code Sequence (0008,0082)</u>	<u>Source</u>	<u>Copy</u> <u>See (IHE-A. 2-1.3)</u>
<u>>Code Value (0008,0100)</u>	<u>Source</u>	<u>Copy</u> <u>See (IHE-A. 2-1.3)</u>
<u>>Coding Scheme Designator (0008,0102)</u>	<u>Source</u>	<u>Copy</u> <u>See (IHE-A. 2-1.3)</u>
<u>>Code Meaning (0008,0104)</u>	<u>Source</u>	<u>Copy</u> <u>See (IHE-A. 2-1.3)</u>
...		

...

1730 **(IHE-A.2.1.3) For Evidence Creators that support the Enterprise Identity Option, see RAD TF-2: 4.18.4.1.2.6.**

A.3 Context-critical Attributes

Modality Worklist	Images and Standalone IOD	MPPS IOD
Patient Name	Patient Name (note 1)	Patient Name (note 1)
Patient ID	Patient ID (note 1)	Patient ID (note 1)
<u>Issuer of Patient ID</u>	<u>Issuer of Patient ID (note 3)</u>	<u>Issuer of Patient ID (note 3)</u>
<u>Issuer of Patient ID Qualifiers Sequence</u>	<u>Issuer of Patient ID Qualifiers Sequence (note 3)</u>	<u>Issuer of Patient ID Qualifiers Sequence (note 3)</u>
Patient's Birth Date	Patient's Birth Date (note 2)	Patient's Birth Date (note 2)
Patient's Sex	Patient's Sex (note 2)	Patient's Sex (note 2)
<u>Other Patient IDs Sequence</u>	<u>Other Patient IDs Sequence (note 4)</u>	----
Referring Physician's Name	Referring Physician's Name (note 2)	----

Note 1: This Attribute may be zero length when the Department System Scheduler/Order Filler providing the Modality Worklist service is not accessible. Pre-registered values for Patient ID and Patient Name will be used in the Unidentified Patient cases defined in the IHE Technical Framework.

Note 2: Attribute may be zero length when the Department System Scheduler/Order Filler providing Modality Worklist service is not accessible or the Attributes returned by MWL are zero length.

Note 3: For the Enterprise Identity Option see

1740

- **RAD TF-2: 4.6.4.1.2.5 and RAD TF-2: 4.8.4.1.2.5 for the Acquisition Modality**
- **RAD TF-2: 4.18.4.1.2.6 and RAD TF-2: 4.20.4.1.2.4 for the Evidence Creator.**

Note 4: For Enterprise Identity Option, Other Patient IDs Sequence shall be copied in Images and Standalone IODs if the information is available in the Modality Worklist item.

1745 **Appendix B: HL7 Order Mapping to DICOM MWL***Modify Volume 2 Appendix B as follows***Table B-1: HL7 Order Mapping to DICOM MWL**

DICOM Description / Module	DICOM Tag	DICOM SCP Matching Key Type	DICOM SCP Return Key Type	HL7 Description	HL7 Item #	HL7 Segment	Notes
...							
Imaging Service Request							
Accession Number	(0008,0050)	O	2				Generated by the department system scheduler
<u>Issuer of Accession Number Sequence</u>	<u>(0008,0051)</u>	<u>O</u>	<u>3</u>				<u>Assigned by the department system scheduler</u>
Requesting Physician	(0032,1032)	O	2	Ordering Provider	00226.1-7	ORM OBR:16	
Referring Physician's Name	(0008,0090)	O	2	Referring Doctor	00138.1-7	ORM PV1:8	
Placer Issuer and Number	(0040,2016)	O	2	Placer Order #	00216.1-2	ORM ORC:2	See note 4
Filler Issuer and Number	(0040,2017)	O	2	Filler Order #	00217.1-2	ORM ORC:3	See note 4
Reason for Imaging Service Request	(0040,2001)	O	2	Reason for Study	00263	ORM OBR:31	The attribute (0040,2001) was retired by DICOM in 2004 in favor of (0040,1002) and (0040,100A). Accordingly, the DICOM return key may be empty, or a duplicate of (0040,1002) and/or the code

DICOM Description / Module	DICOM Tag	DICOM SCP Matching Key Type	DICOM SCP Return Key Type	HL7 Description	HL7 Item #	HL7 Segment	Notes
							meaning of (0040,100A).
Entered by....	(0040,2008)	O	3	Entered by....	00224.2-6	ORM ORC:10	
Order Entering Location	(0040,2009)	O	3	Entering Organization	00231.2	ORM ORC:17	
Order Callback Phone Number	(0040,2010)	O	3	Order Callback Phone Number	00228	ORM ORC:14	
All other Attributes from the Scheduled Procedure Step Module		O	3				
Visit Identification							
Admission ID	(0038,0010)	O	2	Patient Account Number or Visit Number	00121.1 or 00149.1	ORM PID: 18 or PV1:19	See note 6
Issuer of Admission ID <u>Sequence</u>	(0038, 00110 <u>014</u>)	O	23	Patient Account Number or Visit Number	00121.4 or 00149.4	ORM PID:18 or PV1-19	See note 6
All other Attributes from the Visit Identification Module		O	3				
...							

1750

Note 6: As discussed in Section 4.1.4.1.2.4, either field PID-18 Patient Account Number or field PV1-19 Visit Number or both may be valued depending on the specific national requirements. Whenever field PV1-19 Visit Number in an order message is valued, its components shall be used to populate Admission ID (0038,0010) and Issuer of Admission ID Sequence (0038,~~00110~~014) attributes in the MWL responses. In the case where field PV1-19 Visit Number is not valued, these attributes shall be valued from components of field PID-18 Patient Account Number. This requires that Visit Numbers be unique across all account numbers.

1755

1760

Issuer of Admission ID (0038,0011), formerly identified in this note, has been retired by DICOM.

Appendix D – Clarification of Patient Identifiers for Merge Cases

<i>Modify Volume 2 Appendix D as follows</i>
--

D.1 Introduction

1765 IHE Technical Framework has adopted the changes in HL7 v2.3.1 and HL7 v2.5.1 Patient Identifiers. This includes:

- External Patient ID (PID-2) has been retained for backward compatibility.
- Alternate Patient ID (PID-4) has been retained for backward compatibility.
- Internal Patient ID (PID-3) has been renamed “Patient Identifier List” and is now allowed to repeat.

1770 Due to the adoption of these HL7 changes, IHE mandates the use of assigning authority (issuer) in PID-3 component 4 and identifier in PID-3 component 1.

1775 Since the DICOM Patient ID attribute (0010,0020) does not convey assigning authority and the Issuer of Patient ID (0010,0021) is an optional attribute in DICOM, both the Image Manager and the Department System Scheduler/Order Filler shall be prepared to make assumptions regarding the assigning authority for Patient IDs transmitted from a Modality via DICOM Modality PPS. It is assumed that it is possible to recognize a valid range of patient identifiers assigned by a single ADT Actor or single issuer of identifiers within an enterprise.

The identifier in PID-3 in all HL7 transactions specified by the IHE shall be single valued and used by the ADT/Patient Registration Actor, except for Transaction [RAD-4] which may use an identifier assigned by the DSS/Order Filler.

In future years of IHE with the introduction of an MPI, it is assumed that the MPI identifier will be used in PID-3 for all HL7 transactions.

1780 It is required that the healthcare institution configure the issuer of temporary patient identifiers to be either the ADT Issuer or the Departmental Issuer in both the Image Manager and the DSS/Order Filler. This will ensure that Patient ID in DICOM (0010,0020) is associated with the same assigning authority when mapped into a PID-3 in HL7 messages.

1785 Although, an organization may operate with temporary patient identifiers issued by the ADT and used primarily in Cases 1, 2 and 3, Case 5 may occur. This may happen due to Modality operator errors when manually entering patient identifier in Case 3. In this situation, DSS/Order Filler and Image Manager shall recognize the error and associate the erroneous identifier to the same issuer. The reconciliation will happen on the DSS/Order Filler and it will send the Patient Merge message to the Image Manager where both “new” and “old” patient identifiers are associated with the same issuer.

1790 The use of PID-3 is illustrated in the following sections using the use cases from RAD TF-1: 3.3, 4.3. In the examples given below time flows from the top row of the table to the bottom.

Table Acronyms	Description
IM	Image Manager
OF	Order Filler / Departmental System Scheduler
OP	Order Placer
PPSM	Performed Procedure Step Manager

D.2 Administrative Process Flow (RAD TF-1: 3.3.1)

1795 The illustration includes A01, A04, A05, A11, and A30 although only an A01 is included in this example. The ADT identifier number used in the example below is “123”, the assigning authority_“ADT_Issuer”, **Universal ID is “1.2.3.4” and Universal ID Type is “ISO”.**

Transaction	PID-3 (Patient Identifier List)	DICOM (0010, 0020)	<u>DICOM</u> (<u>0010,</u> <u>0021</u>)	<u>DICOM</u> (<u>0010,0024</u>) (<u>0040,0032</u>)	<u>DICOM</u> (<u>0010,0024</u>) (<u>0040,0033</u>)	MRG-1 (Prior Patient Identifier List)
A01 (ADT -> OF)	123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
A01 (ADT -> OP)	123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A

Transaction	PID-3 (Patient Identifier List)	DICOM (0010, 0020)	DICOM (0010, 0021)	DICOM (0010,0024) (0040,0032)	DICOM (0010,0024) (0040,0033)	MRG-1 (Prior Patient Identifier List)
ORM (OP->OF) (HL7 v2.3.1) OMG (OP->OF) (HL7 v2.5.1)	123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
ORM (OF->IM) (HL7 v2.3.1) OMI (OF->IM) (HL7 v2.5.1)	123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
DICOM MWL (OF -> Modality)	N/A	123	<u>ADT Iss uer</u>	<u>1.2.3.4</u>	<u>ISO</u>	N/A
PPS (Modality -> PPSM)	N/A	123	<u>ADT Iss uer</u>	<u>1.2.3.4</u>	<u>ISO</u>	N/A
PPS (PPSM -> IM)	N/A	123	<u>ADT Iss uer</u>	<u>1.2.3.4</u>	<u>ISO</u>	N/A
PPS (PPSM -> OF)	N/A	123	<u>ADT Iss uer</u>	<u>1.2.3.4</u>	<u>ISO</u>	N/A

D.3 Patient Merge (RAD TF-1: 3.3.2)

1800 This specifically looks at the Patient merge scenario in RAD TF-1: 3.3.2.2. The “old” ADT identifier number used in the example below is “123”, the assigning authority is “ADT_Issuer”, Universal ID is “1.2.3.4” and Universal ID Type is “ISO”. The “new” ADT identifier number used in the example below is “456”, the assigning authority is “ADT_Issuer”, Universal ID is “1.2.3.4” and Universal ID Type is “ISO”.

Transaction	PID-3 (Patient Identifier List)	DICOM (0010, 0020)	DICOM (0010, 0021)	DICOM (0010,0024) (0040,0032)	DICOM (0010,0024) (0040,0033)	MRG-1 (Prior Patient Identifier List)
A01 (ADT -> OF)	123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A

Transaction	PID-3 (Patient Identifier List)	DICOM (0010, 0020)	DICOM (0010, 0021)	DICOM (0010,0024) (0040,0032)	DICOM (0010,0024) (0040,0033)	MRG-1 (Prior Patient Identifier List)
A01 (ADT -> OP)	123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
ORM (OP->OF) (HL7 v2.3.1) OMG (OP->OF) (HL7 v2.5.1)	123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
ORM (OF->IM) (HL7 v2.3.1) OMI (OF->IM) (HL7 v2.5.1)	123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
DICOM MWL (OF -> Modality)	N/A	123	<u>ADT_Issuer</u>	<u>1.2.3.4</u>	<u>ISO</u>	N/A
A40 (ADT -> OF)	456^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>
A40 (OF->IM)	456^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>
A40 (ADT -> OP)	456^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>

1805 D.4 Trauma Cases 1 and 2 (RAD TF-1: 4.3)

The ADT temporary identifier for “John Doe” used in the example below is “Temp_123”, the assigning authority is “ADT_Issuer”, Universal ID is “1.2.3.4” and Universal ID Type is “ISO”.

Transaction	PID-3 (Patient Identifier List)	DICOM (0010,0020)	DICOM (0010,0021)	DICOM (0010,0024) (0040,0032)	DICOM (0010,0024) (0040,0033)	MRG-1 (Prior Patient Identifier List)
A01 (ADT -> OF)	Temp_123^^^ADT_Issuer& <u>1.2.3.4</u> & <u>ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
A01 (ADT -> OP)	Temp_123^^^ADT_Issuer& <u>1.2.3.4</u> & <u>ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
ORM (OP->OF) (HL7 v2.3.1) OMG (OP->OF) (HL7 v2.5.1)	Temp_123^^^ADT_Issuer& <u>1.2.3.4</u> & <u>ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
ORM (OF->IM) (HL7 v2.3.1) OMI (OF->IM) (HL7 v2.5.1)	Temp_123^^^ADT_Issuer& <u>1.2.3.4</u> & <u>ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
DICOM MWL (OF -> Modality)	N/A	Temp_123	<u>ADT_Issuer</u>	<u>1.2.3.4</u>	<u>ISO</u>	N/A
PPS (Modality -> PPSM)	N/A	Temp_123	<u>ADT_Issuer</u>	<u>1.2.3.4</u>	<u>ISO</u>	N/A
PPS (PPSM -> IM)	N/A	Temp_123	<u>ADT_Issuer</u>	<u>1.2.3.4</u>	<u>ISO</u>	N/A
PPS (PPSM -> OF)	N/A	Temp_123	<u>ADT_Issuer</u>	<u>1.2.3.4</u>	<u>ISO</u>	N/A
A40 (ADT -> OF)	456^^^ADT_Issuer& <u>1.2.3.4</u> & <u>ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	Temp_123^^^ADT_Issuer& <u>1.2.3.4</u> & <u>ISO</u>
A40 (OF->IM)	456^^^ADT_Issuer& <u>1.2.3.4</u> & <u>ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	Temp_123^^^ADT_Issuer& <u>1.2.3.4</u> & <u>ISO</u>
A40 (ADT -> OP)	456^^^ADT_Issuer& <u>1.2.3.4</u> & <u>ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	Temp_123^^^ADT_Issuer& <u>1.2.3.4</u> & <u>ISO</u>

1810 **D.5 Trauma Case 3 (RAD TF-1: 4.3)**

The ADT temporary identifier number for “John Doe” used in the example below is “Temp_123”. The patient will later be assigned a permanent identifier of “Real_456”, the assigning authority is “ADT_Issuer”, **Universal ID is “1.2.3.4” and Universal ID Type is “ISO”.**

Transaction	PID-3 (Patient Identifier List)	DICOM (0010,0020)	DICOM (0010,0021)	DICOM (0010,0024) (0040,0032)	DICOM (0010,0024) (0040,0033)	MRG-1 (Prior Patient Identifier List)
A01 (ADT -> OF)	Temp_123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
A01 (ADT -> OP)	Temp_123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
(Note: Temporary Patient ID “Temp_123” is manually entered at the modality.)	N/A	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
PPS (Modality -> PPSM)	N/A	Temp_123	<u>ADT_Issuer</u>	<u>1.2.3.4</u>	<u>ISO</u>	N/A
PPS (PPSM -> IM) (Note: The IM recognizes an unscheduled PPS - with a site configured assigning authority of “ADT_Issuer&1.2.3.4&ISO”.)	N/A	Temp_123	<u>ADT_Issuer</u>	<u>1.2.3.4</u>	<u>ISO</u>	N/A
PPS (PPSM -> OF) (Note: The OF recognizes an unscheduled PPS with a valid ADT Patient ID – with a site configured assigning authority of “ADT_Issuer&1.2.3.4&ISO”.)	N/A	Temp_123	<u>ADT_Issuer</u>	<u>1.2.3.4</u>	<u>ISO</u>	N/A

Transaction	PID-3 (Patient Identifier List)	DICOM (0010,0020)	DICOM (0010,0021)	DICOM (0010,0024) (0040,0032)	DICOM (0010,0024) (0040,0033)	MRG-1 (Prior Patient Identifier List)
ORM (OF-> OP) (HL7 v2.3.1) OMG (OP->OF) (HL7 v2.5.1)	Temp_123^^^ADT_Issuer <u>&1.2.3.4&IS</u> <u>Q</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
ORR (OP->OF) (HL7 v2.3.1) ORG (OP->OF) (HL7 v2.5.1)	Temp_123^^^ADT_Issuer <u>&1.2.3.4&IS</u> <u>Q</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
ORM (OF-> IM) (HL7 v2.3.1) OMI (OF->IM) (HL7 v2.5.1)	Temp_123^^^ADT_Issuer <u>&1.2.3.4&IS</u> <u>Q</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
(Note: Patient Reconciliation occurs on the ADT system.)	N/A	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
A40 (ADT -> OF)	Real_456^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	Temp_123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>
A40 (ADT -> OP)	Real_456^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	Temp_123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>
A40 (OF-> IM)	Real_456^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	Temp_123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>

1815

D.6 Trauma Case 4 (RAD TF-1: 4.3)

The OF temporary identifier number for “John Doe” used in the example below is “Dept_789”, the assigning authority is “OF_Issuer”, **Universal ID is “1.2.3.5” and Universal ID Type is “ISO”**. The Patient will later be assigned a permanent identifier of “123”, the assigning authority is “~~OF~~ADT_Issuer”, **Universal ID is “1.2.3.4” and Universal ID Type is “ISO”**.

1820

IHE Radiology Technical Framework Supplement – Scheduled Workflow.b (SWF.b)

Transaction	PID-3 (Patient Identifier List)	DICOM (0010,0020)	<u>DICOM</u> (0010,0021)	<u>DICOM</u> (0010,0024) (0040,0032)	<u>DICOM</u> (0010,0024) (0040,0033)	MRG-1 (Prior Patient Identifier List)
ORM (OF->IM)	Dept_789^^^OF_Issuer <u>&1.2.3.5&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
DICOM MWL (OF->Modality)	N/A	Dept_789	<u>OF_Issuer</u>	<u>1.2.3.5</u>	<u>ISO</u>	N/A
PPS (Modality -> PPSM)	N/A	Dept_789	<u>OF_Issuer</u>	<u>1.2.3.5</u>	<u>ISO</u>	N/A
PPS (PPSM -> IM) (Note: The IM recognizes a scheduled PPS with a Patient ID - with a site configured assigning authority of “OF_Issuer&1.2.3.5&ISO”.)	N/A	Dept_789	<u>OF_Issuer</u>	<u>1.2.3.5</u>	<u>ISO</u>	N/A
PPS (PPSM -> OF)	N/A	Dept_789	<u>OF_Issuer</u>	<u>1.2.3.5</u>	<u>ISO</u>	N/A
(Note: The OF recognizes a scheduled PPS with a Patient ID issued by the OF.)	N/A	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
A01 (ADT -> OP)	123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
A01 (ADT -> OF)	123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
(Note: The patient Dept_789^^^OF_Issuer <u>&1.2.3.5&ISO</u> is manually reconciled with 123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>)	N/A	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
A40 (OF-> IM)	123^^^ADT_Issuer <u>1&2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	Dept_789^^^OF_Issuer <u>&1.2.3.5&ISO</u>
ORM (OF-> IM) (HL7 v2.3.1) OMI (OF->IM) (HL7 v2.5.1)	123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
ORM (OF-> OP) (HL7 v2.3.1)	123^^^ADT_Issuer <u>&1.2.3.4&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A

Transaction	PID-3 (Patient Identifier List)	DICOM (0010,0020)	DICOM (0010,0021)	DICOM (0010,0024) (0040,0032)	DICOM (0010,0024) (0040,0033)	MRG-1 (Prior Patient Identifier List)
OMG (OP->OF) (HL7 v2.5.1)						
ORR (OP->OF) (HL7 v2.3.1) ORG (OP->OF) (HL7 v2.5.1)	123^^^ADT_Issuer& <u>1.2.3.4</u> <u>&ISO</u>	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A

D.7 Trauma Case 5 (RAD TF-1: 4.3)

The temporary identifier number for “John Doe” used in the example below is “Dept_123”, assigning authority of “Configured Issuer”, Universal ID is “1.2.3.6” and Universal ID Type is “ISO”.

1825 and the identifier number is manually entered on the Modality and. The patient will later be assigned a permanent identifier of “Real_456”, the assigning authority is “~~OF~~ADT_Issuer”, Universal ID is “1.2.3.4” and Universal ID Type is “ISO”.

Transaction	PID-3 (Patient Identifier List)	DICOM (0010,0020)	DICOM (0010,0021)	DICOM (0010,0024) (0040,0032)	DICOM (0010,0024) (0040,0033)	MRG-1 (Prior Patient Identifier List)
PPS (Modality -> PPSM)	N/A	Dept_123	<u>Configured Issuer</u>	<u>1.2.3.6</u>	<u>ISO</u>	N/A
PPS (PPSM->IM)	N/A	Dept_123	<u>Configured Issuer</u>	<u>1.2.3.6</u>	<u>ISO</u>	N/A
(Note: The IM recognizes an unscheduled PPS and assumes a site configured assigning authority)	N/A	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
PPS (PPSM->OF)	N/A	Dept_123	<u>Configured Issuer</u>	<u>1.2.3.6</u>	<u>ISO</u>	N/A
(Note: The OF recognizes an unscheduled PPS and assumes a site configured assigning authority;	N/A	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A

IHE Radiology Technical Framework Supplement – Scheduled Workflow.b (SWF.b)

Transaction	PID-3 (Patient Identifier List)	DICOM (0010,0020)	DICOM (0010,0021)	DICOM (0010,0024) (0040,0032)	DICOM (0010,0024) (0040,0033)	MRG-1 (Prior Patient Identifier List)
recognizes that Patient ID is invalid.)						
A01 (ADT->OF)	Real_456^^^ADT_Issuer &1.2.3.4&ISO	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
A01 (ADT->OP)	Real_456^^^ADT_Issuer &1.2.3.4&ISO	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
(Note: Manual patient reconciliation occurs on the OF system.)	N/A	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
A40 (OF-> IM)	Real_456^^^ADT_Issuer &1.2.3.4&ISO	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	Dept_123^^^Configured_Issuer &1.2.3.6&ISO
ORM (OF-> OP) (HL7 v2.3.1) OMG (OP->OF) (HL7 v2.5.1)	Real_456^^^ADT_Issuer &1.2.3.4&ISO	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
ORR (OP->OF) (HL7 v2.3.1) ORG (OP->OF) (HL7 v2.5.1)	Real_456^^^ADT_Issuer &1.2.3.4&ISO	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A
ORM (OF-> IM) (HL7 v2.3.1) OMI (OF->IM) (HL7 v2.5.1)	Real_456^^^ADT_Issuer &1.2.3.4&ISO	N/A	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	N/A

Appendix E – HL7 Version 2.3.1 Message Field Replaced with HL7 Version 2.5.1 Summary

Modify Appendix E as shown below:

This appendix provides for a summary of the overloaded and/or obsolete message fields profiled in the HL7 v2.3.1 message semantics in this Technical Framework and the replacement message fields profiled in the HL7 v2.5.1 **message semantics**~~Option~~. Note that the original semantics specified by IHE Radiology are maintained when implementing HL7 v2.5.1. Refer to the transaction description in the Technical Framework for the detailed description. This table is provided for your reference.